# Table of Contents

University Calendar .......................................................................................................................... iii
Message from the President .................................................................................................................. vii

I Virginia Commonwealth University School of Graduate Studies .......................................................... 1
   The University ..................................................................................................................................... 1
   The School of Graduate Studies ........................................................................................................... 3
   Admissions .......................................................................................................................................... 6
   Financial Aid ....................................................................................................................................... 9
   Graduate Tuition and Student Fees ...................................................................................................... 13
   General Academic Regulations ......................................................................................................... 15
   University Resources and Services ..................................................................................................... 23

II Interdisciplinary and Cooperatively Offered Graduate Degrees ............................................................ 31

III College of Humanities and Sciences .................................................................................................. 41

IV School of Allied Health Professions ................................................................................................. 83

V School of the Arts ............................................................................................................................... 135

VI School of Basic Health Sciences ...................................................................................................... 163

VII School of Business .......................................................................................................................... 189

VIII School of Community and Public Affairs ..................................................................................... 215

IX School of Education .......................................................................................................................... 241

X School of Nursing ............................................................................................................................... 281

XI School of Pharmacy ......................................................................................................................... 295

XII School of Social Work ...................................................................................................................... 301

XIII Board, Administration, and Graduate Faculty .................................................................................. 325

Annual Notice to Students Concerning Their Privacy Rights .................................................................... 338
Determination of Student Classification for In-State Tuition Purposes .................................................... 339
1994-1995 Graduate Curriculum Requirements Chart and Directory .................................................... 343
Index ...................................................................................................................................................... 357
Campus Maps and Facility/Service Directories .................................................................................... 361

The Board of Visitors, the administration, and the faculty of Virginia Commonwealth University are committed to a policy of equal opportunity in education and employment without regard to race, creed, sex, national origin, age, or handicap. For further information: Office of EEO/AA Services, 901 West Franklin Street, Richmond, VA 23284-3022. Telephone number: (804) 367-1347.

**LIMITATIONS ON BULLETIN PROVISIONS**

All rules and regulations set forth in this bulletin will apply until further notice. The university reserves the right to make changes in courses of study, fees, rules, and regulations governing the conduct of the work in all schools and programs, faculty and staff, and classification of students whenever university authorities deem it expedient or wise to do so.
1994-95 University Calendar

1994

May
Monday-Friday  23-June 10  —3-week summer pre-session
Monday-Thursday  23-June 23  —5-week summer pre-session
Monday  30  —Memorial Day holiday
Tuesday/Wednesday  31/June 1  —8-week evening summer session
Wednesday/Thursday  July 20/21

June
Monday-Wednesday  20-July 20  —4½-week summer pre-session
Monday-Thursday  20-July 28  —6-week summer session
Monday/Tuesday  20/21  —8-week evening summer session
Wednesday/Thursday  Aug 10/11
Monday-Thursday  27-July 28  —5-week summer session

July
Friday  1  —Last day for summer degree candidates to submit graduation applications to their advisors for August degrees
Monday  4  —Independence Day Holiday
Tuesday  5  —Evening studies registration for fall semester begins
Thursday-Friday  21-Aug 19  —4½-week summer session

August
Monday  1  —Suggested deadline for submission of residency appeals applications for fall semester
Monday-Friday  1-19  —3-week post-summer session
Friday  19  —Summer sessions end
 —Final date for sign-off on completion of graduate thesis/dissertation for August completion of degree. (Check with program director regarding internal schedules for submission of copy, defense, and approval.)
Monday-Wednesday  22-24  —MCV orientation and registration
Monday-Friday  22-26  —Orientation and advising for Academic Campus students
Tuesday  23  —University faculty meeting—both campuses, 3:00 p.m.
Thursday  25  —Evening student registration
 —Registration for new, transfer, readmit day students—Academic Campus
 —Classes begin at 8 am—MCV Campus
Friday  26  —Registration for continuing day students—Academic Campus
Thursday-Thursday  25-Sep 1  —Add/drop and late registration—MCV Campus
Saturday  27  —Official date for certifying August diploma
Monday  29  —Classes begin at 8 am—Academic Campus
Monday-Thursday  29-Sep 1  —Add/drop and late registration—Academic Campus
**September**  
Monday 5 —Labor Day holiday  
Friday 23 —Last day for fall degree candidates to submit graduation applications to their advisors for December degrees  
Tuesday 27 —Last day for undergraduate students to submit work for removal of incompletes from spring semester or summer sessions—Academic Campus

**October**  
Friday 21 —Last day to drop a course with a mark of “W”—both campuses (except for courses not scheduled for the full semester)  
Monday-Friday 24-Nov 4 —Advising for spring semester

**November**  
Friday 4 —Founders Day  
Monday 7 —Spring semester advance registration begins for all students (including evening students)  
Wednesday 23 —Thanksgiving holiday begins at 5 pm. No evening classes will meet  
Monday 28 —Thanksgiving holiday ends 8 am —Suggested deadline for submission of residency appeals applications for fall semester

**December**  
Friday 9 —Last day of classes for fall semester—both campuses (Saturday classes meet December 10.) —Final date for sign-off on completion of graduate thesis/dissertation for December completion of degree. (Check with program director regarding internal schedules for submission of copy, defense, and approval.)  
Monday-Tuesday 12-20 —Final examinations for fall semester—Academic Campus day classes

| Monday-Friday | 12-16 | —Final examinations for fall semester—MCV Campus |
| Monday-Saturday | 12-17 | —Final examinations for fall semester—Evening classes |
| Tuesday | 20 | —Holiday vacation begins at 5 pm |
| Friday-Monday | 23-26 | —Christmas holiday |
| Saturday | 24 | —Official date for certifying December diploma |
| Monday | 27 | —Holiday intersession classes begin |
| Friday | 30 | —New Year’s Eve holiday |

**January**  
Monday 2 —New Year’s Day holiday  
Saturday 7 —Holiday intersession classes end  
Tuesday-Friday 10-13 —Orientation and advising for Academic Campus students
<table>
<thead>
<tr>
<th>Date</th>
<th>Number</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>Thursday</td>
<td>12</td>
<td>Evening student registration</td>
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<td></td>
<td>Registration for new, transfer, readmit day students—both campuses</td>
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<td>Friday</td>
<td>13</td>
<td>Registration for continuing day students—Academic Campus</td>
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<td>Monday</td>
<td>16</td>
<td>Martin Luther King Day (Also state holiday—Lee/Jackson/King Day)</td>
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<tr>
<td>Tuesday</td>
<td>17</td>
<td>Classes begin at 8 am—both campuses</td>
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<tr>
<td>Monday-Thursday</td>
<td>17-19</td>
<td>Add/drop and late registration for all students</td>
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<tr>
<td>Friday</td>
<td>27</td>
<td>Last day for spring degree candidates to submit graduation applications to their advisors for May degrees</td>
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<tr>
<td>February</td>
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<tr>
<td>Wednesday</td>
<td>8</td>
<td>Convocation</td>
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<td>Tuesday</td>
<td>15</td>
<td>Last day for undergraduate students to submit work for removal of incompletes from fall semester—Academic Campus</td>
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<td>March</td>
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<td>Friday</td>
<td>10</td>
<td>Last day to drop a course with a mark of “W”—both campuses (except for courses not scheduled for the full semester)</td>
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<td>Saturday</td>
<td>11</td>
<td>Spring vacation begins at noon—both campuses</td>
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<td>Monday</td>
<td>20</td>
<td>Spring vacation ends at 8 am—both campuses</td>
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<td>Monday-Friday</td>
<td>20-31</td>
<td>Summer advance mail registration begins—Academic Campus</td>
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<td>April</td>
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<tr>
<td>Monday</td>
<td>3</td>
<td>Fall semester advance registration begins for all students (including evening students)</td>
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<td>May</td>
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<td>Tuesday</td>
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<td>Day classes end for spring semester—Academic Campus</td>
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<td>(Evening classes continue through May 6)</td>
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<tr>
<td>Wednesday</td>
<td>3</td>
<td>Study day—Academic Campus day classes</td>
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<td>Thursday-Friday</td>
<td>4-12</td>
<td>Final examinations for spring semester—Academic Campus day classes</td>
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<td>Friday</td>
<td>5</td>
<td>Last day of classes for spring semester—MCV Campus</td>
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<td></td>
<td>Final date for sign-off on completion of graduate thesis/dissertation for May completion of degree. (Check with program director regarding internal schedules for submission of copy, defense, and approval.)</td>
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<td></td>
<td>Suggested deadline for submission of residency appeals applications for summer semester</td>
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<td>Monday-Friday</td>
<td>8-12</td>
<td>Final examinations for spring semester—MCV Campus</td>
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<td>Monday-Saturday</td>
<td>8-13</td>
<td>Final examinations for spring semester—evening classes</td>
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<tr>
<td>Saturday</td>
<td>20</td>
<td>Commencement (including August and December graduates)</td>
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<td>Monday</td>
<td>22</td>
<td>Summer sessions begin</td>
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<td>Monday-Friday</td>
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<td>Monday-Thursday</td>
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<td>Monday</td>
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<td>—3-week summer pre-session</td>
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<td>—5-week summer pre-session</td>
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<td>—Memorial Day holiday</td>
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<td><strong>June</strong></td>
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<td>Tuesday/Wednesday-Wednesday/Thursday</td>
<td>30/May 31</td>
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<td>—8-week evening summer session</td>
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<td>Monday-Wednesday</td>
<td>19-July 19</td>
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<td>—4 1/2-week summer session</td>
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<td>Monday-Thursday</td>
<td>19-July 27</td>
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<td>—6-week summer session</td>
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<td>Monday/Tuesday</td>
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<td>—8-week evening summer session</td>
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<td>Wednesday/Thursday</td>
<td>Aug 9/10</td>
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<td>—5-week summer session</td>
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<td>Monday-Thursday</td>
<td>26-July 27</td>
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<td>—Last day for summer degree candidates to submit graduation applications to their advisors for August degrees</td>
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<td><strong>July</strong></td>
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<tr>
<td>Tuesday</td>
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<td>—Independence Day holiday</td>
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<td>Tuesday</td>
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<tr>
<td>—Evening studies registration for fall semester begins</td>
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<td>Thursday-Friday</td>
<td>20-Aug 18</td>
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<tr>
<td>—4 1/2-week summer session</td>
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<tr>
<td>Monday-Friday</td>
<td>31-Aug 18</td>
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<td>—3-week post-summer session</td>
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<td><strong>August</strong></td>
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<td>Friday</td>
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<td>—Suggested deadline for submission of residency appeals applications for fall semester</td>
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<td>—Classes begin at 8:00 a.m.—MCV Campus</td>
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<td>Monday</td>
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<tr>
<td>—Classes begin at 8:00 a.m.—Academic Campus</td>
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Note: The above dates do not apply uniformly to all programs on the MCV Campus. Students will be advised of departures from this calendar by their respective deans or program directors and should follow schedules as provided by them. This calendar is subject to change.
Dear Student:

It is my pleasure to welcome you to Virginia Commonwealth University’s graduate programs. VCU is diversity—with its multicultural students and faculty, its multifaceted architecture, and its multidisciplinary academic offerings.

In addition to one associate, 54 baccalaureate, 15 post-baccalaureate certificate, and first-professional degrees in medicine, dentistry, and pharmacy, the University offers 64 master’s, a D.P.A., and 19 Ph.D. programs on its two campuses in the heart of the state’s capital. VCU also ranks among the top 75 institutions in the country in research initiatives; in 1992-93 sponsored-program funding exceeded $81 million, a 5 percent increase in external research funding over the previous year. VCU maintains strong ties with the business, political, and artistic communities in Richmond and throughout Virginia, providing its students with exceptional opportunities for enrichment.

VCU is an extraordinary institution. We are proud to have you here as you pursue your graduate education.

Sincerely,

Eugene P. Trani
President
THE UNIVERSITY

Virginia Commonwealth University is a state-supported institution with an enrollment of more than 20,000 undergraduate, graduate, and health professions students studying on its two campuses in Richmond, Virginia. The Medical College of Virginia Campus is located near the financial, governmental, and shopping areas of downtown Richmond; the Academic Campus is two miles west in Richmond's historic Fan District, a residential area which dates from the nineteenth century.

The University takes its founding date as 1838, the year in which the Medical College of Virginia was created as the medical department of Hampden-Sydney College. MCV became an independent institution in 1854 and state-affiliated in 1860.

VCU's Academic Campus began 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; and in 1939 its name was changed to the Richmond Professional Institute of the College of William and Mary, from which it separated in 1962 to become an independent state institution.

In 1968 the two schools merged to form Virginia Commonwealth University: undergraduate, graduate, and professional programs of Richmond Professional Institute joined with one of the largest and most comprehensive medical centers on the East Coast to create a major state university.

VCU enrolls a diverse student body and has one of the largest evening colleges in the United States. The University's level of funded research places it among the top 75 colleges and universities in the country in attracting research grants. Its faculty, representing the finest American and international graduate institutions, enhances VCU's position among the important institutions of higher learning in the United States via their work in the classroom, the laboratory, the studio, the hospital, and as published in scholarly journals. VCU maintains active communications with its growing cadre of alumni and enjoys a cooperative and stimulating relationship with the city of Richmond which encompasses the arts, the business community, the architectural community, and local government. Today VCU operates a major teaching hospital and is composed of a college, 12 schools, and the School of Graduate Studies. These academic units offer 54 undergraduate, 15 post-baccalaureate certificate, 64 master's, a doctor of public administration, and 19 Ph.D. programs. The University also offers first professional degrees in medicine and dentistry, as well as a doctor of pharmacy degree program.

VCU's location in historic Richmond affords its students the benefits of living in one of the South's most cosmopolitan cities. Located in central Virginia, Richmond is a two-hour drive from the Atlantic seashore to the east, Appalachian mountain recreational sites to the west, and Washington, D.C., to the north. A wide range of cultural, educational, and recreational facilities
and activities is available in the Richmond area, including a full performance schedule at VCU's own Performing Arts Center. VCU's proximity to downtown Richmond, which is Virginia's capital and a major East Coast financial and manufacturing center, provides students with opportunities for internships, part-time employment, and student housing in a variety of settings.

The Mission of Virginia Commonwealth University

Virginia Commonwealth University is a public, urban, research university, supported by the Commonwealth of Virginia to serve the people of the commonwealth 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 a 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-and part-time students of all ages and diverse 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 is also the capital of the commonwealth, the University enjoys unique resources that enrich its programs and offer special opportunities for contributing its intellectual and creative expertise in the development of innovative approaches to meet the changing needs of our society.

The goals of Virginia Commonwealth University 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;
• offer nationally and internationally recognized professional and graduate programs leading to doctoral, master's, and other terminal and advanced degrees in the professions, the sciences, the humanities, and the arts;
• foster a scholarly climate that inspires creativity, a free and open exchange of ideas, critical thinking, intellectual curiosity, freedom of expression, and intellectual integrity;
• expand the boundaries of knowledge and understanding through research, scholarship, and creative expression in the sciences, arts, humanities, and the professional disciplines;
• value and promote racial and cultural diversity in its student body, faculty, administration, and staff to enhance and enrich the University;
• 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 outstanding individuals with a high potential for scholarly achievement and excellence in teaching;
• 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;
• use the urban environment as a laboratory for studying and developing new approaches to problems pertaining to the public and private sectors;
• 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;
• 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;
• offer diverse opportunities for individuals to benefit from higher education through a variety of avenues to include 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 for graduates with appropriate associate degrees of arts or sciences, and support programs for specially admitted students;
• promote interdisciplinary studies within the University to bring new perspectives to bear on complex problems; and
• mobilize its creative energies and its expertise to meet the needs of society and individuals in its unique role as Virginia's major urban university.

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1As revised by the Board of Visitors, November 16, 1989.
Accreditation
Virginia Commonwealth University is accredited by the Commission of Colleges of the Southern Association of Colleges and Schools to award associate, baccalaureate, masters, doctoral, and first professional degrees. Additionally, individual programs may be accredited by discipline-specific professional accrediting organizations.

THE SCHOOL OF GRADUATE STUDIES
Administrative Officers
WILLIAM L. DEWEY, B.S., M.S., Ph.D.
Vice President for Research and Graduate Studies
SHERRY T. SANDKAM, B.A., M.B.A.
Assistant Dean

VCU is composed of the following college and schools:
School of Graduate Studies
College of Humanities and Sciences (including the School of Mass Communications)
School of Allied Health Professions
School of the Arts
School of Basic Health Sciences
School of Business
School of Community and Public Affairs
School of Dentistry
School of Education
School of Medicine
School of Nursing
School of Pharmacy
School of Social Work

Graduate programs are administered by the individual departments and schools with assistance from the School of Graduate Studies. Major coordination of the various degree programs is performed by the University Graduate Council which is chaired by the dean of the School of Graduate Studies. The University Graduate Council is comprised of one elected faculty member from each of the 12 schools.

Graduate Programs
The following graduate degree programs are offered at the University. Refer to the Graduate Curriculum Requirements Chart and Directory in the reference section of this bulletin for a complete listing of curricula, specializations, and tracks, as well as application deadline dates and special admission requirements.

Doctor of Philosophy
Anatomy
Orthopaedic Physical Therapy
Art History
Biochemistry and Molecular Biophysics
Biomedical Engineering
Biostatistics
Business
Chemistry
   Chemical Physics
Health Services Organization and Research
Human Genetics
Medicinal Chemistry
Microbiology and Immunology
Nursing
Pathology
Pharmacology and Toxicology
Pharmacy and Pharmaceutics
Physiology
Psychology
   Clinical
   Counseling
   General
Social Policy and Social Work
Urban Services

Doctor of Public Administration

Master of Accountancy

Master of Art Education

Master of Arts
Art History
   Architectural History
   Historical
   Museum Studies
Economics
English
   Literature
   Writing and Rhetoric
History

Master of Business Administration
MBA Generalist
MBA with specialization
Professional MBA

Master of Education
Administration and Supervision
Adult Education
Counselor Education
Curriculum and Instruction
   Early Education
   Middle Education
   Secondary Education
Instructional Technology,
   including Library/Media
Mathematics Education
Reading
Special Education
  Early Childhood Special Education
  Emotional Disturbance
  Learning Disabilities
  Mental Retardation
  Severe/Profound Disabilities

Master of Fine Arts
Crafts
  Ceramics
  Furniture Design
  Glassworking
  Jewelry or Metalworking
  Textiles
Creative Writing
Design
  Interior Environments
  Photography/Film
  Visual Communications
Painting and Printmaking
Sculpture
Theatre
  Acting
  Costume Design
  Directing
  Stage Design/Technical Theatre
  Theatre Education

Master of Health Administration

Master of Interdisciplinary Studies

Master of Music
Performance, including conducting
Composition
Education

Master of Public Administration
Evaluation and Public Policy Analysis
Executive Management
Public Financial Management
Public Human Resources Management

Master of Public Health

Master of Science
Administration of Justice
  Forensic Science
  Justice
    Administration
    Counseling
    Information Systems
    Justice/Generalist
  Legal Analysis
  Planning
  Research
Anatomy
Biochemistry and Molecular Biophysics
Biology
Biomedical Engineering
Biostatistics
Business
  Decision Sciences
  Economics
  Finance
  Human Resources Management and Industrial Relations
  Information Systems
  Marketing
  Real Estate and Urban Land Development
  Risk Management and Insurance
Chemistry
Clinical Laboratory Sciences
  (formerly Medical Technology)
Advanced Master’s
Categorical Master’s
Computer Science
Genetic Counseling
Gerontology
Human Genetics
Mass Communications
Mathematical Sciences
  Applied Mathematics
  Mathematics
  Operations Research
  Statistics
Medicinal Chemistry
Microbiology and Immunology
Nursing
  Community Health Nursing
  Gerontologic Nursing
  Maternal/Child Nursing (Perinatal Clinician)
  Maternal/Child Nursing (Infant/Child Clinician)
  Medical-Surgical Nursing
  Nursing Administration (Nurse Executive)
  Nursing Administration (Clinical Manager)
  Oncologic Nursing
  Primary Care Nurse Specialist
    Adult Nurse Practitioner
    Family Nurse Practitioner
    Gerontologic Nurse Practitioner
    OB/GYN Nurse Practitioner
    Pediatric Nurse Practitioner
  Psychiatric-Mental Health
  Psychiatric-Mental Health (Child and Family)
Occupational Therapy
  Post-professional
Pathology
Pharmacology and Toxicology
Pharmacy and Pharmaceutics
Physical Education
Physical Therapy
   Entry-level
   Advanced
Physics
Physiology
Psychology (Applicants apply to Ph.D. program.
   Terminal masters degrees are not awarded in
   Psychology.)
   Clinical
   Counseling
   General
Recreation, Parks, and Tourism
   Leisure Service Management
Travel and Tourism
Therapeutic Recreation
Rehabilitation Counseling
   Alcohol and Drug Education/Rehabilitation
   Program (ADERP)
   Correctional Rehabilitation
   Individual and Group Counseling
   Mental Health Rehabilitation
   Services to the Severely Physically
   Handicapped
   Vocational Evaluation and Work Adjustment
Sociology

**Master of Science in Health Administration**
   Executive Program

**Master of Science in Nurse Anesthesia**

**Master of Science in Occupational Therapy**
   Professional

**Master of Social Work**

**Master of Taxation**

**Master of Teaching**
   Early Education, NK-4
   Middle Education, 4-8
   Secondary Education, 8-12
   Special Education
   Emotional Disturbance
   Mental Retardation

**Master of Urban and Regional Planning**
   Economic Development
   Environmental Planning
   Housing and Community Development
   Physical Land Use Planning

Planning Management
   Urban Revitalization

In addition to these graduate degree programs, VCU offers post-baccalaureate certificate programs in
   Accounting (undergraduate certificate)
   Aging Studies
   Applied Social Research
   Computer Science (undergraduate certificate)
   Criminal Justice Administration
   Environmental Studies (undergraduate certificate)
   Information Systems (undergraduate certificate)
   Patient Counseling
   Planning Information Systems
   Professional Counseling (advanced certificate)
   Public Management
   Real Estate and Urban Land Development
      (undergraduate certificate)
   Statistics (undergraduate certificate)
   Teaching
   Therapeutic Recreation
      (second undergraduate degree, 30 hours)
   Urban Revitalization

Combined-degree programs and programs interdisciplinary in nature within the University include
   Accelerated B.S.-M.S. Program in Physics
   Health Care Organization and Planning Track in the M.S. in Gerontology Program (with Health Administration)
   Master of Public Health/M.S. in Geriatric Physical Therapy
   M.S.W./Certificate in Aging Studies
   M.S.W./Certificate as School Social Worker in the State of Virginia
   D.D.S./M.S. or Ph.D. in the Basic Health Sciences
   M.D./M.S. or Ph.D. in the Basic Health Sciences
   Nursing Administration Track in the M.S. in Nursing Program (with Business and Health Administration)
   Orthopedic Physical Therapy Track in the Ph.D. in Anatomy Program
   Ph.D. in Pharmacy and Pharmaceutics/Doctor of Pharmacy
   Ph.D. in Social Policy and Social Work
   Ph.D. in Urban Services Program
   Educational Leadership
   Adult Education and Training
   Urban Services Leadership
Psychogeriatrics Track in the M.S. in
Gerontology Program (with Psychology)
Public Administration Track in the M.S. in
Gerontology Program (with Public
Administration)

VCU also participates in the following cooperative programs:
Doctor of Education Program with the College of William and Mary
Graduate Engineering Program with the University of Virginia, Virginia Polytechnic Institute and State University, Old Dominion University, George Mason University, and Mary Washington College
Christian Education/Social Work Program with the Presbyterian School of Christian Education
Master of Interdisciplinary Studies Program with Virginia State University
Dual Degree Programs with the T. C. Williams Law School of the University of Richmond
Law and Health Administration
Law and Social Work
Law and Urban Planning

Off-Campus Graduate Instruction
VCU is dedicated to serving the needs of Virginians by providing off-campus graduate credit instruction when and where it is needed. Courses are offered in response to an expression of need from various locales and groups.

Off-campus instruction features the same course work available on campus, and most off-campus courses are fully degree-applicable within the admission standards of the School of Graduate Studies. Tuition for most off-campus classes is the same as other university classes; however, students in off-campus credit classes are not charged university or activity fees.

For additional information on off-campus credit instruction, write or call the Coordinator of Off-Campus Credit Instruction, Division of Continuing Studies and Public Service, 827 West Franklin Street, Richmond, VA 23284-2041, (804) 828-0013.

ADMISSIONS

VCU is committed fully in its graduate education programs to equal opportunity and, thus, considers all applicants without regard to race, creed, sex, national origin, age, or handicap. Likewise, while Virginia Commonwealth University is a state-aided institution, applications are not limited to those who are residents of Virginia; however, priority is extended to applicants in some programs who are legal residents of the state. Many graduate courses are offered during the evenings and weekends in order to serve the varied needs of diverse student groups.

Persons With Disabilities
Virginia Commonwealth University complies with the requirements of the Rehabilitation Act of 1973 and its subsequent amendments and provisions. The University does not discriminate against otherwise qualified handicapped applicants for admission or matriculants solely on the basis of disabilities.

Virginia Commonwealth University is committed to a policy of affirmative action and program accessibility for qualified students without regard to condition of disability. The University seeks to provide reasonable accommodations where required.

Persons with disabilities attending the Academic Campus should contact Shyla M. Ipsen at 367-1139. Persons with disabilities attending the MCV Campus should contact Donald G. Roe buck at 786-9782.

Admission Requirements

General admission requirements for graduate study in the University are as follows: (1) graduation from an accredited college or university or its equivalent; (2) except in very unusual cases approved by the graduate dean, a minimum undergraduate GPA of 2.7 on a 4.0 scale for at least the last two years of undergraduate work; (3) satisfactory scores from a current (less than five years old) standardized test commonly used and deemed appropriate by the particular discipline; (4) three letters of recommendation; (5) applicant's written statement of intent for pursuing graduate studies in a particular discipline; and (6) such additional requirements as may be established by individual programs and schools. These may include personal interviews, auditions, submission of a portfolio, or other materials.

An exception to the general admissions requirements is made for students entering through the Guaranteed Admissions Program of the University Honors Program. (See section regarding admissions to the Honors Program.)

Types of Admissions

Students may be admitted to graduate studies under one of the following classifications:
1. **Degree-Seeking Student.** An applicant who meets all requirements for admission to a degree program and who has been recommended by the department or school in which the applicant proposes to study, may be admitted as a degree-seeking student.

2. **Provisional Student.** An applicant who has not met fully the requirements of the program or school to which admission is sought may be admitted to that program or school as a provisional student. Reasons for requesting a provisional admission are evaluated by the department/program and the school, and documents supporting a request of provisional admission are forwarded to the Dean of the School of Graduate Studies with a request for admission. The student must remove, within a time period specified by the department or school, any and all conditions of the provisional admission. Failure to meet department/school conditions will result in the student's being dropped from the program. No remedial courses taken as a provisional student may be applied towards a graduate degree.

3. **Nondegree-Seeking Student.** An individual who wishes to take graduate courses without formal admission to a degree program is classified as a nondegree-seeking student. 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. In courses where enrollment is limited, first priority is given to students admitted to the program, followed by other VCU graduate degree-seeking students. Nondegree-seeking students are not exempt from any prerequisite which may be specified for a course. A nondegree-seeking student who is later admitted as a degree-seeking student will not be allowed to apply toward a degree more than six credits earned as a nondegree-seeking student.

**Application**

Application forms and materials may be obtained in person at the School of Graduate Studies Offices at Ginter House, 901 West Franklin Street, Room B1, (804) 828-6916, and at Sanger Hall, 1101 East Marshall Street, Room 1-018, (804) 786-0347. Mail requests should be sent to the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051. A $20 nonrefundable application fee must accompany each application. This fee will not be credited toward tuition payment. Some schools require special fees, as indicated in individual sections of this bulletin.

An application cannot be given final consideration until all required credentials have been received. These include the following: (1) two official transcripts, or the equivalent, from each college or university previously attended; (2) three letters of recommendations; and (3) report of current (less than five years old) scores achieved on the Graduate Record Examination or other entrance examinations required by the particular department or school. The credentials above should be considered as minimal. Parts II-XII of this bulletin include detailed information concerning further admission requirements to specific programs and schools. Refer to the Graduate Curriculum Requirements Chart and Directory in the reference section of this bulletin for a complete listing of curricula, specializations, and tracks, as well as application deadline dates and special admission requirements.

**Entrance Examinations**

To supplement other evidence of preparation for graduate work, the Graduate Council has stated that all programs at VCU must consider in their admissions the scores from a current (less than five years old) standardized test commonly used and deemed appropriate for a given discipline. Common examinations used at VCU are the Graduate Record Examination (GRE), the Graduate Management Admissions Test (GMAT), the Law School Admissions Test (LSAT), and the Miller Analogies Test (MAT). These examinations will not replace other records of achievement as a basis for admission to the School of Graduate Studies, but they will offer additional evidence concerning the qualifications of students desiring to undertake graduate work.

**Admission Through Honors**

Virginia Commonwealth University students participating in the University Honors Program may apply for guaranteed admission to certain graduate programs before matriculation at VCU or early in their undergraduate studies. (The specific deadline for applying is set by each program.) Honors students who receive guaranteed admission may enter the program of their choice without submitting additional application material or test scores provided they fulfill University Honors Program requirements and satisfy the curricular prerequisites of the program they plan to enter.

To be granted guaranteed admission to any graduate program, a student must submit a com-

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1 In some programs, test scores are required for statistical purposes only.
pleted application form with three letters of recommendation to the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051. 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. The Admissions Committee may require an interview. Final notification of guaranteed admission is made by the dean of the School of Graduate Studies. For additional information, the student is referred to the Virginia Commonwealth University Undergraduate Bulletin.

Programs which offer guaranteed admission through the University Honors Program are the following:

**Doctor of Philosophy**
Anatomy  
Biochemistry and Molecular Biophysics  
Biomedical Engineering  
Biostatistics  
Human Genetics  
Microbiology and Immunology  
Pharmacology and Toxicology  
Physiology

**Doctor of Public Administration**

**Master of Accountancy**

**Master of Arts**  
Economics

**Master of Business Administration**

**Master of Public Administration**

**Master of Science**
Administration of Justice  
Anatomy  
Biochemistry and Molecular Biophysics  
Biomedical Engineering  
Biostatistics  
Business  
Clinical Laboratory Sciences (formally Medical Technology)  
Gerontology  
Human Genetics  
Medical Technology  
Microbiology and Immunology  
Pharmacology and Toxicology  
Physical Therapy  
Physics  
Physiology  
Recreation, Parks, and Tourism  
Rehabilitation Counseling

**Master of Science in Occupational Therapy**

**Master of Urban and Regional Planning**

**Master of Taxation**

**Application Procedures**
Completed applications and supporting materials must be submitted to the School of Graduate Studies. Applications submitted by mail should be addressed to the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051. Applications submitted in person may be delivered to the west-campus Graduate School office at Ginter House, 901 West Franklin Street, Room B1, or to the east-campus Graduate School office at Sanger Hall, 1101 East Marshall Street, Room 1-018. Completed applications and supporting materials are reviewed by the faculty of the intended program, and final notification of acceptance is made by the dean of the School of Graduate Studies. Admission to a graduate program may be contingent upon the successful completion of undergraduate courses, degree, or other prerequisites that may be specified by the program or school. Remedial courses will not apply toward a graduate degree. Applications and supporting materials should be received before the deadlines specified throughout this bulletin. Late applications will be considered when possible, but may require provisional admission.

Students who do not apply at least one month prior to the beginning of any semester risk their financial aid eligibility in the event that the admission process is not completed prior to the first day of classes.

**Multiple Admissions**
Students may not be admitted to degree-seeking status in more than one graduate program without petitioning and receiving written permission from the program director or graduate committee of the school(s) in which the student is enrolled.

**Admissions Appeal**
Applicants denied admission may petition in writing to the dean of the School of Graduate Studies for review of admissions decisions made by individual programs.
Undergraduate Students

VCU undergraduates may enroll in 500-level courses with approval of their advisors and consent of the program offering the courses. Highly qualified undergraduates approaching their last semester of study may apply for admission to a graduate program. If accepted, they may enroll in two graduate courses during the last semester of undergraduate study. Their total load should not exceed 16 hours of combined credit. Credit for any course can be applied only to one degree.

International Students

The University encourages qualified international students, both nonimmigrant and immigrant, to seek admission to VCU. Complete information and application materials for international students may be obtained on written request from CIP/International Admissions, Virginia Commonwealth University, Richmond, VA, USA 23284-3043.

Nonimmigrants (Students with temporary U.S. visas)

Due to the time constraints involved in processing applications from international students and in obtaining visas, prospective students should apply well in advance of the international application deadlines. The deadlines are April 1 for fall semester, October 1 for spring semester, and February 1 for summer semester. Students must meet specific program deadlines. The graduate dean must authorize any exception to application deadlines. All required admission documents must be submitted no later than eight weeks prior to registration if appropriate immigration documents are to be issued. Applicants who are unable to meet this credential deadline will need to defer the intended term of entry.

Both U.S. government regulations and VCU admission policies require nonimmigrant applicants to demonstrate:

1. satisfactory academic achievement.
2. adequate English language proficiency, and
3. ability to finance all educational and living expenses.

Refer to University and program admission requirements in this bulletin for other information requested of all applicants.

Applicants must have earned a bachelor’s degree from an accredited institution in the U.S. or an equivalent degree from a recognized foreign institution. Official academic records must be submitted.

International applicants must provide evidence of proficiency in the English language prior to admission and/or full-time enrollment in the University. An applicant may satisfy University English proficiency requirements by obtaining a satisfactory score on the Test of English as a Foreign Language (TOEFL). The University minimum TOEFL score requirement is 550; however, most graduate programs prefer a minimum TOEFL score of 600.

As VCU generally does not provide financial support for graduate international students, applicants needing a student (F-1) visa or a visiting scholar (J-1) visa also must present documented evidence of available financial support to cover annual living and educational expenses while studying at VCU.

U.S. Immigration and Naturalization Service regulations usually do not allow nonimmigrant students to study at VCU as special (nondegree seeking) students. Proof of current visa type must be submitted with the application unless the applicant is requesting an F-1 or J-1 visa. F-1 students and J-1 visiting scholars admitted to VCU must submit copies of all immigration documents to the international student advisor prior to enrolling in classes.

Immigrants (Permanent residents, resident aliens, and asylum applicants)

Because immigrant applicants usually are in the U.S. at the time an application is submitted, these students are required to meet the same application deadlines as U.S. citizens.

If educated in the U.S., immigrant students will be considered for admission under the same academic policies as those applied to U.S. citizens. If educated outside the U.S., the same academic records are required as those for nonimmigrant students.

VCU requires detailed information concerning U.S. immigration status. Proof of permanent residency must be submitted with the admission application.

Non-native English speaking students must demonstrate a satisfactory level of English language competence. Evidence of English proficiency will depend upon several factors such as length of stay in this country, amount of formal U.S. education, and Test of English as a Foreign Language (TOEFL) and other standardized test scores. The School of Graduate Studies reserves the right to require additional testing and English remediation prior to enrollment.

FINANCIAL AID

Degree and certificate-seeking students receive an average amount of financial aid in excess of
$5,450 per academic year. Approximately 10,830 students receive over $59 million in loans, grants and work study at Virginia Commonwealth University.

The role of University Enrollment Services/Financial Aid is to assist students in identifying and pursuing financial resources so they can achieve their educational goals. There are four Financial Aid Counseling and Information Services Centers.

**Academic Campus**
107 Ginter House  
901 West Franklin Street  
Post Office Box 843026  
Richmond, VA 23284-3026.

**MCV Campus**
Hunton Hall, 2nd Floor  
323 North Twelfth Street  
Post Office Box 980244  
Richmond, VA 23298-0244.

**School of Medicine**
1-005 Sanger Hall  
1101 East Marshall Street  
Post Office Box 980244  
Richmond, VA 23298-0244.

**School of Dentistry**
309 Lyons Building  
520 North Twelfth Street  
Post Office Box 980566  
Richmond, VA 23298-0566.

**Applying for Financial Aid**
To be eligible for most federal, state, and institutional aid programs, there are several general requirements. Students must:

- be U.S. citizens or meet eligible non-citizen criteria;
- be admitted to and pursuing an eligible degree or certificate program;
- be enrolled on at least a half-time basis;
- meet requirements pertaining to the Statement of Educational Purpose/Selective Service registration; and
- not be in default on a federal loan program or owe a repayment to a federal grant program.

All financial aid applicants must submit the Free Application for Federal Student Aid (FAFSA) each year aid is desired. Applicants who were financial aid applicants at any college or university during the previous school year receive a Renewal FAFSA in November or December of the current year. Those who were not financial aid applicants and those who do not receive a Renewal FAFSA must complete a new FAFSA. These forms are available at all Virginia Commonwealth University/Financial Aid Offices, financial aid offices at other colleges and universities, high school guidance offices, and most public libraries.

The deadline for mailing the FAFSA or Renewal FAFSA is April 15 and March 15 for students entering programs on the MCV Campus. Students mailing the FAFSA after April 15 will be considered late filers, and their financial aid may not be processed until after the beginning of the school year. Late filers need to pay their university bills when due or pay on the Bursar’s Office Installment Payment Plan.

The FAFSA, or Renewal FAFSA, should be filed using the figures from completed tax returns. When requested, filers must submit copies of tax returns. However, if estimated tax figures must be used to file on time, they should be used and the FAFSA or Renewal FAFSA mailed on or before the April 15 deadline.

Applicants who have attended other colleges or universities must submit Financial Aid Transcripts for all institutions attended, whether or not they received financial aid. No offer of financial aid will be made to a student until all financial aid transcripts are received.

**Program Descriptions**
There are three basic types of financial aid. Each type has different features and advantages.

**Loans.** In terms of total dollars available, there is more money available from long-term loan programs than from the other two types of aid. Loans are amounts of money borrowed which must be repaid at a later time. The student is the borrower and repays the loan once no longer enrolled in a post high school institution. All educational loans carry favorable interest rates. Some loan programs include interest benefits, meaning the federal government pays the interest on the loan while the student is enrolled. Some of the more popular loan programs are:

- Federal Stafford Student Loan
- Federal Unsubsidized Stafford Student Loan
- Health Education Assistance Loan
- Health Professions Student Loan
- Nursing Student Loans

**Short Term Loans.** In addition to the above long-term loans, Virginia Commonwealth University offers short-term loans to enrolled students to be repaid during the semester the loan is granted.
Grants. Grants are gifts of money awarded without any expectation of repayment. The total dollar amount of grant aid is much less than the dollar amount of loan aid available. Contact individual academic departments for information about grant programs.

Work Study. Work study is a form of financial aid that pays wages for work performed. Work study positions are located on and off-campus in approved locations and includes Federal Work Study.

Determining a Student's Financial Aid Package

All students are eligible to apply for the Federal Stafford Loan (FSL). The student pays the interest, or capitalizes it, on the portion of the loan not based on financial need. Interest on the portion of the loan that is based on financial need is subsidized by the federal government.

Financial need is the difference between the amount a student and the student's family can contribute, as determined from the information submitted on a FAFSA, and the total expected cost of education. The cost of education includes tuition and fees, books and supplies, housing and food, transportation, clothing, health, personal maintenance, miscellaneous expenses, and child care, if applicable. The student's financial eligibility must be determined before an offer of financial aid can be made.

Students receiving departmental or outside scholarships must notify UES/Financial Aid of these awards. Offers of financial aid for these students may be adjusted.

Graduate Assistantships and Fellowships

A number of University graduate teaching and research assistantships, fellowships, and tuition scholarships, as well as a variety of departmental awards, are made each year to continuing and newly-admitted graduate students. Eligibility is based on a variety of criteria. Students should be aware that these awards must be included in the total financial aid award made to students receiving additional aid through UES/Financial Aid. Students also should be aware that all stipend support is reported to the Internal Revenue Service and is subject to IRS rulings as to tax status.

Special rules are associated with accepting a position as a graduate assistant and are contained in the VCU School of Graduate Studies Policies and Procedures Statement on Graduate Fellowships and Assistantships. A student planning to accept an assistantship must be familiar with this document, a copy of which is available in the School of Graduate Studies. A University graduate assistant is precluded from any other type of employment and foregoes the normal student academic vacations for the period of the appointment. Graduate program directors and prospective graduate assistants should agree upon the specific conditions of employment before finalizing appointments.

Inquiry about such awards should be made directly to the school or department in which the student intends to enroll. Students in the process of applying for admission should indicate their interest in such support. Some programs include a separate application for support with the application for admission. The College of Humanities and Sciences requires that all students interested in such support submit FAFSA for financial aid. Refer to Part III of this bulletin for additional information on graduate student support for students in the College of Humanities and Sciences.

Issues Affecting Eligibility for Financial Aid

Quality Assurance. UES/Financial Aid is committed to fair and equitable delivery of financial assistance to all eligible applicants. To ensure that the application information used to determine financial eligibility is complete and accurate, student records may be selected for future review at any time during a period of enrollment to determine the reliability of the information. In signing the FAFSA certification, students and families have indicated their willingness to provide proof of the information provided on the FAFSA. If requested, the required documents and information must be provided to UES/Financial Aid or disbursed aid will be recovered and undisbursed aid will be canceled.

Special Circumstances Affecting Financial Eligibility. Whenever there are special circumstances that affect the cost of education or the amount a student and student's family can contribute toward the cost of education, the student should contact a financial aid counselor. There must be sound, demonstrable cause to make adjustments. Adequate written documentation and proof of cause is required before adjustments can be made.

Reasonable Academic Progress Policy for Recipients of Financial Aid

In order to be eligible to receive financial aid from federal, state, or institutional programs at VCU, students must make reasonable academic progress in their certificate or degree programs.
The criteria for reasonable academic progress are listed below:

1. Graduate students must earn at least 80 percent of the 500-level or above course work that has been attempted.

2. Students who have been enrolled in one or more graduate programs for four or more enrollment periods must have earned a cumulative GPA of 3.00 or higher in all coursework attempted after classification as a graduate student.

3. Graduate students may receive financial aid for a period equivalent to six semesters of full-time enrollment for the master’s degree and six semesters for the doctoral degree.

4. Students who receive aid and make no progress for two successive semesters shall not have made reasonable academic progress.

5. Medical and dental students who are required by their academic deans to repeat a year are permitted to continue on financial aid for that year.

Students whose eligibility for financial aid has been suspended for lack of reasonable academic progress may appeal the action. The appeal must be in writing and received by the financial aid director no later than 30 days after the date on the letter of notification. Students will be notified in writing of the results of the appeal.

At the end of each academic year, reasonable academic progress status will be determined by University Enrollment Services/Financial Aid. This determination will be made during May.

Enrollment and Eligibility

Financial aid eligibility is based on projected enrollment level as reported on the FAFSA—full-time, half-time, or less-than-half-time.

<table>
<thead>
<tr>
<th>Level</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Full-time</td>
<td>9 or more</td>
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<tr>
<td>Half-time</td>
<td>5 to 8</td>
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<tr>
<td>Less-than-half-time</td>
<td>1 to 4</td>
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</tbody>
</table>

Since a reduction in credit hours may result in loss of financial aid, students should consult with a financial aid counselor before making any changes in their enrollment status.

Financial Aid Appeal Policy

Financial aid decisions are made within the guidelines of federal and state regulation and comply with institutional regulations, policies, and procedures. Regulations are applied uniformly to all students and situations. If a student determines that financial aid, when combined with the amount the student and the student’s family can contribute toward the cost of education will not adequately meet educational and living expenses, the student should consult with a financial aid counselor. If, after a counselor review, the student is not satisfied that full consideration has been received, an appeal may be made to the appropriate campus assistant or associate director for counseling services, and then to the director of financial aid.

Refund Policy

Students are entitled to refunds according to the policies outlined under “Refund of Paid Tuition” in Part I of this bulletin.

Student Refund/Financial Aid Repayment Policy

Students who withdraw from classes must have eligibility for a refund calculated. The Student Accounting Office will forward requests for refunds to UES/Financial Aid.

When the certified date of withdrawal occurs during the refund period, a corresponding proration of financial aid eligibility must be made. This calculation may result in a reduction in the financial aid eligibility and a possible return of funds to one or more financial aid programs. Students should consult with a financial aid counselor before making a change in enrollment status during the refund period. If the change in enrollment occurs after the disbursement of all financial aid funds, the student may be required to reimburse the financial aid programs.

Summer Studies Financial Aid

Financial aid is available for summer studies to students who were eligible for aid the previous academic year and is calculated using the previous year’s FAFSA. The choice of aid programs is limited.

Application deadlines and processing schedules for summer studies financial aid are published in the Summer Bulletin. Processing is usually restricted to the third week of April. Students seeking financial aid for summer must have participated in advance registration for their summer studies classes.

While study during the summer often benefits the student academically, use of financial aid eligibility during the summer may reduce eligibility during the following academic year. Consult with a financial aid counselor before applying for summer aid.
Financial Aid for Study Abroad

In most cases, financial aid is available to eligible students for both academic year and summer approved study-abroad programs. Students should begin this application process by contacting the VCU Center for International Programs.

Veterans Educational Benefits

For information on eligibility to receive veteran and reservist educational assistance, please contact the Office of Veterans Services, University Enrollment Services/Financial Aid, Room 107, 901 West Franklin Street, Richmond, VA 23284-3026.

To receive educational benefits, the veteran student must comply with the following procedures:
1. Veteran students must request certification each semester and each summer session from the Office of Veterans Services.
2. Veteran students withdrawing from VCU or dropping a course must notify University Enrollment Services and the Office of Veterans Services.
3. Benefits will not be awarded for courses taken on an audit basis. Also, if the veteran student is repeating a course or taking a course with no credits, this must be brought to the attention of the Office of Veterans Services.
4. All courses taken must apply to a degree program. These courses may include elective courses and prerequisite courses, as well as the required courses.
5. It is the veteran student's responsibility to see that the manuscripts are evaluated to determine the number of transfer credits accepted by VCU and to have this information submitted to the Office of Veterans Services for transmittal to the VA regional office.

Assistantship in Residence Education

Part-time employment as a resident director or resident assistant is available to full-time graduate students in the department of Housing/Residence Education. Resident Directors are primarily responsible for supervision of resident assistants, evening crisis response and behavioral interventions. This is a ten-month, live-in position with a financial scholarship applied directly to the student account, designated apartment and reimbursement for limited telephone service. Resident Assistants are 20-hour positions for graduates or undergraduates working on a residential floor in a paraprofessional capacity. A financial scholarship is also provided with limited telephone service. Both selection processes are competitive and prior residence hall experience is preferred. Interested persons should contact Housing/Residence Education, 711 West Main Street, #103, Richmond, VA 23284-2517, (804) 367-6505.

GRADUATE TUITION AND STUDENT FEES

The tuition and fees for 1994-1995 are as listed below. Additional fees may be assessed by individual programs. A complete listing of all University charges is published annually in the VCU Schedule of Tuition, Fees, and Other Expenses. A copy of this publication may be obtained from the Office of Student Accounts (Academic Campus, 327 West Main Street, (804) 786-2300; MCV Campus, Lyons Building Basement, (804) 786-0749). All charges may be subject to change by decision of the Board of Visitors.

### Academic Campus

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<th>In-State</th>
<th>Out-of-State</th>
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<tr>
<td>fall and spring 1994-95</td>
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<tr>
<td>Tuition</td>
<td>3,591</td>
<td>10,217</td>
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<tr>
<td>University Fee</td>
<td>704</td>
<td>704</td>
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<tr>
<td>Health Service Fee</td>
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<td>136</td>
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<tr>
<td>Student Activity Fee (AC)</td>
<td>26</td>
<td>26</td>
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<tr>
<td><strong>Total</strong></td>
<td>4,457</td>
<td>11,083</td>
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| **Part-Time (Per Credit Hour)** |          |              |
| fall and spring 1994-95 |          |              |
| Tuition        | 200      | 568          |
| University Fee | 29       | 29           |
| Student Activity Fee (AC) | 1.50  | 1.50         |
| **Total**      | 230.50   | 598.50       |

| **Full-Time summer 1995** |          |              |
| Tuition        | 1,796    | 5,109        |
| University Fee | 226      | 226          |
| Student Activity Fee (AC) | 12     | 12           |
| **Total**      | 2,034    | 5,347        |

| **Part-Time (Per Credit Hour)** |          |              |
| summer 1995 |          |              |
| Tuition        | 200.00   | 568.00       |
| University Fee | 29.00    | 29.00        |
| Student Activity Fee (AC) | 1.50  | 1.50         |
| **Total**      | 230.50   | 598.50       |

### MCV Campus

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<th>In-State</th>
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<tr>
<td>Student Government Fee (MCV)</td>
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<tr>
<td><strong>Total</strong></td>
<td>4,459</td>
<td>11,085</td>
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Part-Time (Per Credit Hour)
fall and spring 1994-95
Tuition 200 568
University Fee 29 29
Student Government Fee (MCV) 0 0
229 597

Full-Time summer 1995
Tuition 1,796 5,109
University Fee 226 226
Student Government Fee (MCV) 0 0
2,022 5,335

Part-Time (Per Credit Hour)
summer 1995
Tuition 200 568
University Fee 29 29
Student Government Fee (MCV) 0 0
229 597

Full-Time and Part-Time Graduate Study
For the purpose of billing, graduate students registered for nine or more semester hours are considered full-time. Graduate students fully funded as graduate assistants or graduate fellows with tuition remission must register for at least 12 credit hours per semester (six credit hours during the summer if funded on a 12-month stipend). Some departments require more, and funded students must verify expected course loads with their graduate program directors.

In-State Residency
Eligibility for in-state tuition benefits is determined by Section 23-7.4 of the Code of Virginia. Refer to page 323 of this bulletin for the complete code.

All applicants to VCU who want to be classified as Virginia residents must complete the Application for Virginia In-State Tuition Rates included in the graduate application. The residency determination of the applicant will be conveyed at the time of admission.

New students who have been classified initially as non-Virginians for tuition purposes may request a review of the initial residency determination by contacting University Enrollment Services/Residency, (804) 367-8469. The residency officer may request that the applicant complete a Student Supplemental Application for Virginia In-State Tuition Rates and submit supporting documents for additional clarification. Continuing students desiring a change of residency status to in-state tuition rates must submit the supplemental application along with supporting documentation. Requests and applications for a second review must be submitted to UES/Residency by the last day of add/drop week for each semester; however, it is recommended strongly that applications be submitted by the appropriate deadline: fall semester, August 1; spring semester, December 1; summer semester, May 1.

Students will be notified by mail of decisions regarding residency status. University Enrollment Services/Financial Aid and the Office of Student Accounts also will receive official notification of residency decisions. Any denial for a change in residency status will include procedures for appeal of the intermediate decision. Students who submit fraudulent applications, falsified documentation or conceal information will be subject to reclassification, payment of all nonresident fees owed, and University discipline.

Academic Common Market
The state participates in the Academic Common Market, an interstate agreement for sharing uncommon academic programs at both the baccalaureate and graduate levels. Other states which participate in the ACM are Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, South Carolina, Tennessee, Texas, and West Virginia. Schools in these states are able to make arrangements for residents who qualify for admission to specific programs in other states to enroll on an instate tuition basis. A student who has been accepted for admission into a program for which the student's state of residency has obtained ACM access must obtain certification of residency from the higher education authority of the student's state of residency. Inquiries about the Academic Common Market also should be directed to the higher education authority of the student's state of residency.

Refund of Paid Tuition
Requests for a refund must be submitted in writing on a Refund Request Form to the Office of Student Accounting, 327 West Main Street. Forms are also available in rooms 101 or 104 at 827 West Franklin Street, or may be requested by calling 786-2228. Forms are also available on the Health Sciences Campus in the basement of the Lyons Building at 520 North 12th Street (786-0749). Refunds will be considered on the basis of the policy statement governing refunds.

Full-time students and part-time students cancelling or reducing their academic course load will be entitled to the following pro-rated refund percentages:
- 100% refund of tuition and fees for students dropping/withdrawal through the first week of class each fall or spring semester.
- 80% refund of tuition and University Fee for
students withdrawing through the second week of class each fall or spring semester.
• 60% refund of tuition and University Fee for students withdrawing through the third week of class each fall or spring semester.
• 40% refund of tuition and University Fee for students withdrawing through the fourth week of class each fall or spring semester. NO AMOUNT WILL BE REFUNDED FOR WITHDRAWAL AFTER THE FOURTH WEEK OF CLASSES.

Please note: Student Activity, Government, Health, and Private Music Fees are not pro-rated after the first week of class. Dormitory and Board prorations of charges continue to be determined by the Housing Office (367-6496) and Food Service (367-8077).

The actual date of withdrawal will be certified by University Enrollment Services, and a refund, when appropriate, will be computed based on that certified date. Not attending classes without having completed the withdrawal procedure does not constitute grounds for a refund. To be eligible for a refund, students must officially drop or withdraw from their classes through University Enrollment Services.

Exceptions to this refund policy are made only in rare instances. Written application for an exception must be filed in the Office of Student Accounting and will be forwarded to a committee for review. Students will be notified in writing of the committee’s decision.

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.

Students who have not paid tuition and fees but meet all other requirements of the refund policy will have their charges reduced accordingly.

Statement of Student Financial Responsibility

Students who fail to meet payments when due will be assessed late payment penalties, will be denied registration for future classes until they have paid all accrued amounts owed, and may be withdrawn from the University. If withdrawn, students may not attend classes until they have paid all accrued fees and have been reinstated officially. Withdrawals and reinstatements are the responsibility of University Enrollment Services/Records and Registration. Students withdrawn under this policy will not be relieved of their financial responsibility to VCU.

Students with balances owed the University will not be issued degrees, transcripts of grades, or graduate reports until all charges are paid in full.

Pursuant to Sec. 2.1-732 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, Virginia Commonwealth University will charge interest, costs and fees on all accounts past due.

VCU is participating in the Virginia Set-Off Debt Collection Act of 1981. Under the provisions of this act, a Virginia individual income tax refund will be subject to the University’s claim for unpaid balances of tuition and fees. A charge of $20 will be levied for all dishonored checks.

GENERAL ACADEMIC REGULATIONS

University Rules and Procedures

Each member of the VCU community has certain responsibilities, rights, and privileges. These are stated in some detail in the Virginia Commonwealth University Rules and Procedures booklet, and all students are responsible for being familiar with provisions of this document. The rules and procedures are printed in the campus calendar and are also available at the Office of the Dean of Student Affairs. This document also provides for the process whereby disciplinary action, including separation from VCU, may be taken against a member of the University community as a result of behavior which is in violation of the prohibited conduct as stated in the Rules and Procedures.

All students enrolled in courses on the MCV Campus are subject to the Honor System of the MCV Campus, and as such, are required to sign an Honor Pledge Card. Copies of the Honor Code and Pledge Cards are available in the Office of Records and Registration, Sanger Hall, Room 1-055.

In addition to those standards of conduct described in Virginia Commonwealth University Rules and Procedures booklet and the Medical College of Virginia Honor Code, which applies to all students enrolled on the MCV Campus, a student enrolled at the University may be dismissed from the school in which enrolled for failure to meet prescribed academic program requirements.

VCU seeks to foster insight, imagination, creativity, resourcefulness, diligence, honesty, and responsibility, as well as the education of the men and women enrolled in its graduate programs. Such an enterprise can take place only where the highest standards of academic integrity exist.
Academic dishonesty is the giving, taking, or presenting of information or material by students with the intent of unethically or fraudulently aiding themselves or others on any work that is to be considered in the determination of a grade or the completion of academic requirements. Students in doubt regarding any matter related to the standards of academic integrity in a given course or on a given assignment should consult with the faculty member responsible for the course before presenting the work.

Effective Bulletin
The bulletin of record for a graduate student is the graduate bulletin in effect at the time of the student’s official admission to the degree program (as specified in the student’s official letter of admission). The effective bulletin contains the official requirements that the student must complete to earn the degree. A student who does not maintain continuous enrollment (as defined in Part I of the effective bulletin), must reapply to the program and will be subject to the requirements of the bulletin in effect at the time of readmission. Exception to this policy must be approved by the student’s program director, Dean, and Dean of the School of Graduate Studies.

Degree Requirements
The minimum course requirements, rules of admission to degree candidacy, language requirements, thesis or dissertation requirements, comprehensive examinations, transfer of credits, and the like, are spelled out for each program in Parts II-XII of this bulletin. Many schools, programs, and departments print special brochures, student manuals, and program guides which may be requested from the appropriate dean or program director.

Advising Program
Students are responsible for the proper completion of their academic programs. They must be familiar with the Graduate Bulletin, including general academic regulations promulgated by individual schools and departments. The offices of the deans and department chairmen, in cooperation with the advisors and faculty, endeavor to follow each student’s academic progress, and students are encouraged to seek counsel when ever there is a need. If advisors are unable to resolve problems satisfactorily, they will refer students to others as is deemed appropriate and necessary. In order to aid advising, students have the responsibility to keep a current mailing address on file with University Enrollment Services, as well as with the school and department in which they are enrolled.

Exceptions
Exceptions to graduate policies must be approved by the Dean of the School of Graduate Studies. Appeals for exceptions to Graduate School policies are to be made in writing by students to their graduate advisors. The advisors will forward their recommendations, along with copies of the student’s appeals, to the dean of the School of Graduate Studies who represents the University Graduate Council.

Student Load
Student load is the total number of credits for which students are enrolled in any semester. Students who are fully funded as VCU graduate assistants with tuition remission are classified as “full-time” during any semester in which they must enroll for at least 12 or more credits (six during the summer if funded on a 12-month stipend.) Some departments require more, and funded students must verify expected course loads with their graduate program directors. Other graduate students, for billing purposes, are considered full-time if they register for nine or more hours.

Degree-seeking students may be either full-time or part-time, dependent upon program rules.

The maximum number of credits for which students may enroll in any semester without special permission is 16. More than 16 credits is an overload. Permission to enroll for more than 16 credits will be granted upon the written recommendation of the advisor, through departmental governance procedures, to the dean of the School of Graduate Studies.

Attendance and Continuance Policies
Any person engaged in any form of study at VCU which involves use of university facilities, laboratories/studios, libraries, or who is supervised by or consults regularly with a faculty member concerning graduate work on a project, work of art, thesis or dissertation, must formally register for a course while engaged in these activities. A graduate student who has completed course requirements for a degree must register at VCU each semester until the degree is awarded. Departments or schools will determine the number of hours for which students must register for
each semester as part of their continuous registration policies.

Once admitted to a degree program, a graduate student is expected to enroll each semester. A student admitted to a program or track not requiring a project, work of art, thesis, or dissertation, must register for at least three semester hours each calendar year.

Instructors are responsible for clearly informing the student in writing of the attendance requirement for each course and the consequences of poor attendance. A student must abide by the requirements as announced in each separate class even though the requirements may vary widely among courses.

Residence for Ph.D. Programs
For all Ph.D. programs, a period of residence of at least two consecutive semesters is required. Residency is defined as at least nine credits per semester. The specific requirements for residency will be detailed by the individual programs.

Change in Registration
Once students have registered for classes, changes in that registration may be made only during the following periods:

1. During Add/Drop Period
During the first four days of classes students may either add or drop courses from their class schedules only with the approval of their advisors. Changes in registration will be allowed during the add/drop period according to the following procedure:
   a. Complete the Add/Drop Form at the designated area and obtain a copy of the form for record purposes. Courses dropped during the add/drop period do not become part of the permanent academic record.
   b. A change from "Audit" to "Credit" or "Credit" to "Audit" may be affected only during the add/drop period. See the calendar in this bulletin for the add/drop schedule for the respective campuses.

2. After Add/Drop Period
Students may not add courses after the add/drop period. Students may not withdraw from courses after the eighth week of classes. See the calendar in this bulletin for the exact date. Students may withdraw from courses only in accordance with the following procedures:
   a. After the first week of classes and until the end of the eighth week of classes, withdrawal forms may be obtained only in the University Enrollment Services/Records and Registration and must be filed with that office before the student is officially withdrawn. Students should retain a copy of the corrected schedule for record purposes.
   b. Withdrawals after the add/drop period and before the end of the eighth week of classes will become part of the permanent academic record and will indicate mark of "withdrawal" (W).
   c. Students who do not complete withdrawal forms when ceasing to attend a class will be assigned failing grades.

Cancellation of Registration
A cancellation of registration must be made prior to the first day of classes by notifying, in writing, University Enrollment Services/Records and Registration. Refunds will be issued in accordance with procedures set forth under Request for Refund in the Graduate Tuition and Student Fees section of this bulletin.

Immunization Requirements
VCU requires that all full-time students have a validated immunization record on file at the University Student Health Service. This is a requirement which must be completed prior to matriculation.

The immunization record must be completed fully and accurately and also must be accompanied by documentation that the vaccines were given. This may be done in several ways: (1) Students may have their physician transfer the information from their medical record and sign the form verifying its accuracy; or (2) students may complete the form using information received from their local health department or from the armed services, but they then must attach a validated copy of supporting documentation. Many middle schools and high schools require validated immunization records from all students. If students have recently graduated from high school, their immunization records may still be available. They may request that the high school provide them with a copy of their immunization records.

If students cannot provide documented evidence of full immunization according to VCU guidelines, then the students must see their family physician or health department and receive updated immunizations. Most city and county health departments offer free immunization clinics (e.g., Richmond City Health Department, 500 North 10th Street, Thursday 1-4 pm).
Immunity to the following diseases must be documented as specified on the forms supplied by the School of Graduate Studies with the formal offer of admission.

**Tetanus** Documentation of both 1 and 2 is necessary: (1) Primary immunization series, including month/day/year of each dose, and (2) Tetanus/diphtheria (Td) booster (month/day/year) within the past 10 years.

**Diphtheria** Documentation of both 1 and 2 is necessary: (1) Primary immunization series, including month/day/year of each dose, and (2) Tetanus/diphtheria (Td) booster, including month/day/year within the past 10 years.

**Polio** (1) Primary immunization with a total of 3 doses of OPV (oral Sabin) or (2) primary immunization with a total of 4 doses of IPV (injected Salk). **NOTE** Documentation of prior vaccination against polio, including month/day/year of each dose, is required. However, if not completed in the past, it is not recommended that the student complete the primary polio series unless the student is less than 18 years old or is planning travel to an area endemic or epidemic for polio.

**Rubeola (Measles)** Documentation of one of the following is necessary: (1) Born before 1957 and, therefore, considered immune or (2) two doses of the measles vaccine both administered after 1967 and given after the first birthday at least one month apart (document month/day/year) or (3) physician’s certification of diagnosis of measles including month and year of occurrence or (4) documentation of immune titer proving immunity. **NOTE** Measles vaccine given before 1968 is not acceptable.

**Mumps.** Documentation of one of the following is necessary: (1) mumps vaccine given after age one, month/day/year documented; (2) report of immune titer, proving immunity; (3) physician’s certification of diagnosis of mumps, including month and year of occurrence; or (4) birth prior to 1957 (presumption of immunity).

**Rubella (German Measles)** Documentation of one of the following is necessary: (1) Rubella vaccine given after one year of age (document month/day/year) or (2) Report of immune titer proving immunity. **NOTE:** A history of disease is not acceptable. Rubella vaccine given before June 9, 1969 is not acceptable.

Students with questions should contact the immunizations staff of University Student Health Service.

**Academic Campus**
Suite 159, Gladding Residence Center
711 West Main Street
Richmond, VA 23284-2022
(804) 367-1212.

**MCV Campus**
Second Floor, A. D. Williams Clinic
1201 East Marshall Street
Richmond, VA 23298-0201
(804) 786-9212.

**Withdrawal Policies**

1. **Leave of Absence**
   Students may request a leave of absence from a program through written appeal to their advisors. The advisor will forward the request, following departmental governance procedures, along with a recommendation to the dean of the School of Graduate Studies who will respond for the University. Students who do not register for courses for more than one calendar year and who have not been granted a leave of absence must reapply for admission to VCU and to the graduate degree program.

2. **Withdrawal from the University**
   To withdraw officially from VCU, a student must submit a complete Official Withdrawal Form to University Enrollment Services before the end of the eighth week of classes. The Official Withdrawal Form is obtained from University Enrollment Services/Records and Registration, 827 West Franklin Street, Room 104. Failure to complete this form may result in the assignment of failing grades in all or some of the courses.

   The student’s permanent academic record will indicate a grade of “Withdrawn” (W) for all courses in which the student was enrolled.

3. **Health-Related Withdrawals**
   While graduate students are expected to work toward completion of their degrees without interruption, health-related problems may necessitate withdrawal from the University.
   a. Some schools require a statement from a physician indicating the nature and severity of the condition, when a student should stop attending classes, and the estimated date of return to school.
   b. in the event that a student’s health problem poses a danger to the student, to patients, or to others with whom the student may come in contact and the student is unable or refuses to initiate steps to withdraw as stated above, administrative withdrawal of
the student may be made by the dean of the School of Graduate Studies upon consultation with the appropriate faculty and a qualified physician.

c. because curricular and course content changes may occur and a student’s progress toward a degree may be adversely affected due to an extended absence, specific time periods may be imposed by individual schools with respect to the length of time allowed for absence from school. If there is a delay in return beyond the allotted time period without written consent of the dean of graduate studies, the student may petition for return with advanced standing.

d. Some schools require that prior to return to school, the student must submit to the dean of the School of Graduate Studies a statement from a physician. This statement should document that the condition that necessitated the withdrawal has been corrected to a point where the student can successfully complete all curriculum requirements with reasonable accommodation, including classroom, laboratory, clinical, and field work experience.

Change of Discipline

Students wishing to change to a graduate discipline outside their present school should obtain appropriate new application forms from the School of Graduate Studies. Generally, they will have to submit new applications to the new program with all material required of new applicants. The dean of graduate studies will work with the administrators of the two disciplines to facilitate the admission process for eligible students.

Transfer Credit

Generally, a maximum of one third of the didactic hours required for a master’s degree may be transferred from another VCU program or outside institution and, if not applied previously towards another degree, may be applied towards a degree. A maximum of 25 percent of course work other than research applied toward all doctoral programs at VCU may be transferred from another VCU program or outside institution if not previously applied toward another degree. Acceptance of transfer credit is made at the school level. (Various schools may have more stringent requirements.

All transfer work must be at the “A” or “B” grade level from an accredited institution or university. “Credit” or “pass” grades can be accepted only if approved by petitioning the School Graduate Advisory Committee or equivalent. Students must be in good standing both at Virginia Commonwealth University and at the institution from which the credits were earned. Some programs will not accept credits earned as a nondegree-seeking graduate student for transfer. VCU will not accept credits which do not apply to a graduate degree at the offering institution for transfer, nor will it accept credits from unaccredited institutions for transfer.

Thesis/Dissertation Examinations

General regulations applying to thesis/dissertation committees and competency examinations are as follows:

A graduate advisory committee shall be appointed for each candidate for a master’s degree from whom there is a requirement to produce a thesis or its equivalent in the form of a research project, performance, exhibit, or other production. The committee will coordinate and supervise the preparation of the thesis or its equivalent. The committee shall have a minimum of three faculty, one of whom should be from a discipline other than the discipline of the candidate. The chair of the committee will be designated as the candidate’s faculty advisor. Master’s candidates for whom a thesis or its equivalent is not required will have an advisor appointed by the department.

A graduate dissertation committee shall be appointed for each doctoral candidate. The committee will have a minimum of five faculty members, including a chair, who will serve as the candidate’s faculty advisor, and at least one member from a discipline other than the candidate’s to represent the University graduate faculty.

Upon satisfactory completion of all program requirements for admission to candidacy, the doctoral matriculant will take written and/or oral comprehensive examinations administered by the student’s major department or school. Successful completion of the examinations shall entitle the student to advance to doctoral degree candidacy status. The candidate is then allowed to proceed with the research and preparation of the dissertation and any other doctoral degree requirements designated by the department.

In the event of failure, the student may be permitted to retake the comprehensive examination one time only. The re-examination requires the approval of the appropriate graduate program committee.

All research, thesis, and dissertation credits taken as part of the final project (thesis/disserta-
tion/project) for awarding a graduate degree are to be graded each semester as “S,” “U,” or “F.” There is no limit to the number of these credits a student may take while pursuing completion of the degree as long as the student receives a grade of “S” for each credit. An individual department may terminate a student who does not progress satisfactorily as indicated by a “U” grade in research, thesis/dissertation/project course work. A student who receives a final grade of “F” in the thesis or dissertation will be terminated from the graduate program.

The final date for completion of a graduate thesis/dissertation is the last day of classes of the semester for which the student has applied to graduate. (See the calendar in the front of this bulletin for each credit. By this day, final copies of the thesis/dissertation must be submitted to University Library Services for binding. The graduate degree will not be awarded, nor will the graduate diploma be released, until this material has been submitted to the library for binding. Students should contact their graduate program directors regarding internal schedules for submission of copy, defense, and approval.

Graduation Requirements
Candidates for degrees are eligible for graduation upon completion of all academic requirements in effect at the time of the first registration, provided the students are continuously enrolled and provided the requirements are met within the time limit specified by the school or program. Students failing to satisfy the time requirement and who are readmitted to a program shall satisfy requirements in effect at the time of reacceptance into the degree program.

All degrees are conferred by the VCU Board of Visitors upon recommendation of the graduate faculty. Degrees are granted at the close of the semester or summer session in which students complete their work. Degrees will not be granted unless all financial obligations have been resolved with VCU’s accounting office. No degrees will be conferred unless students make formal application for graduation. A STUDENT MUST BE ENROLLED AT THE TIME OF APPLICATION (I.E., THE SEMESTER IN WHICH THE STUDENT GRADUATES). Application forms may be obtained from University Enrollment Services/Records and Registration. Some schools require additional forms which must be cleared through the dean’s office of the school in question. All applicants for graduation must pay a fee of $16.00. Applicants for dual degrees will pay only one fee, as will applicants for a degree and a certificate.

Graduation applications must be submitted by students to their advisors or deans no later than the dates indicated on the calendar appearing in the front of this bulletin. Students should schedule conferences with their advisors well ahead of the deadline and should note that the application requires the approval of the advisor, the department chair, or the school director of graduate studies, and the dean. Students may not apply the same credits towards two master’s degrees.

Graduate credit hours earned towards a VCU Certificate may be applied to degree requirements for Masters or Ph.D. programs. The determination of the acceptability of specific courses to be used for both the certificate and the graduate degree will be the responsibility of that Masters or Ph.D. program or school.

At least one-half of the required courses in a program will be those designated as exclusively for graduate students. The grade-point average for graduation must be based on all graduate courses attempted after acceptance into the program.

In addition to the specific requirements listed by department, the following general requirements must be met for graduation. Degree applicants:

1. Must apply for graduation by the dates specified in the University Calendar.
2. Must have achieved an overall grade-point average of 3.0 (“B”).
3. Will receive no graduate credit for courses in which a grade of less than “C” is given.
4. Must not have more than six semester hours or 20 percent of semester hours attempted—whichever is greater—with a grade of “C.” Students who receive a grade of “C” on more than the allowable number of semester hours or any grade of “D” or “F” will be reviewed for possible academic termination by their graduate program faculty. The “semester hours” used in this computation does not include courses graded on a S/U basis.
5. Must show acceptable professional behavior to be retained in a graduate program.

The total number of semester credits required for graduation depends upon the major. Specific information may be found under the degree program descriptions.

Reapplying for Graduation
Candidates who do not graduate at the end of the semester for which they have made applications must re-register and reapply. AGAIN,

Time Limit for Completion of Degree Requirements and Eligibility of Courses
The time limit for a graduate degree will not extend beyond a period of seven years, which, at the master's level, includes five years with two possible one-year extensions which may be granted, upon written petition through the advisor or graduate program director, by the dean of the School of Graduate Studies.

Course work completed before matriculation and applied toward the degree, including course work at VCU and that transferred from other institutions, will be evaluated by the program/department to determine whether it can be used to fulfill degree requirements. For course work which was taken more than seven years prior to the completion of the VCU degree, the program/department will evaluate the course work for acceptability and report those courses deemed acceptable to the dean of the School of Graduate Studies.

Grade Reports
An official University grade report will be mailed each semester and at the end of the summer sessions to the student's mailing address as designated on the registration form. Students may change their official address by submitting a written request to University Enrollment Services, Virginia Commonwealth University, 827 West Franklin Street, Richmond, VA 23284-2520, or 1101 East Marshall Street, Sanger Hall, Room 1-055, Richmond, VA 23298-0277.

Transcripts
Official transcripts of a student's academic record will be issued only by University Enrollment Services/Records and Registration upon written request of the student. Students may change their official address by submitting a written request to University Enrollment Services, Virginia Commonwealth University, 827 West Franklin Street, Richmond, VA 23284-2520, or 1101 East Marshall Street, Sanger Hall, Room 1-055, Richmond, VA 23298-0277.

Repeated Courses
Students receiving grades below "B" shall repeat a course only upon the advice of their program directors. Both the original grade and the repeat grade shall be included in the calculation of the grade-point average.

Grade Review Procedure
If a student thinks that a grade is inaccurate, the situation should be discussed with the faculty member. This will allow the faculty member to explain how the final grade was determined and, if an error is detected, to submit a change of grade.

If the student still thinks that the grade was assigned unfairly, a written appeal should be submitted to the department chairman. Upon receipt of the written appeal, the department chairman shall provide the student with a copy and explanation of the Grade Review Procedure and shall ensure that the requirements of the Grade Review Procedure have been met. In cases concerning grades awarded for the fall semester, the written appeal must be submitted to the department chair no later than 30 calendar days after the beginning of the following spring semester. In cases concerning grades awarded for the spring semester or summer sessions, the written appeal must be submitted no later than 30 calendar days after the beginning of the following fall semester.

Grading System
Work quality is measured by the four-point grade system with the following equivalents:

<table>
<thead>
<tr>
<th>Grade Symbol and Meaning</th>
<th>Grade Point Value per Semester Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
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<tr>
<td>F</td>
<td>0.0</td>
</tr>
<tr>
<td>P/F (Pass/Fail)</td>
<td>0.0</td>
</tr>
<tr>
<td>S/U (Satisfactory/Unsatisfactory)</td>
<td>0.0</td>
</tr>
</tbody>
</table>

All other grades are temporary, carry no credit, and are not used in the computation of a grade-point average. Refer to page 20 for an explanation of the use of the grades of satisfactory and unsatisfactory in relation to thesis/dissertation/research classes.

The number of grade points earned is computed by multiplying the grade-point value for the letter grade by the number of semester credits for the course. As an example, a student receiving an "A" (i.e., four grade points) in a three-credit course receives 12 grade points.

The grades of accepted transfer courses are not included in the computation of the VCU grade-
point average. Graduate students are not designated as special honors graduates (i.e., cum laude, magna cum laude, summa cum laude) on transcripts or diplomas upon completion of their programs.

No graduate student shall be awarded degree credit for remedial work. Students advised to take any level course for remedial work should be notified in writing that the course credit shall not apply to the degree they are pursuing. Other bodies may rule later, should the student wish to apply the credit to some other degree.

Grade of Audit (AU)
Class size permitting, students may register for courses on an audit basis. Auditing a course means that students enroll in a course but do not receive academic credit. Students who register on an audit basis are subject to attendance regulations of that class and may receive an administrative withdrawal for non-attendance. Students who register 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.

Grade of Continued (CO)
The grade of “CO” may be assigned as an interim grade for those courses which run over several grade reporting periods. The “CO” indicates that the course is not expected to be completed in a single semester and that students must re-register for the course. Upon completion of the course, a final grade will be assigned to the current semester, and the previous “CO” grade(s) will remain. This grade may be assigned only in courses approved for such grading.

Grade of Incomplete (I)
If because of circumstances beyond their control, students are unable to meet all the requirements of a course by the end of a semester, the mark of incomplete (“I”) may be given. The awarding of a mark of “I” requires an understanding between instructor and student as to when and how the course will be completed. This understanding must be recorded on an Incomplete Grade Assignment Form which is submitted instead of a final course grade. The maximum time limit for submission of all course work necessary for removal of an “Incomplete” is the end of the last day of classes in the next semester following the semester in which the “Incomplete” was incurred, i.e., an “Incomplete” awarded in the fall semester must be converted by the last day of classes in the spring semester, and an “Incomplete” awarded in the spring or summer semester must be converted by the last day of classes in the fall semester. At that time, an unremoved grade of “Incomplete” is changed automatically to a failing grade. Individual departments and schools may have more stringent time limits. An extension of the time limit is possible but must be approved, prior to the expiration date stated above, by the instructor and the dean of the school through which the course is offered. Written approval indicating the new time limit must be filed with the dean of the School of Graduate Studies.

Grade of Pass (P)
This grade is awarded for certain courses to denote satisfactory completion of requirements. Courses assigned the grade of “P” will not be computed in the grade-point average.

Grades of Satisfactory (S), Un satisfactory (U), or Fail (F) in Research, Thesis, and Dissertation Courses
All research, thesis, and dissertation credits taken as part of the final project (thesis/dissertation/project) for awarding a graduate degree are to be graded each semester as “S,” “U,” or “F.” There is no limit to the number of these credits a student may take while pursuing completion of the degree as long as the student receives a grade of “S” for each credit. An individual department may terminate a student who does not progress satisfactorily as indicated by a “U” grade in research, thesis/dissertation/project course work. A student who receives a final grade of “F” in the thesis or dissertation will be terminated from the graduate program.

Grade of Withdrawn (W)
The grade of “W” indicates that the student has officially withdrawn from a course or has been dropped for non-attendance. No student who has officially withdrawn from a course or who has been dropped for non-attendance may attend subsequent meetings of the course.

Course Listings
Identification of Symbols
I a course offered in the first semester
II a course offered in the second semester
I, II a course offered in each semester
I and II a course continued through two semesters
S a course offered in summer sessions
Course Interpretation
A single number listing for a course, such as Business 648, indicates that 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 Theatre 603, 604 and designated as semester courses, consist of two one-semester courses, either semester of which may be taken without the other.

Courses listed with a double number, such as Speech 601-602, are designated as continuous courses and 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.

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

Course Numbering
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:

A. 0XX Noncredit Courses. Such courses are offered for students to make up deficiencies in previous training or to improve certain basic skills prior to full-time enrollment in undergraduate credit courses.

B. IXX and 2XX Undergraduate, Lower Level. Courses with these numbers are 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.

C. 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 advisors to enroll in a 4XX course.

D. 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.

First year, First Professional (Medicine and Dentistry). Courses normally open to students enrolled in the M.D. and D.D.S. programs. Certain courses of this group may be designated by the department and approved by the Graduate Council for graduate credit.

Fifth Year, Professional Baccalaureate (Pharmacy). Courses offered for pharmacy majors in the fifth year of the professional baccalaureate program. Certain courses of this group may be designated by the department and approved by the Graduate Council for graduate credit.

E. 6XX, 7XX, and 8XX Graduate Courses. Graduate students enroll for credit in these courses through the normal graduate advising system.

6XX Second Year, First Professional (Medicine, Dentistry, and Pharmacy). Courses normally open only to students enrolled in the M.D., D.D.S., 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 (Medicine and Dentistry). Courses normally open only to students enrolled in the M.D. and D.D.S. programs. Certain courses of this group may be designated by the department and approved by the Graduate Council for graduate credit.

UNIVERSITY RESOURCES AND SERVICES
University Library Services
University Library Services (ULS) administers the major research libraries on both campuses. Collections are housed in James Branch Cabell Library on the Academic Campus, Tompkins-McCaw Library on the MCV Campus, and the Main Hospital Library, Ninth Floor, Room 117. In addition, ULS operates Media Production Services.

Both libraries provide an assortment of services, including reference assistance from professional librarians, library orientation tours and bibliographic instruction, and self-service photocopiers.

Customized bibliographies can be produced through ULS’ bibliographic search service. Search analysts work with clients to define research topics, determine proper search criteria, and select the most appropriate of the many available databases.

While the online catalog serves as the gateway to databases, ULS is pursuing aggressively the acquisition of electronic databases. This is complemented by library holdings, which include a broad array of CD-ROMs covering all disciplines.

The online catalog links the libraries on both campuses and enables patrons to determine the status of library materials. Through interlibrary loan, students may borrow books from public and academic libraries throughout the United States. ULS also provides services for persons with disabilities, and both libraries are wheelchair accessible.

Recognizing their needs for advanced research and greater access to materials, ULS offers graduate students special research privileges, including circulation of bound journals and browsing privileges in the current periodicals area. Collection management librarians work with faculty
and graduate students to purchase books, journals, and other library materials.

James Branch Cabell Library's growing collections support the programs of the Academic Campus and also contain a significant number of health science publications. More than 742,000 volumes and approximately 6,900 journal titles are housed in the five-story building at the heart of the Academic Campus. ULS is designated as a partial depository for U.S. Government documents and as an official U.S. Patent Depository.

The comprehensive collections of Tompkins-McCaw Library support the University's teaching and research needs in the health sciences and include more than 288,000 volumes and over 2,900 journals. Tompkins-McCaw Library is a designated resource library for the southeastern states in the Regional Medical Library System.

Media Production Services, located in Sanger Hall on the MCV Campus, provides medical illustration, graphic art, photography services, computer slide imaging, and instructional design services.

Nonprint materials, such as tapes, videocassettes, slides, compact discs and posters, and equipment to view or listen to these materials are housed in the three libraries.

ULS is a member of the Center for Research Libraries, the Richmond Academic Library Consortium, the Association of Southeastern Research Libraries, the Richmond Area Film/Video Cooperative, and the Southeast Library Network.

Research

While Virginia Commonwealth University is one of the leaders in teaching among institutions of higher education in the state, it is also an institution which commits a significant portion of its resources to research and scholarly activities. VCU is fully committed to the proposition that a broad-based program of research investigations enhances the teaching mission of the University, while, at the same time, it improves the quality of services provided to the community. During the fiscal year ending on June 30, 1993, the University received more than $81 million in sponsored program support from a variety of federal agencies, industries, and private organizations. The extensive and diverse nature of VCU's research programs is directly related to the excellence of the University's faculty. Prospective graduate students can anticipate working in a lively intellectual environment. Many faculty who are directly involved in graduate education programs are recognized nationally and internationally in their fields of endeavor.

Computing Services

Computing support is provided by three primary centers: Academic Campus Computing Services, Health Sciences Computing Services, and the University Computer Center. Basic services from these centers include counseling help in the use of all university computing resources (from personal computers to mainframes), Help Desk assistance via telephone or email, teaching short courses, advice on acquisition of computer systems, operation of local computer facilities and data networks. In addition, Academic Campus Computing Services and Health Sciences Computing Services provide optical scanning for test grading, faculty evaluation and other surveys, and microcomputer software site licensing for their respective campuses. A university-wide information service is available electronically using Gopher, which also provides access to information from academic, government and private sources world wide.

Academic Campus Computing Services. The Academic Campus Computing Services (ACCS) operates two UNIX timesharing computer systems (a DECSYSTEM 5900 and a DECSYSTEM 5500), an SGI Challenge XL Supercomputer, and four public-access terminal facilities which are located strategically around the campus: the Cabell Library, the School of Business Building, the Hibbs Building, and the General Purpose Academic Building.

In addition, a number of departments and schools maintain their own microcomputer labs around the campus.

ACCS also operates and maintains the Academic Campus Fiber Data Network (ACNet) which is in 20 buildings on the Academic Campus and provides high speed data communications between the general purpose computer systems, departmental computer systems, sub-networks, and over 1300 workstations on the Academic Campus. Remote access is available through the international education and research network known as the Internet, and through dialup facilities.

A variety of software packages are available for use with the DECSYSTEM computers. The more popular packages include: for communications (Kermit, Telnet/FTP, Gopher), for electronic conferencing (USENET), for word processing (WordPerfect), for statistical analysis (SPSS, SAS, Splus), for graphics (SAS/GRAPH, SPSS Graphics, GKS), for database (UNIFY),
Application forms for access to the VAX systems as well as for accounts on the IBM Mainframes (at the University Computer Center) and the DECSystems (at the Academic Campus Computing Services) are available from HSCS.

University Computer Center. The University Computer Center (UCC) operates as a centralized computer services utility which makes available mainframe computer resources to all students, faculty, and staff (both academic and administrative) within the university. Located between the academic and MCV campuses in the Richmond Plaza Building, 110 S. 7th Street, the University Computer Center provides many services to administrative staff including personal computer support.

The University Computer Center (UCC) provides computer utility services on IBM MVS/XA and VM mainframe computers for administrative and academic functions of the university. The UCC also has two RISC computers running the UNIX Operating System to support the University Library interconnections. The MVS/XA runs on a 3090 CPU and the VM runs on a 4381 dual processor. Services provided include large data storage capacity (200 gigabytes), mainframe processing power, extensive networking facilities (Telnet, Internet, Bitnet, Profs, VCU E-MAIL), batch processing, and online systems. These online systems include TSO (a versatile programming tool) and CICS (provides access to hundreds of application programs used extensively throughout the university). A partial list of programming languages and products available at the University Computer Center includes FORTRAN, COBOL, SAS, PL/1, C, Pascal, Assembler, Mantis, DYL280, SPSS, SQL, QMF, IMAGINE, and Prolog. The VCU Library System, NOTIS, is one of the many application systems currently running on the MVS/XA mainframe. Access to University Computer Center facilities is available at over 1500 terminals located throughout the university. Dial-up and TELNET facilities are also available.

The University Computer Center maintains a public access INFO system. This is an electronic package of information about Virginia Commonwealth University. It is accessible to everyone, including University visitors. The INFO package is menu driven, available 24 hours a day and requires no computer id to use it.

Communications. The fiber optic backbones on the Academic and Health Sciences Campuses, and the University Computer Center are linked together using the TCP/IP suite of protocols to

and for spreadsheets (20/20, SAS/CALC) The programming languages include FORTRAN, C, Lisp, and Pascal. Also the DECsystems are widely used for electronic mail, and access to the Internet and BITNET which provide entry to information and library resources throughout the world.

The SGI supercomputer is intended for numerically intensive research. A minimal set of software is currently available; they include: C, FORTRAN, GAMES, and Gaussian.

Application forms for access to the DECSystems as well as for accounts on the IBM Mainframes (at the University Computer Center) and VAX systems (at the Health Sciences Computing Services) are available from the ACCS Customer Service Window Cabell B-9.

Health Sciences Computing Services. Health Sciences Computing Services (HSCS) on the MCV campus manages a VAXcluster (VMS) consisting of multiple VAXes, which provide interactive computing to public and private workstations around the campus. The VAXes provide a rich variety of software packages for statistical analysis (SAS, SPSSX, GLIM), molecular modeling (CHEMX, FRODO, SYBYL), DNA sequence analysis (GCC), simulation (SPICE), numerical methods (IMSL, NAG, LINPACK), and graphics (SASGRAPH, GKS). Computer languages include FORTRAN, SAS, Pascal, BASIC, C, and COBOL. Other areas include database (INGRES, Datatrieve), forms management (FMS), data entry (EasyEntry), word processing (Word Perfect), and text processing (TEX). In addition, the VAXes are used extensively for electronic mail (connected to BITNET and Internet) and information dissemination for the academic community.

A microcomputer lab with IBM-compatible and an Apple Macintosh systems is available. External devices such as optical scanners, slide-makers, plotters, and digitizers are connected to these microcomputers. IBM/AIX and VAXstation graphics workstations are also available. Many departments and schools maintain their own microcomputer labs and graphics workstations (SGI and SUN).

A fiber optic backbone supporting FDDI and Ethernet protocols connects 25 buildings on campus. This backbone interconnects Ethernet and Token Ring networks supporting Novell, TCP/IP and DECnet protocols. Also, data switches provide login access to central (VAX and IBM mainframe) and departmental computing resources, for 1,800 personal computers and terminals around the campus, and via dialup modems.
form the VCUnet. VCUnet provides access to BITNET, VERnet (the Virginia Education and Research Network), and the Internet.

Virginia Center on Aging
The Virginia Center on Aging, established at Virginia Commonwealth University by the Virginia General Assembly in 1978, is a statewide resource for aging-related research, education, service, training, and technical assistance. It serves as a focal point for the collection, assessment, and maintenance of data on elders in the Commonwealth; designs and tests innovative demonstration projects in education and service delivery; and assists public and private organizations in meeting the needs of older citizens.

The Virginia Center on Aging and the Department of Gerontology maintain the Information Resources Center, a broad collection of print and audiovisual materials on aging that are available on loan or to rent. Short reports, training manuals, and vertical files may be obtained at cost. The Center on Aging also administers the Alzheimer’s Research Award Fund to provide grants to researchers in Virginia.

Housing
Requests for housing information should be addressed to University Housing Office, Virginia Commonwealth University, Gladding Residence Center, 711 West Main Street, Room 103, Richmond, VA 23284-2517. Information regarding off campus housing may be obtained from the Student Commons Building, 907 Floyd Avenue, Richmond, VA 23284-2032. In general, most graduate students live off campus because of VCU’s limited amount of available student housing. Graduate housing is available primarily on the MCV Campus, although a few spaces are designated for graduate students within the Academic Campus residence halls.

University Student Health Service and Health Insurance
The University Student Health Service (USHS) offers quality primary health care for the 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 pay the student health fee. Part-time students electing 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 services, after-hours emergency care, and health education and public health programs.

All educational activities sponsored by USHS are available to students, including educational literature, video cassettes, weight reduction classes, and health-related programs on topics of interest to students.

Accidental injury and hospitalization are not covered by USHS, and students are urged to take advantage of the University-sponsored health plan. Information on this insurance program, which provides benefits to students at group rates, may be requested from USHS.

Virginia law requires that full-time students submit an immunization record prior to enrollment for the first time at VCU. The immunization record is mailed to students upon acceptance and should be sent to the Academic Campus.

The USHS office on the Academic Campus is located in Suite 159, Gladding Residence Center, 711 West Main Street. The USHS office on the MCV Campus is located on the second floor of the A. D. Williams Clinic at 1201 East Marshall Street. For information, call (804) 367-1212 (Academic Campus), or (804) 786-9212 (MCV Campus).

Counseling
University Counseling Services (UCS) provides a wide range of services that meet the personal, social, vocational, and educational needs of students. The goal of the UCS is to promote student self-understanding and positive growth as well as to assist students who are experiencing stress or crisis in their daily living. Besides individual and group counseling, the UCS staff offers a number of programs and workshops designed to meet specific needs of students, including the Women’s Services program and newsletter, the Multicultural Training program and newsletter, career development workshops, anxiety and stress management training and support groups. Services are free except for a small fee for occasional testing. In addition, the UCS offers consultation and outreach services to faculty and student groups upon request. University Counseling Services is available to both day and evening students. The hours for service at the Academic Campus office are 8 a.m. to 6 p.m. Monday through Thursday and 8 a.m. to 4:30 p.m. on Friday. The hours for service on the MCV Campus office are 8 a.m. to 4:30 p.m. daily. All contacts and information are kept strictly confidential. For more information, or to make an appointment with a counselor, students can call...
and machine weight room, racquetball courts, a multi-purpose field and jogging track, and outdoor basketball courts. Numerous recreational activities are offered, including instructional sessions in aerobics, weight training, open recreation, and tournaments.

The MCV Campus Gymnasium houses four basketball courts, three volleyball courts, two indoor tennis courts, four handball/racquetball courts, two squash courts, a weight room, an exercise room, and a multipurpose room.

Camping and other wilderness recreation equipment can be rented at the Outing Rental Center, 916 1/2 West Franklin Street. In addition, students can participate in a variety of outdoor adventures through the outdoor adventure program located at the Outing Rental Center.

Students from both campuses may use the University swimming pool located in the Franklin Street Gymnasium on the Academic Campus. University identification is required. Additionally, graduate students are eligible to participate in numerous intramural and club sports activities on either campus. For specific information, students should contact the directors of Intramural Sports (Academic Campus: 367-6219; MCV Campus: 786-0437).

University Student Commons

The University Student Commons is the gathering place for the Academic Campus community—students, faculty, staff, and guests. The Commons also provides a wide array of programs, facilities and services to meet the needs of daily life on campus. All of the facilities and services are conveniently accessible to persons with disabilities.

The Information Center, located on the first floor, is staffed by students who can provide information about activities, events and services on campus and answers to any University-related question. Stop by or call 367-1981.

VCU Fan Fair carries a variety of VCU logo clothing and gift items as well as greeting cards and magazines. The University Career Center can assist students in finding part-time employment while in school and help in clarifying career options.

The Art Gallery, located next to the Information Center, and the Student Art Space, located on the second floor of the Commons Theater, house rotated exhibitions of student artwork.

Other services available on the main floor include bulletin boards, student organizations display cases, pay phones, coin-operated lockers and campus literature racks. A self-service U.S.
Post Office station provides stamps and other mailing supplies from vending machines along with a letter/parcel mail drop. Two automated teller machines offer 24-hour access and provide students with several banking options through Cashflow, Relay, and Most electronic networks.

The Commuter Student Lounge is located on the first floor lobby area of the Commons Theater building. A pay phone and restrooms are conveniently located in the lounge. The Rideboard helps connect drivers and riders for local and long-distance carpooling. The Off-Campus Housing Bureau also located in this area, provides computerized listings of available apartments, rooms and roommates.

Break Point, the Commons game room is located on the lower level. The Student Activities Center, across from Break Point, includes the offices of the student organizations.

The Commons Smoking Lounge is located at the north end of the second floor. The administrative offices, the offices for New Student Programs and the University Counseling Center are also located on the second floor of the Commons.

The Commons also offers four different eateries. Park Place Cafeteria features Taco Bell Express and special ARA entrees. Common Express features Burger King and Itza pizza. The Common Ground, located in the lower level, serves deli sandwiches and fresh pasta while the Common Market offers fresh gourmet coffee, Dunkin’ Donuts and sundries. All Commons eateries accept the Gold Card and Board Plan as payment options.

University Student Commons hours* are as follows:
Monday-Thursday 7:00 a.m. - 12:00 midnight
Friday 7:00 a.m. - 12:00 midnight
Saturday 10:00 a.m. - 1:00 a.m.
Sunday 12 noon - 11:00 p.m.

*Holiday hours and Summer hours differ according to University Schedule.

Larrick Student Center
A variety of activities and social opportunities are offered to students on the MCV Campus via the Jonah L. Larrick Student Center. The lower level of the circular building houses a cafeteria which provides food on a contractual basis for students living in the dormitories and for off-campus students who elect to be on the meal plan. Upstairs, a large central lounge which can accommodate up to 450 people for dances, social mixers, lectures, and other functions is surrounded by smaller meeting rooms which include offices of the student center manager, the MCV Student Government and Honor Council, the X-Ray (the MCV Campus yearbook), the MCV Campus Residence Hall Association, and two conference rooms. Additionally there are rooms for pool and table tennis, as well as cards, chess, piano playing, and record listening. Reservations for use of the activities areas should be made with the manager of the Larrick Student Center, (804) 786-0438.

Organizations
More than 170 student clubs and organizations exist on campus, reflecting the social, recreational, educational, political, and religious interests of the student body. Various types of organizations include fraternities and sororities, departmental professional and interest groups, service-oriented groups, and numerous special interest organizations representing a wide variety of activities and interests.

A list of registered student organizations, policies affecting these groups, and information and materials necessary to form new organizations are available in the Office of Student Activities, Student Activities Center, 907 Floyd Avenue, Room 018, Richmond, VA 23284-2035, (804) 367-6509.

Student Identification Cards
Students should carry their graduate I.D. cards with them at all times and should be ready to show them to any authorized University official who might request their identification. Students may obtain or validate their I.D. cards during registration. The cards are required for numerous University functions, including borrowing books from the library and use of the University shuttle system. Any student who loses an I.D. card should apply to University Enrollment Services/Records and Registration, for a replacement. There will be a charge for replacement.

Automobiles
Limited on-campus parking is available to students on a first-come, first-served basis. For information, students should contact the University Parking Offices: Academic Campus, (804) 828-0501; MCV Campus, (804) 786-2613.

University Mail Service
The United States Postal Service (USPS) provides self-service postal vending machines in the lobby of the Mail Services office at 1000 East
Marshall Street on the MCV Campus and in the University Student Commons on the Academic Campus. Students may mail packages through the USPS from the Student Commons Postal Center. A full-service USPS station at 8th and Marshall Streets supports MCV Campus students. All students living in residential housing have dormitory mail boxes. Use of a nine-digit zip code is important and should be included on all mail. Mail for dormitory residents should be addressed as follows:

Student's Name
Room No. ______________
__________________ Hall
Richmond, VA Nine-digit zip code
Master of Interdisciplinary Studies

ADMINISTRATIVE OFFICERS
ALVIN J. SCHEXNIDER, Ph.D.
Vice Provost for Undergraduate Studies and
Associate Vice President for Academic Affairs
MARcia F. Zwicker, M.A.
Director, Office of Academic Advising
SANDRA B. NUTALL, Ph.D.
Associate Director, Office of Academic Advising
DOROTHY E. FILLMORE, M.A.
Assistant Director, Office of Academic Advising

The Master of Interdisciplinary Studies (M.I.S.) Program offers students a coherent method of combining regular graduate studies in two or more selected disciplines. It is intended for students who wish to pursue a clearly defined, multidisciplinary program rather than a professional curriculum or a specialization in a traditional discipline.

The M.I.S. Program is a cooperative venture between Virginia Commonwealth University and Virginia State University. Students admitted to the M.I.S. Program at VCU will complete a minimum of nine hours of course work in Virginia State University classes.

Program Description

Before entering the program, students identify two or more disciplines in which to pursue graduate courses. They then complete regular graduate courses within each of the chosen disciplines, plus additional electives in other fields. When regular course work is completed, they select a special project for additional study and complete three to six credits of approved independent study, special topics, directed study, or thesis.

Administration

At Virginia Commonwealth University the M.I.S. Program is administered by the director of the Office of Academic Advising under the direction of the Vice-Provost for Undergraduate Studies. The director works closely with an advisory committee composed of graduate faculty from several disciplines.

Admission

To be admitted to the M.I.S. Program at VCU, students must provide the following specific requirements in addition to the general requirements for graduate admissions stated in Part I of this bulletin:

1. an overall minimum 2.8 GPA (on a 4.0 scale) in the last 60 credits of undergraduate work or, in some cases, a minimum 3.0 GPA in at least nine hours of graduate work;
2. a statement explaining (a) the kind of interdisciplinary curriculum desired, and (b) specific areas of study intended.

Applications for admission may be obtained from the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051, or in the Office of Academic Advising, 812 West Franklin Street, Room 1, Richmond, VA 23284-2002.
Degree Requirements
In addition to the general requirements stated in Part I of this bulletin, Master of Interdisciplinary Studies Program students must complete the following requirements:
1. a minimum total of 39 graduate semester credits, including (2) and (3) below;
2. three-six semester credits of approved directed research, independent study, special project, or thesis work;
3. at least nine and not more than 15 graduate-level semester credits (not including requirement 2 above) in each of at least two disciplines. No more than 15 credits in any one discipline (exclusive of the directed research, independent study, special project, or thesis requirement) may be applied toward an M.I.S. degree. No more than nine credits in business and/or economics courses may be applied to an M.I.S. degree.

Transfer Credits
Up to six semester credits of graduate courses may be transferred into the M.I.S. Program from institutions other than Virginia Commonwealth University and Virginia State University. All such transfer credits, however, must conform to the regulations stated in Part I of this bulletin.
Students in the M.I.S. Program must complete at least nine credits of their programs at Virginia State University. They may take these courses either on the main campus of Virginia State University in Petersburg or at an off-campus location, including VSU courses taught in the Richmond area.

INTERDISCIPLINARY STUDIES IN DEVELOPMENTAL DISABILITIES
The Virginia Institute for Developmental Disabilities (VIDD) promotes and facilitates interdisciplinary training of human service professionals who are preparing to work with children or adults with developmental disabilities and their families.
Through careful selection of coursework and practica from one's own field of study, VIDD, and other departments within the University, students, working closely with their advisors, can develop a nine-semester hour course sequence which will provide competency in Interdisciplinary Studies in Developmental Disabilities.
For more information contact VIDD at 225-3876, 301 W. Franklin Street, Richmond, VA 23284-3020.

Master of Public Health Program
FACULTY
Lanier, Jack O. Chairman and Professor, Department of Preventive Medicine and Community Health, Director, Master of Public Health Dr. P.H., FACHE, University of Texas Health Services Center; community health, health planning, preventive medicine, public health policy.
Butterly, C. M. G. Director Richmond City Health Department M.D., University of London, England; M.P.H.: Johns Hopkins University; preventive medicine, public health.
Ibrahim, Ibrahim A. Associate Professor M.B., B.Ch., Cairo University, School of Medicine, Cairo, Egypt; M.P.H., Tulane University, School of Public Health; community health, primary health care, health services research and management of health services.
Neff-Smith, Martha Associate Professor Ph.D., University of Michigan; instrument development, chronic disease, epidemiology, primary prevention/health promotion, program evaluation.
Nelson, William R. Director, Chesterfield Health District M.D., Medical College of Virginia; M.P.H., University of North Carolina; preventive medicine, public health, OB/GYN.
Peeples, Edward H. Peeples Associate Professor Ph.D., University of Kentucky; behavioral epidemiology, public health behavioral science, research methodology.
Vance, Leonard R. Associate Professor Ph.D., Virginia Tech; J.D., University of Richmond; C.I.H. Director, Occupational/Environmental Training Program, Medical College of Virginia; occupational/environmental issues; continuing education/environmental training, consultant on state and federal regulation issues.
Willis, Hayes E. Project Coordinator, Richmond Primary Care Initiative, Chairman, Quality Assurance M.D., Medical College of Virginia; internal medicine, rheumatology and allergy medicine.

The graduate program in public health is offered through the School of Medicine's Department of Preventive Medicine and Community Health and leads to a Master of Public Health degree. The program is closely linked with local, state, and national public health agencies, organizations, and professionals in order to enhance the student's appreciation and understanding of applying public principles to practice. The M.P.H. program provides the knowledge and skills necessary for a broad range of positions in academia, private industry, and local, state, national, and international health organizations.
Graduates of the M.P.H. Program are expected to comprehend the complex matrix of psychosocial, cultural, economic, political, and biological factors which influence sick care systems, prevention activities, and other health issues of our time; to be able to identify, analyze, diagnose, and interpret public and community health issues; design, implement, and evaluate community health programs; and be able to apply
specific skills and knowledge to the surveillance of disease and injury.

Study for the M.P.H. degree can be undertaken on a full- or part-time basis. Most courses are offered in the late afternoon or evening and other times which are convenient to working students. The program is designed to accommodate students from a variety of academic and professional backgrounds. Generally, students are either 1) recent baccalaureate degree graduates who have a strong interest in a public health career, 2) physicians, dentists, nurses or other health professionals who wish to link advanced study in public health with their professions; 3) health workers seeking career development or advanced study.

Upon acceptance to the program, the student is matched on the basis of study or career interests to an academic advisor who works with the student to tailor an appropriate program of study and complementary experience. The student is expected to complete eight core or required courses, three public health related electives offered by the M.P.H. Program or another graduate program in the University, and a research oriented practicum under the guidance of one of the Program’s faculty or community preceptors. Approval for the course of study is obtained from the student’s academic advisor, but students have the right to petition the M.P.H. Program Director for variances.

The program emphasizes an interdisciplinary and applied approach to learning. In addition to academic pursuits, the student is encouraged and directed toward personal learning experiences involving important public health programs and activities. Elective courses, independent study, the Public Health Practicum, and various other activities in the University and community are among the means to this end. Elective and independent study offerings include such topics as epidemiology, statistics and research methodology, community health services, preventive medicine, occupational and environmental health, risk management, nutrition, health promotion and education, public health behavior, public health policy and politics, minority health, public health law and regulation, intentional injuries and violence, intentional injuries, public health nursing, and international health. Additional electives are available through other graduate programs on both campuses of the University. Graduate and professional students not matriculated in the M.P.H. Program who wish to take M.P.H. courses must receive written approval of the instructor and the Director of the M.P.H. Program.

The setting for the M.P.H. Program is rich with educational opportunities for the graduate students. Situated on the Academic Medical Center campus (Medical College of Virginia) only blocks away from the seat of Virginia’s state government, Richmond’s City Hall, and only two hours from the nation’s capital, students have easy access to a wide variety of lectures, seminars, research opportunities, library and computer resources, health, educational and human service programs, health care and clinical venues, and community and political activities. The West Campus, connected by only a few minutes University bus ride, offers still other activities and facilities useful to the M.P.H. graduate student.

The M.P.H. faculty is composed of a core of experienced professors in the Department of Preventive Medicine and Community Health who are complimented by faculty from other graduate departments and veteran professionals working on the front line in public health who have been selected because of their expertise and academic qualifications.

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<tr>
<th>Course</th>
<th>Credit</th>
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<tr>
<td>MPH 600 Introduction</td>
<td>3</td>
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<tr>
<td>MPH 603 Public Health Policy and Politics</td>
<td>3</td>
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<tr>
<td>MPH 604 Principles of Occupational and Environmental Health</td>
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<tr>
<td>MPH 605 Study of Populations at Risk</td>
<td>3</td>
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<tr>
<td>NUR 571 Principles of Epidemiology</td>
<td>3</td>
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<tr>
<td>HAD 602 Health Care Organization and Services</td>
<td>3</td>
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<tr>
<td>MPH 691-4 Survey of Public Health Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BIS 543/ SOC 508 Biostatistics</td>
<td>3</td>
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<tr>
<td>Electives</td>
<td>9</td>
</tr>
<tr>
<td>MPH 691-2 Public Health Practicum</td>
<td>3</td>
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<tr>
<td>Total Credit Hours</td>
<td>36</td>
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</table>

Admission Requirements

Information and application forms and materials for admission may be obtained from the School of Graduate Studies as detailed earlier in Part I of this bulletin. Requirements for admission include satisfactory completion of a baccalaureate degree program or its equivalent and a demonstrated strong interest in a health career. Test requirements and other admission information can be seen at the end of this bulletin in the Graduate Curriculum Requirements Chart and Directory. Work or academic experience in the health field is highly desirable but not essential. Transfer credit for prior graduate or professional school courses or experience is subject to approval by the Director of the M.P.H. Program upon recommendation of the Faculty. International applicants must have a high proficiency in English.
GRADUATE COURSES IN PUBLIC HEALTH (MPH)

600 (001) Introduction to Public Health. Semester course: 3 credit hours (lecture). Describes the public health system in the United States. Explores the disease prevention and philosophy and foundations of public health management, economics, law, ethics and education. Examines the use of epidemiology and statistics to determine personal, environmental, and occupational health problems.

603 (001) Public Health Policy and Politics. Semester course: 3 credit hours (lecture). Provides an understanding of the public health policy development process, the influence of politics and special interest groups on this process, and current governmental policies for the provision of major public health services. The legislative process is a major focus of the course.

604 (001) Principles of Occupational and Environmental Health. Semester course: 3 credit hours (lecture). Basic principles of occupational and environmental health are presented, with emphasis on biological, chemical, and physical factors that influence human health. Current workplace and public health safety and regulatory issues are emphasized.

605 (001) Study of Populations at Risk. Semester course: 3 credit hours (lecture). Examines the why and hows of determining major population health risks. Focuses on the design of a research project to determine the risks to health of an identified population using sampling and survey techniques, data collection, and data analysis.

615 (E-004) Minority Issues in Public Health. Semester course: 3 credit hours (lecture). A survey of a number of crucial psychological, social, cultural, demographic, economic, biological, humanitarian, and other factors which influence disease susceptibility, the distribution of disease and disabilities, the quality and accessibility of the health care, and other health-related conditions among minorities and underserved populations in the United States. Through lectures and dialogue, expert panels, student presentations, readings, and other assignments, students are expected to become acquainted with theory and research findings from the behavioral sciences, behavioral epidemiology, public health, and other sources which are likely to contribute to: (1) a greater comprehension of the magnitude and complexities of violence and intentional injuries in American life and (2) advancements in our capacity to successfully confront this epidemic with public health and related measures.

691 (002) Intentional Injury. Semester course: 3 credit hours (lecture). Examines the number, distribution, and impact of intentional injuries in the United States, as well as some of the crucial psychological, social, cultural, demographic, economic, biological, and other factors associated with their cause, control, and prevention. Through lectures and dialogue, expert panels, student presentations, reading, and other assignments, students are expected to become acquainted with theory and research findings from the behavioral sciences, behavioral epidemiology, public health, and other sources which are likely to contribute to: (1) a greater comprehension of the magnitude and complexities of violence and intentional injuries in American life and (2) advancements in our capacity to successfully confront this epidemic with public health and related measures.

691 (003) Public Health Education. Semester course: 3 credit hours (lecture). Provides the student with an examination of theory and practice of public health education. This examination represents an overview of selected topics that are congruent to the Responsibilities and Competencies for Entry-Level Health Educators. Specifically, course content will be centered around assessing individual and community needs for health education programs, coordinating provision of health education services, acting as a resource person in health education, and communicating health and health education needs, concerns, and resources.

691 (V-003) Special Topics (Nutrition Research). Semester course: 2 credit hours (lecture). This course consists of weekly discussions of selected topics in nutrition led by the faculty plus an assigned paper and presentation at the end of the semester by each student. The topics to be presented by the faculty include: Food Safety, The Aspartame Example; Diet, Nutrition and Cancer; Exercise and Nutrition; The Vitamin A Story; The FDA and Food Safety; Nutrition and GI Motility; Nutrition Assessment Techniques; Nutrition of the Critically Ill; The Vitamin D Story; Cholesterol Nutrition; Nutrition and Wound Healing; How Salty Taste Works; Stable Isotopes in Nutrition Studies.

691 (001) Public Health Law. Semester course: 3 credit hours (lecture). Provides the student with the structure of the legal system and statutes and regulations governing state and local health departments. This course examines the federal public health laws, medical malpractice, privacy and confidentiality issues, mental health laws, abortion and sterilization, patients rights, emergency medical care law, human experimentation, rights of the terminally ill, AIDS law, occupational and environmental health law, and health planning and reimbursement law.

691 (002) Public Health Practicum. Semester course: 3 credit hours (9 clinical hours). Focuses on practice and research roles within public health. Provides students the opportunity to work collaboratively with state and local public health agencies and professionals in meeting specific population needs. Community health and issues pertaining to populations at risk are primary areas of interest for students enrolled.

NUR 571 Principles of Epidemiology. Semester course: 3 credit hours (2 lecture; 1 seminar). Offers the theoretical foundation for understanding the health problems and needs of American society and uses scientific and social knowledge to examine factors that cause and alter the course of health problems in selected populations.
HAD 602 Health Care Organization and Services. Semester course: 3 credit hours (2 lecture; 1 seminar). The primary objective of the course is to provide students with a broader view of the U.S. health care system, and the political and social environment in which it exists. This perspective is essential for future administrators if they are to be effective in both directing their organizations in the public interest, from a variety of perspectives. Knowledge from sociology, economics, political science and epidemiology will be introduced into the course for the purpose of providing conceptual bases necessary for analyzing developments and issues in the health care field.

BIS 531 Epidemiology and Health Risk. Semester course: 3 credit hours (lecture). Prerequisite: must have completed statistics course before being given permission to take epidemiology course with permission of instructor. A survey course which focuses on the concepts of epidemiology and its role in risk assignment. This course will distill the underlying theory and the principles used by epidemiologist. The course will introduce the sources and uses of vital data, their conversion into morbidity and mortality rates and indices. Procedures such as age standardization and abridged life table will be introduced, as will concepts of disease transmission, epidemiology and various summary statistics. The Surgeon General’s criteria for causation will be examined, designs in epidemiological research reviewed, and the use and limitations for epidemiological data in risk assessment described. Students should have a current VAX account and some background in mathematics and elementary statistics.

BIS 543 Statistical Methods I. Semester course: 3 credits (lecture). Prerequisite: graduate status or one course in statistics with permission of instructor. Basic concepts of statistical methods, statistical measures, variation, distribution, tests of significance, analysis of variance, correlation and regression; analysis and design of factorial experiments; analysis of covariance.

INH 521 Law and Regulation of Toxic Substances. Semester course: 3 credit hours (lecture). This course introduces the student to the administrative law and policy issues. This course examines the Clean Water Act, Clean Air Act, Resources Conservation & Recovery (RCRA), Federal Facility Compliance Act, Comprehensive Environmental Response, Compensation & Liability Act (CERCLA-Superfund), Toxic Torts; Real Estate Issues; Recovery of Money Damages; Criminal Law, Occupational & Mine Safety & Health Acts (OSHASMSHA), Workman’s Compensation; Occupational Disease; Victim Compensation, Safe Drinking Water Act; Pollution Prevention Act, Food Drug & Cosmetic Act, RCRA & Superfund Regulations & Case Law; State Hazwaste/Superfund Programs, Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA); Lead Based Paint Poisoning Prevention Act, Radiation Law & Regulation; Transportation, Marine Sanctuaries Act; International Environmental Law.

Cooperative Graduate Engineering Program

FACULTY
Haas, Thomas W. Professor and Director Ph.D., Princeton University; polymer engineering.

The Cooperative Graduate Engineering Program is a collaborative effort of the University of Virginia, Virginia Commonwealth University, Virginia Polytechnic Institute and State University, Old Dominion University, George Mason University, and Mary Washington College.

Administration
At Virginia Commonwealth University, the program is administered by the director, Cooperative Graduate Engineering Program in the College of Humanities and Sciences. The director works closely with an advisory committee composed of the dean of the College of Humanities and Sciences at VCU, the engineering school deans at the University of Virginia and Virginia Polytechnic Institute and State University, and representatives from the State Council of Higher Education, the Department of Telecommunications, local businesses and industries, the Richmond Chamber of Commerce, and the Richmond Metropolitan Development Council.

Program Description
Students having baccalaureate degrees in engineering or strong backgrounds in the sciences may work toward a master’s degree in engineering on the Academic Campus of Virginia Commonwealth University. Graduate engineering courses are taught using interactive television lectures/demonstrations from the University of Virginia and Virginia Polytechnic Institute and State University. In addition to the required engineering courses, elective courses are available in applied mathematics, mathematical statistics, chemistry, operations research, physics, and computer science in classes at Virginia Commonwealth University. Academic programs available are Aerospace and Ocean Engineering Chemical Engineering Civil Engineering Electrical Engineering Engineering Administration Industrial Engineering and Operations Research Manufacturing Systems Engineering Materials Science Mechanical Engineering Sanitary Engineering Systems Engineering

Degree Students
Students enrolling in the program should apply for admission in a given academic area of study and may select courses from any of the participating institutions, consistent with selected degree requirements.
The degree awarded is the Master of Materials Science or Master of Engineering degree from the University of Virginia or the Master of Science or Master of Engineering, depending upon the program, from Virginia Polytechnic Institute and State University. Neither university requires a thesis nor time spent in residence for these degrees.

Nondegree Students

Qualified individuals may enroll in a particular course without pursuing a formal graduate degree program of study. Admission will be based on the individual's academic preparation and the availability of space.

Admission

Students are accepted for admission either to the University of Virginia or to Virginia Polytechnic Institute and State University, depending upon their degree programs. Applicants should have a “B” average, but a successful professional experience may strengthen the admission credentials of those with marginal academic records. Three recommendations from persons who are qualified to give information concerning the applicants’ probable success in the program and the completion of the Graduate Record Examination are required also.

Master of Science Program in Geriatric Physical Therapy

Geriatric physical therapy is a joint program offered by the Department of Physical Therapy and the Master of Science program in gerontology culminating in a Master of Science degree in physical therapy with a specialty in geriatric physical therapy. The faculty includes the combined graduate faculties of physical therapy and gerontology.

Graduate students in this program may prepare for positions in teaching, administration, clinical practice, or research related to the programs of the aged population, including positions as chief physical therapists in any kind of facility dealing with geriatric patients where they could provide leadership in service, research, and teaching.

See Part I of this bulletin for School of Graduate Studies rules on admissions and general academic policy. For further information on the Master of Science program in geriatric physical therapy, see the program description in Part IV of this bulletin.

Certificate Program in Aging Studies

The Certificate in Aging Studies program was designed primarily to meet the needs of persons who are working already with the elderly but who have no academic training in gerontology. The certificate program provides students with a comprehensive overview of gerontology and stimulates the application of gerontological research to problems in applied areas. The certificate program is also a minor option for graduate students in other disciplines.

The Certificate in Aging Studies program is designed to meet the needs of those individuals who desire graduate training in gerontology but who do not desire the full completion of the master’s program. This program is complementary to the M.S. program. Certificate students who wish to enter the M.S. program must make formal application and abide by the admission requirements outlined in this bulletin.

For further information on the Certificate in Aging Studies, see the program description in Part IV of this bulletin.

M.S.W. and Certificate in Aging Studies

The School of Social Work, in cooperation with the Department of Gerontology, provides students with a unique opportunity in social work and gerontology. School of Social Work M.S.W. students interested in work with the elderly or in gerontological programs may earn a Certificate in Aging Studies while completing Master of Social Work degree requirements.

Interested students must meet the admission requirements of the M.S.W. program of the School of Social Work and of the Certificate in Aging Studies of the Department of Gerontology. Admission into one program does not guarantee admission into the other. In order to meet the requirements of the M.S.W. degree and the Certificate in Aging Studies, students complete a total of 65 graduate credits. All foundation and specialization courses of the M.S.W. program are completed, and core courses (nine credits) of the Certificate in Aging Studies are completed. Other requirements are met by (1) completion of the M.S.W. research credits in which students undertake a project focused on aging; (2) completion of second-year field instruction practicum requirements (six credits) in a social work setting related to aging; (3) completion of an independent study
course in Gerontology which integrates research and practicum courses.
Additional information may be obtained from the Department of Gerontology, 1010 East Marshall Street, Richmond, VA 23298-0228 (Attention: M.S.W.-Gerontology Certificate Advisor).

Certificate in Applied Social Research
The Department of Sociology provides limited, specialized training in the methods and techniques of applied social research. This certificate meets the needs of students who wish to acquire these skills without pursuing a graduate degree or who are enrolled in a graduate program and wish to fulfill specific job or career needs.
For further information on the Certificate in Applied Social Research, see the program description in Part III of this bulletin.

Graduate Programs in Statistical Areas and Operations Research
See degree programs or tracks in statistics in the following departments or programs:
Biostatistics (M.S., Ph.D.) — School of Basic Health Sciences
Master of Science Degree in business (concentration in quantitative methods) — School of Business
Mathematical Sciences (M.S. in statistics/mathematical sciences and M.S. in operations research/mathematical sciences) — College of Humanities and Sciences

GRADUATE COURSES IN STATISTICS

Cross-Listed Courses
Biostatistics (BIS)/Statistics (STA)
513-514 Mathematical Statistics
523 Nonparametric Statistical Methods
543-544 Statistical Methods

Sociology (SOC)/Statistics (STA)
508 Introduction to Social Statistics
608 Statistics for Social Research

Other Courses
Biostatistics (BIS)
BIS 502 Application of Microcomputers to Health Sciences
BIS 516 Biostatistical Consulting
BIS 521 Biostatistical Principles of Health Care Information
BIS 524 Biostatistical Computing
BIS 530(S) Elements of Biometry
BIS 546 Linear Models

BIS 553-554 Applied Statistics
BIS 571 Clinical Trials
BIS 572 Statistical Analysis of Biomedical Data
BIS 581 Applied Multivariate Analysis
BIS 615-616 Advanced Inference
BIS 625 Analysis of Categorical Data
BIS 631-632 Multivariate Analysis
BIS 638-639 Statistical Design and Analysis in Toxicology
BIS 647 Survival Analysis
BIS 650 Design and Analysis of Response Surface Experiments
BIS 655 Quantitative Epidemiology
BIS 660 Sequential Analysis
BIS 667 Advanced Data Analysis
BIS 690 Biostatistical Research Seminar
BIS 691 Special Topics in Biostatistics
BIS 697 Directed Research in Biostatistics

School of Business
BUS 619 Computer-Assisted Simulation
BUS 624 Statistical Elements of Quantitative Management
BUS 632 Statistical Analysis
BUS 645 Operations Research
BUS 648 Managerial Decision Making
BUS 669 Forecasting Methods for Business
BUS 674 Cases in Operations Research
BUS 675 Operations Management
BUS 677 Topics in Operation Management
BUS 732 Applied Multivariate Methods
BUS 745 Advanced Operations Research
BUS 790 Doctoral Seminar
ECO 612 Econometrics

Mathematical Sciences
MAT 527-528 Mathematical Foundations of Operations Research
MAT 603-604 Advanced Probability Theory
MAT 639 Studies in Operations Research
MAT 641 Mathematical Programming
MAT 645 Queueing Theory
MAT 649 Practical Optimization
STA 500 Survey of Statistical Software
STA 503 Introduction to Stochastic Processes
STA 533 Applied Linear Regression
STA 591 Topics in Statistics
STA 613-614 Stochastic Processes
STA 623 Discrete Multivariate Analysis
STA 691 Special Topics in Statistics

Psychology
PSY 620 Design and Analysis of Psychological Research
PSY 621 Statistics in Psychological Research

Sociology
SOC 623 Causal Analysis

Combined M.S./Ph.D. and M.D. or D.D.S. Degree Programs
Many future physicians and dentists, especially those interested in academic and research careers, need to start in-depth training in research while still in school or residency training. This need can be met effectively by completing the requirements for the M.S. or Ph.D. degree con-
currently with the study of medicine or dentistry. The MCV/VCU medical and dental curricula, with free time for elective courses and research, provides an excellent opportunity for interested students to enter a combined M.S.Ph.D.-M.D. or D.D.S. program.

Admission of medical and dental students regularly enrolled in these schools to this combined degree program is processed through the Office of the Dean of the School of Basic Health Sciences by established procedures. The Medical College Admission Test or Dental Aptitude Test is accepted in lieu of the Graduate Record Examination. Undergraduate transcripts and references are obtained from the professional school.

The requirements for a combined professional school/graduate school degree in basic health sciences are equivalent to those required of students seeking a graduate degree alone and are determined by the individual department. One of the advisory committee members is the student's professional school advisor.

The minimum graduate residence requirement is one year for the M.S. and two years for the Ph.D. degree. Twenty-four weeks of graduate work (two summers) will be considered equivalent to one year of residence. A time limit of five calendar years for the M.S. and seven calendar years for the Ph.D. degree, beginning at the time of first registration in the graduate school, applies to work to be credited toward degrees for students in combined programs.

Combined Ph.D. and Doctor of Pharmacy Program

The School of Pharmacy offers a combined Doctor of Pharmacy and Ph.D. program in the program of pharmacetics and pharmacy administration. Interested pharmacists should contact the program director in the School of Pharmacy for details. Students must apply to, and be accepted by, both programs separately.

Interdisciplinary Ph.D. Programs

The Schools of Basic Health Sciences and Allied Health Professions offer a Ph.D. program in anatomy-orthopedic physical therapy. This research degree is planned primarily as a physical therapy faculty development program; other needs may be met for individual students. Interested physical therapists should contact the Department of Anatomy for details.

Other interdisciplinary Ph.D. programs include the Ph.D. in Urban Services and the Ph.D. in Social Policy and Social Work. These programs are outlined in the education and social work sections of this bulletin.

Interdisciplinary Studies in Developmental Disabilities

The Virginia Institute for Developmental Disabilities (VIDD) promotes and facilitates interdisciplinary training of human service professionals who are preparing to work with children or adults with developmental disabilities and their families.

Through careful selection of coursework and practica from one's own field of study, VIDD, and other departments within the University, students, working closely with their advisors, can develop a nine-semester hour course sequence which will provide competency in Interdisciplinary Studies in Developmental Disabilities.

For more information, contact VIDD at 225-3876, VCU Box 3020, 301 W. Franklin Street, Richmond, VA 23284-3020.
administrative officers
David R. Hiley, B.A., Ph.D.
Dean
Susan Estabrook Kennedy, B.A., M.A., Ph.D.
Associate Dean
John H. Borgard, A.B., M.A., Ph.D.
Associate Dean
Jackie Elston, B.B.A., M.B.A.
Assistant Dean

School of Mass Communications
Thomas R. Donohue, B.A., M.A., Ph.D.
Director

Cooperative Graduate Engineering Program
Thomas W. Haas, B.S., M.S., M.A., Ph.D.
Director

The College of Humanities and Sciences was organized in 1966 (then the School of Arts and Sciences) as a combination of several existing departments at Richmond Professional Institute: biology, chemistry, English, foreign languages, and history and political science. The Departments of Philosophy and Religious Studies, Mathematical Sciences, Physics, Psychology, Sociology and Anthropology, and Political Science were developed or added subsequently. Arts and Sciences began its first graduate programs in 1969 with the master’s programs in psychology and sociology. Master’s programs in biology and mathematical sciences and a doctoral program in clinical psychology were added in 1971. A master’s program in English/English Education was begun in 1974 cooperatively between the Department of English and the Division of Teacher Education of the School of Education. The graduate program in chemistry, a cooperative venture between the Departments of Chemistry on the Academic Campus and Pharmaceutical Chemistry on the MCV Campus, was transferred administratively to the School of Arts and Sciences in 1974. A master’s degree in mass communications was begun in 1976, a doctoral program in social policy and social work was begun in 1978 cooperatively between the Department of Sociology and Anthropology and the School of Social Work, and the Master of Fine Arts in creative writing commenced in 1983. The M.S. program in computer science was developed in 1987. A master’s degree in history was initiated in 1994.

In July 1981, the School of Arts and Sciences and the Department of Mass Communications were organized into the College of Humanities and Sciences and the School of Mass Communications.

Graduate Programs in the College of Humanities and Sciences
The College of Humanities and Sciences offers the following graduate degree programs:
- M.A. in English
- M.A. in history
- M.F.A. in creative writing
- M.S. in biology
- M.S. and Ph.D. in chemistry
M.S. in computer science
M.S. in mass communications
(through the School of Mass Communications)
M.S. in mathematical sciences
applied mathematics
mathematics
operations research
statistics
M.S. in physics
M.S. and Ph.D. in psychology
clinical
counseling
general
M.S. in sociology
The College of Humanities and Sciences also administers the Cooperative Graduate Engineering Program, a collaborative effort of the University of Virginia, Virginia Polytechnic Institute and State University, and Virginia Commonwealth University.
In addition to these degree programs, the College of Humanities and Sciences offers selected graduate courses in the Departments of Foreign Languages, History and Geography, Philosophy and Religious Studies, and Political Science; it does not offer graduate degree programs in these departments.

REQUIREMENTS FOR ADMISSION
In addition to the general requirements for admission to graduate studies as stated in Part I of this bulletin, persons seeking admission to any of the graduate programs in humanities and sciences (1) should have a bachelor's degree in the discipline in which application for graduate study is made or, in some programs as noted, a bachelor's degree in some other appropriate area; (2) should submit Graduate Record Examination scores (some departments require the scores on the advanced GRE within the discipline); and (3) should have submitted letters of recommendation which comment on the applicant's ability to undertake graduate study in the specified area.
All applications will be considered in terms of the specific requirements for admission noted in the description of the individual programs and of the applicant's ability to perform satisfactorily in the program for which he or she has applied. The judgment of that ability will be based on the supporting material submitted with the application. Some graduate programs must limit enrollment to a fixed number of the best-qualified applicants. Final action on admission is taken by the dean of the School of Graduate Studies in consultation with the College of Humanities and Sciences and the department concerned.
Applicants whose applications reach the University after July 1 for the fall semester and after November 15 for the spring semester may not have their applications processed in time for registration. The applicant whose application arrives late may be considered for admission as a special student, but there is no guarantee that the special student will be accepted later into a degree program. For special psychology and English deadlines, see the sections for those departments in this bulletin.

REGISTRATION
Although most students register for the first semester, which begins in August, they may arrange to begin graduate work during the spring semester except for the program in clinical and counseling psychology.

SCHOLARSHIPS, ASSISTANTSHIPS, FELLOWSHIPS AND OTHER FINANCIAL ASSISTANCE FOR GRADUATE STUDENTS
(See departmental listings as well.)
The College of Humanities and Sciences seeks to attract and support graduate students of the highest calibre and to prepare them, through research and instruction, to meet local and national needs for highly-trained men and women. Recognizing that financial limitations may inhibit some qualified students from applying, the College attempts to inform students of the options of various loans, grants and work-study opportunities that are available to them and to assist them in financing their education by offering various forms of financial aid and by facilitating the process of seeking financial assistance from external sources. Additionally, the College believes that the experience of being a teaching or research assistant reinforces the learning that takes place in the classroom. The value of teaching assistants is also recognized as being beneficial to the College's undergraduate programs.
Types of financial aid that are available to graduate students falls into three basic categories: aid that does not have to be repaid (grants, scholarships, and tuition waivers); aid that does have to be repaid (loans); and aid that enables students to earn a portion of their school costs (work-study, graduate teaching assistantships, graduate research assistantships).
Offers of financial aid are based on financial need and/or skill and competency. Financial need
is determined by information contained in the Financial Aid Form (FAF) completed by the student. Not all financial aid is based on financial need. To ascertain your eligibility for the different types of financial aid, contact the VCU Financial Aid Office at 901 West Franklin Street, Box 3026, Richmond, Virginia 23284-3026, (804) 367-0765, and the department to which you will be applying. The university library has reference books listing other types of scholarships and grants. International students should contact: Office of International Student Affairs at 901 Floyd Avenue, Box 3017, Richmond, Virginia 23284-3017, (804) 367-0595.

Graduate Teaching Assistantships (GTAs) and Graduate Research Assistantships (GRAs) are forms of financial aid that provide teaching and research positions for graduate students within their field of study. These are not loans and do not have to be repaid because the student is actually earning income for services rendered. Usually Graduate Assistants must work the equivalent of 20 hours per week. Assistantships are awarded to students who have demonstrated academic excellence. Individual departments award the assistantships, which usually include payment of tuition; the teaching and/or research duties of graduate assistants vary among departments. Graduate students interested in seeking these teaching and research positions are advised to contact the departments to which they will apply for admission.

Graduate students applying for financial assistance should remember to:

1. Apply early.
2. Use your federal tax forms to complete the FINANCIAL AID FORM (FAF).
3. Save copies of all forms you complete, including your tax returns.
4. Check with the department to which you are applying for admission regarding application requirements and deadlines.

Assume you’re not eligible. **DO NOT ASSUME YOU ARE INELIGIBLE!**

**THE STUDENT ADVISOR AND THE GRADUATE COMMITTEE**

All departments offering graduate degrees in the College of Humanities and Sciences provide graduate students with advising either through a single advisor, the student’s graduate committee, or a departmental graduate committee. For details students should consult the departmental director of graduate studies or the departmental chairman.

**REQUIREMENTS FOR GRADUATE DEGREES**

1. Full-time graduate status shall consist of a minimum of nine and a maximum of 16 credits per semester. No more than 12 semester credits may be earned in a summer semester. See Part I of this bulletin for course load requirements for students awarded graduate assistantships.

2. Graduate students are required to maintain an overall grade point average of 3.0 (“B”). (See item 4 below.) Students who do not maintain a “B” average during the course of their program may be dropped from the program at any time on recommendation of the appropriate department committee to the dean of the School of Graduate Studies. If students earn less than a “B” on 20 percent or more of all attempted credits, their graduate status must be reviewed for continuation by the appropriate department committee.

3. At least half of the credits required in the student’s program must be those designated as exclusively for graduate students; that is, those at the 600 level or above.

4. Graduate students must have earned an overall grade point average of 3.0 (“B”) in order to receive a degree.

In addition to these requirements and those set forth in Part I of this bulletin, students must meet the requirements for specific degrees set forth in the departmental listings. Students should also consult the Continuous Enrollment Policy stated in Part I of this bulletin.

Students are required to submit in advance of the date when they expect to receive a degree a Graduation Application Form to the dean of the College of Humanities and Sciences. Deadlines for the submission of the Graduation Application Form are listed in the calendar at the front of this bulletin; for departmental deadlines the student should consult the departmental advisor. Individual departments may require additional forms.

**APPEAL PROCEDURES**

Graduate students in the College of Humanities and Sciences have the right to appeal course grades or other academic actions on the grounds of a breach of due process. See Part I of this bulletin for a summary of the Grade Review Procedure. An appeal of an academic action other than a grade review is governed by the Graduate Student Academic Appeal Procedure. A copy of this document can be obtained from department offices.
School of Mass Communications

FACULTY

Bohle, Robert H. Associate Professor Ph.D., University of Tennessee; research methodology.

Crutchfield, George T. Professor M.S., Florida State University; communications theory.

De Riemer, Cynthia Assistant Professor Ph.D., University of Tennessee; media management, media economics, public relations.

Donohue, Thomas R. Professor and Director Ph.D., University of Massachusetts; mass media effects.

Hughes, Robert Associate Professor J.D., University of Florida; communications law.

Kennamer, J. David Associate Professor Ph.D., University of Wisconsin-Madison; communications theory, research methodology.

Smith, Ted J., III Associate Professor and Director of Graduate Studies Ph.D., Michigan State University; media-government relations, research methodology.

Thomas, Clarence Assistant Professor Ph.D., University of Florida; broadcast journalism, history of journalism.

Wirt, Wilma H. Associate Professor M.A., University of Texas; urban journalism reporting.

The School of Mass Communications offers a program leading to a Master of Science degree in mass communications. The program offers interdisciplinary study in management and the social sciences. Students are encouraged to take course work in other areas related specifically to their interests.

The program offers candidates two tracks through which individual programs may be developed appropriate to these professional goals:

Track One/Media Management provides preparation for a career as a middle or upper-level executive in the mass media.

Track Two/Professional Journalism provides advanced preparation or updating of proficiency as a professional journalist.

Students are expected to declare the track they intend to pursue by the end of their first semester.

In addition to the two tracks, the School of Mass Communications offers course work for those interested in scholastic journalism. Scholastic journalism teachers and advisors may contact the MAC Director of Graduate studies or a member of the mass communications graduate faculty regarding courses. Such courses may be used to enhance skills or as part of a degree program (see course description MAC 520 “Topics in Journalism Education” for details).

ADMISSION REQUIREMENTS

The program is open to graduates of accredited colleges and universities. Applicants for this program must satisfy the general requirements for admission to graduate programs in the School of Graduate Studies and the College of Humanities and Sciences (see Humanities and Sciences guidelines in this bulletin). In addition, the following requirements represent the minimum acceptable standards for admission:

1. A baccalaureate degree in an area appropriate to the mass communications degree program and a grade-point average that indicates the applicant’s ability to pursue graduate work. Although the type of undergraduate degree is not critical to admission, the program requires approved undergraduate curricula or the equivalent in order to receive full admission.

2. At least one course in basic statistics. Applicants who do not meet this requirement may enroll in a statistics course at VCU during the first semester. The course must be approved by the MAC Director of Graduate Studies.

3. Micro and macro economics are required. Applicants who do not meet this requirement may enroll in ECO 210-211 or ECO 600.

4. At least three acceptable journalistic writing courses for admission to the professional track or one such course for admission to the media management track. Evidence of professional competence may be substituted for these requirements.

5. Acceptable scores on the Graduate Record Examination.

Applicants must also submit:

1. Three recommendations from persons who are qualified to give information concerning the applicant’s probable success in graduate school.

2. A letter detailing career goals and how the M.S. degree program in mass communications applies to those goals should accompany the application for admission.

Provisional admission may be granted under certain circumstances. For example:

1. An applicant does not meet all minimum standards. Prerequisite course work should be completed early in the program before a candidate starts taking MAC 600 level courses.

2. An applicant has marginal GRE scores.

DEGREE REQUIREMENTS

The master’s program requires a minimum of 34 hours beyond the baccalaureate degree. All
students must meet with the MAC Director of Graduate Studies for advisement prior to course registration. During this time electives and student schedules will be reviewed for approval.

A minimum of 12 credits submitted for the graduate program must be in area(s) other than mass communications. One course (three to four credits) at the 400 level may be used as an elective in a candidate’s program. Students may transfer a maximum of six semester hours of graduate course work from other institutions.

Students must take a minimum of 19 hours in mass communications and 12 in approved electives outside the area of mass communications. For the remaining 3 hours students take a comprehensive examination or complete a formal thesis.

1. In the thesis option, candidates must register for 3 hours of MAC 699/Thesis Registration.

2. In the comprehensive examination option, one additional three-hour approved graduate elective course is required, followed by comprehensive written and oral examinations.

All candidates must establish a three-member examination/thesis committee by the third full-time semester or equivalent. The candidate must nominate a chairperson and a second member from the MAC graduate faculty. In addition, the candidate must nominate a third member from another department or school. The committee chairman will advise the student and arrange the written and oral examinations.

MAC Core Requirements—all students must take these five courses (13 hours).

- MAC 600 Mass Communications Proseminar (this must be taken during the first semester of graduate study) (1 hour)
- MAC 611 Research Methods (3 hours)
- MAC 612 Mass Communications Theory (3 hours)
- MAC 613 Mass Media and Society (3 hours)
- MAC 616 Mass Communication Law (3 hours)

Media Management Track—Core courses and 21 hours distributed as follows:

- MAC 617 Media Analysis (3 hours)
- MAC 618 Economics of the Media (3 hours)
- 9 hours of approved 600 level management electives
- Comprehensive Examination Option—the student must take two additional 3 hour approved elective courses outside mass communications
  or
- Thesis Option—the student must enroll in 3 hours of MAC 699/Thesis Registration and complete one additional 3 hour graduate elective course

Professional Journalism Track—Core courses and 21 hours distributed as follows:

- MAC 614 Media-Governmental Relations (3 hours)
- MAC 615 Depth Reporting (3 hours)
- 9 hours of graduate elective courses outside of mass communications
- Comprehensive Examination Option—the student must take two additional 3 hour approved elective courses outside mass communications
  or
- Thesis Option—the student must enroll in 3 hours of MAC 699/Thesis Registration and complete one additional 3 hour graduate elective course

A student may be placed on probation or dropped from the program for failing to maintain minimal academic standards (see Humanities and Sciences guidelines).

GRADUATE COURSES IN MASS COMMUNICATIONS (MAC)

520 Topics in Journalism Education. Semester course; 1-3 credits per semester. May be repeated for six total credits. Specialized areas of scholastic journalism will be covered, including: contemporary newspaper design, student press law rights and responsibilities, media ethics, desktop publishing, technology in the classroom, legal issues in communications, editorial writing, magazine layout and production, intensive journalistic writing, and advanced feature writing. Prerequisite: permission of instructor and Director of Graduate Studies.

610 Mass Communications Proseminar. Semester course. 1 hour. 1 credit. An orientation and introduction to graduate study at the School of Mass Communications. Students will gain knowledge of the procedures, resources and background required to successfully pursue graduate study. Course content will include: Scholarly writing styles (APA, MLA, etc.), library research, MAC/VCU program requirements, computer and oral group skills in graduate work, etc.

611 Research Methods in Mass Communications. Semester course; 3 lecture hours. 3 credits. Fundamentals of mass communications research techniques (content analysis, survey research, experimental design, historiography), including an overview of computer applications, statistics, theory development, and trends in the published literature.

612 Mass Communications Theory. Semester course; 3 seminar hours. 3 credits. Nature, function, and application of mass communications theory; structure, content, and effects of media systems; social and technological events accounted for by a generalized theory of mass communications.
613 **Mass Media and Society.** Semester course; 3 seminar hours. 3 credits. A study of the mass media of the United States, with special attention to their historical development and their impact on other institutions. Consideration of ethical and legal aspects of the media, and problems such as access, control, and accountability.

614 **Media-Governmental Relations.** Semester course; 3 seminar hours. 3 credits. Study of the interaction between the media and the government, and the role of the press in the governmental process as a disseminator, opinion-maker, and adversary.

615 **Depth Reporting.** Semester course; 3 seminar hours. 3 credits. Prerequisites: three undergraduate reporting courses or permission of instructor. A thorough examination of one or more issues in the forefront of the news, the environment, education, health care, science and others relevant to today’s readers.

616 **Mass Communication Law.** Semester course; 3 lecture hours. 3 credits. An intensive examination of media rights and responsibilities, including libel, privacy, access to information, copyright, free-press fair-trial. Attention will be given to First Amendment theory, research techniques and administrative regulation of broadcasting and advertising.

617 **Media Analysis.** Semester course; 3 lecture hours. 3 credits. Prerequisite: MAC 611. An examination of a mass medium through design and execution of a research project using one of the traditional research techniques of the field. Students will have major and minor projects for systematic study of a medium.

618 **The Economics of the Media.** Semester course; 3 seminar hours. 3 credits. Prerequisites: MAC 611 and 617. Advanced work in media research, especially from an economic viewpoint. Students working on individual basis will design and execute a major problem involving some economic aspect of a mass medium.

691 **Topics in Journalism Education.** Semester course; 1-3 credits per semester. May be repeated for six total credits. Specialized areas of scholastic journalism will be covered, including: contemporary newspaper design, student press law rights and responsibilities, media ethics, desktop publishing, technology in the classroom, legal issues in communications, editorial writing, magazine layout and production, intensive journalistic writing, and advanced feature writing. Prerequisite: permission of instructor and Director of Graduate Studies.

693 **Practicum in Mass Communications.** Semester course; 1-6 credits. Prerequisite: permission of coordinator of graduate studies. Student participation in planned educational experience under the supervision of Mass Communications faculty. The practicum may include supervision of writing, editing and broadcast laboratories, participation in faculty research, and assistance with lower-division undergraduate advising. May be repeated for credit. Credits may not be applied toward the graduate degree. Grading is Pass/Fail.

695 **Fieldwork/Internship.** Semester course; variable credit. 1, 2, or 3 credits per semester; maximum total 3 credits toward graduation. Prerequisite: permission of Director of Graduate Studies. 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.

699 **Thesis.** 1-3 credits. May be repeated, but a maximum of three credits may be submitted toward the master’s degree.

**Department of Biology**

**FACULTY**

Allen, Milton J. Research Professor (Chemistry) Ph.D., Johns Hopkins University; D.Sc., Monmouth University; electrical behavior of biological membranes.

Blem, Charles R. Professor and Curator of the Herpetology and Ornithology Collections Ph.D., University of Illinois; physiological ecology of terrestrial vertebrates, ornithology.

Brown, Bonnie Assistant Research Professor Ph.D., Old Dominion University; ecological and aquaculture, genetics, vertebrate and invertebrate aquaculture, biological oceanography.

Carchman, Richard A. Associate Professor (Pharmacology and Toxicology) Ph.D., State University of New York, Downstate Medical Center; cyclic nucleotide metabolism in malignant transformation, macrophage function, toxicology.

Chinnici, Joseph P. Associate Professor (Human Genetics) Ph.D., University of Virginia; genetics, genetic resistance to toxins.

Conway, Carolyn M. Assistant Professor Ph.D., University of Miami; cellular, developmental, and reproductive biology.

Egleston, William B. Assistant Professor Ph.D., University of Wisconsin-Madison; drosophila and maize genetics, transposable elements, genetics and molecular biology.

Fine, Michael L. Associate Professor (Physiology and Biophysics) Ph.D., University of Rhode Island; neurobiology, animal behavior, marine biology, fish communication.

Fisher, Robert W. Associate Professor Ph.D., Syracuse University; developmental biology, nitrogen fixation.

Garman, Gregory C. Associate Professor and Curator of the Fish Collection Ph.D., University of Maine; ichthyology, ecology, energetics of fish and invertebrate communities.

Garcia, Margot W. Associate Professor (Urban Studies and Planning) Ph.D., University of Arizona; environmental planning, water policy.

Gates, James E. Associate Professor and Associate Chairman (Microbiology and Immunology) Ph.D., University of Missouri; microbiology.

Johnson, Miles F. Professor and Curator of the Herbarium Ph.D., University of Minnesota; angiosperm systematics.

Karowe, David N. Assistant Professor Ph.D., University of Michigan; plant-animal interactions.

Kimbrough, T. Daniel Associate Professor Ph.D., Auburn University; animal physiology, physiology of digestion.

Lin, Peck-Sun Professor (Radiation Oncology) Ph.D., South Dakota State University; radiation oncology.

Matthews, Benjamin F. Assistant Professor (Plant Molecular Genetics Laboratory, USDA) Ph.D., Syracuse University; plant biochemistry, tissue culture, molecular biology.

McCown, Sara M. Assistant Professor Ph.D., Virginia Commonwealth University, microbial physiology and genetics.

Mikulecky, Donald C. Professor (Physiology) Ph.D., University of Chicago; theoretical biology, network thermodynamics, mathematical modeling.

Mills, Richard R. Professor and Curator of the Invertebrate Collection Ph.D., Virginia Polytechnic Institute and State University; insect physiology.
The Department of Biology offers programs leading to a Master of Science degree. Areas of specialization include molecular and cellular biology, terrestrial and aquatic ecology, systematics, and physiology and developmental biology.

In addition to the courses offered by the Department of Biology, graduate students may request permission from the Department of Biology to enroll in graduate courses offered at the Medical College of Virginia Campus in the Departments of Anatomy, Biochemistry and Molecular Biophysics, Biostatistics, Human Genetics, Microbiology and Immunology, Pathology, Pharmacology and Toxicology, and Physiology.

ADMISSION REQUIREMENTS

In addition to the general requirements for admission to graduate programs in the School of Graduate Studies and the College of Humanities and Sciences, the following requirements of the Department of Biology represent the minimum acceptable standards for admission:

1. Bachelor's degree in biological or related science or equivalent.
2. Appropriate college-level background in mathematics, chemistry, and physics.
3. Three letters of recommendation pertaining to the student's potential ability as a graduate student in biology.
4. Student's written statement concerning career and research interests.
5. Transcripts of all previous college work.
6. Satisfactory scores on the Graduate Record Examination (both the general and the advanced test in biology).

Admission to the Biology Graduate Program is based upon undergraduate performance, satisfactory scores on the GRE, and letters of recommendation. Most entering graduate students in the Department of Biology have a 3.0 grade point average or above on undergraduate work and a combined score of 1,000 or more on the verbal and quantitative sections of the GRE. Students who do not meet the minimum entrance requirements, but nevertheless wish to pursue an advanced degree in biology, are encouraged to contact the Graduate Committee in Biology to discuss their interests and concerns. Admission on a provisional basis may be possible for students temporarily lacking the necessary requirements for full admission. Deficiencies must be removed by the end of the first year of residence. Courses that are remedial or designed to remove deficiencies will not be accepted toward the fulfillment of the course requirements for the master's degree.

DEGREE REQUIREMENTS

Master of Science degree candidates are required to take a minimum of 38 semester credits of which

1. 19 credits must be courses designated exclusively for graduate students;
2. a maximum of eight credits of 400-level courses may be taken for graduate credit (not including BIO 429, 465, 491, or 492 — See Undergraduate Bulletin for course offerings);
3. a minimum of two and a maximum of four credits must be BIO 690 Research Seminar;
4. a minimum of six and a maximum of 12 credits must be BIO 698 Thesis;
5. lecture courses must be taken from at least three different instructors (excluding Thesis, Research Seminar, and Independent Study).

All graduate students are required to write a thesis proposal and a formal thesis following a prescribed format. The thesis proposal must be approved by the student's graduate committee and the chairman of the department to initiate thesis research. At the earliest possible opportunity, students must take STA 543 or an equivalent statistics course approved by the chairman of the department. Students entering the program with

1Department in parentheses indicates affiliate appointment.
2Affiliate appointment in parentheses indicates home department.
a statistics background equivalent to STA 543 may petition the chairman of the department to have this requirement waived.

A maximum of six semester hour credits from graduate work taken at other institutions may be transferred if they meet approval of the department.

Receipt of a grade of “C” or lower in two courses constitutes automatic dismissal from the graduate program in biology.

Each student will be required to pass a final examination which will be primarily a defense of the thesis.

Continuous enrollment in the graduate program is required. Interruption in continuous enrollment for any reason will require that students reapply to the Department of Biology Graduate Committee.

GRADUATE MINOR IN BIOLOGY

A minimum of nine semester hours excluding seminar and limited to a maximum of three credits of BIO 692 Independent Study.

GRADUATE COURSES IN BIOLOGY (BIO)

501 Advanced Ecology. Semester course; 3 lecture hours. 3 credits. Prerequisite: BIO 317 or equivalent. Advanced studies of population ecology, including competition, predation, reproduction, and disease, and in-depth analyses of community and ecosystem structure.

502/MIC 502 Microbial Biotechnology. 3 lecture hours. 3 credits. Prerequisites: MIC 504 or equivalent, BIC 503-504 or equivalent. 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 antibody production. The products to be considered include antibiotics, steroids, vitamins, organic acids, and solvents, in addition to monoclonal antibodies and products resulting from the application of recombinant DNA technology.

503 Fish Biology. Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: BIO 317 or equivalent. Classification, behavior, physiology, and ecology of fishes. Laboratories will emphasize field collection of fish and identification of specimens.

504 Comparative Animal Physiology. Semester course; 3 lecture and 4 laboratory hours. 4 credits. Prerequisites: BIO 218 and CHE 301, L301, 302, and L302. Comparative physiology of animals with a molecular emphasis.

507 Aquatic Microbiology. Semester course; 2 lecture and 4 laboratory hours. 4 credits. Prerequisites: BIO 303 and 307 or equivalents. This course will involve a practical approach to the methods used to culture, identify, and enumerate specific microorganisms which affect the cycling of elements in aquatic systems and those which affect or indicate water quality.

514 Stream Ecology. Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: BIO 317. 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.

518 Plant Ecology. Semester course; 3 lecture and 2 laboratory hours. One three-day field trip is required. 4 credits. Prerequisite: BIO 317. 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.

522 Evolution and Speciation. Semester course; 3 lecture hours. 3 credits. Prerequisite: BIO 310 or equivalent. 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.

524 Endocrinology. Semester course; 3 lecture hours. 3 credits. Prerequisites: BIO 218 and CHE 301, L301, 302, and L302 or equivalent. 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.

580 Eukaryotic Biotechnology. Semester course; 3 lecture hours. 3 credits. Prerequisite: BIO 310 and BIO L310, or graduate standing in Biology or related fields. 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.

585 Virology. Semester course; 3 lecture hours. 3 credits. Prerequisites: 16 credits in biology including BIO 218 or equivalent, and eight credits in chemistry. 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.

591 Special Topics in Biology. Semester course; variable credit; 1-4 credits. An in-depth study of a selected topic in biology. See Schedule of Classes for specific topic(s) and prerequisites. If several topics are offered students may elect to take more than one.

606 Quantitative Ecology. Semester course; 3 lecture hours. 3 credits. Prerequisites: BIO 501 and STA 543 or equivalent. Principles and applications of mathematical ecology at the community level, including experimental design; sampling techniques, assumptions and limitations; and the use of cluster analysis, gradient analysis and ordination to evaluate, summarize and compare large data sets.
626 Physiological Ecology. Semester course; 3 lecture and 4 laboratory hours. 4 credits. Prerequisite: BIO 317 or equivalent. Studies of the physiological adjustments and adaptations made by organisms in response to their environment.

630 Patterns of Mammalian Reproduction. Semester course; 3 lecture hours. 3 credits. A comprehensive ecological and evolutionary study of specializations and adaptive radiation in mammalian reproductive anatomy, the reproductive cycle, seasonality of reproduction, and factors affecting litter size and developmental state of neonates. Human reproductive biology is included when pertinent.

675 Physiology of the Cell. Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: CHE 301, L301, 302, L302, and at least one of the following biology courses: BIO 302, 303, 311, or equivalents. Physiological principles of cellular function in bacterial, plant, and animal cells. The lecture topics include gases, electrolytes, radiation, temperature, membrane transport, bioelectricity, and cell movement. The laboratory will stress investigative techniques.

690 Research Seminar. Semester course; 1 credit. Independent reading and study in selected areas of biology leading to an oral presentation by students. May be repeated for credit.

691 Special Topics in Biology. Semester course; variable credit; 1-4 credits. An advanced study of a selected topic in biology. See Schedule of Classes for specific topic(s) and prerequisites. If several topics are offered, students may elect to take more than one.

692 Independent Study. Semester course; credits and hours to be arranged. A course designed to provide an opportunity for independent research in any area of biology outside the graduate student thesis area. Determination of the amount of credit and permission of instructor, advisor, and department chairmain must be obtained prior to registration for this course.

698 Thesis. Semester course; credits and hours to be arranged. Independent research by students in areas of systematics, environmental, developmental, behavioral, cellular, and molecular biology, and comparative physiology.

Department of Chemistry

FACULTY

Allen, Milton J. Research Professor Ph.D., Johns Hopkins University; D.Sc., Monmouth University; electrical behavior of biological membranes.
Bass, Robert G. Professor Ph.D., University of Virginia; organic chemistry.
Chlebowsky, Jan F. Associate Professor (Biochemistry and Molecular Biophysics) Ph.D., Case Western Reserve University; biosynthesis and regulation of enzyme structure and function.
El-Shall, M. Samy Assistant Professor Ph.D., Georgetown University; physical chemistry.
Farrell, Nicholas P. Associate Professor Ph.D., University of Sussex.
Haas, Thomas Professor (Director, Cooperative Graduate Engineering Program) Biomedical Engineering Ph.D., Princeton University; biomedical materials.
Hawker, Fred M. Professor (Biochemistry and Molecular Biophysics) Ph.D., University of Kentucky; analytical chemistry.

Ottenbrite, Raphael M. Professor Ph.D., University of Windsor; organic chemistry, polymer chemistry.
Ross, Paul K. Assistant Professor Ph.D., Stanford University.
Ruder, Suzanne M. Assistant Professor Ph.D., Washington State University; organic chemistry.
Rutan, Sarah C. Associate Professor Ph.D., Washington State University; analytical chemistry.
Shillady, Donald D. Professor Ph.D., University of Virginia; physical chemistry, quantum chemistry.
Silvers, Stuart J. Associate Professor Ph.D., Yale University; physical chemistry, molecular spectroscopy.
Snedden, Albert T. Associate Professor and Associate Chairman Ph.D., Brandeis University; organic chemistry, natural products.
Terner, James Associate Professor Ph.D., University of California at Los Angeles; physical chemistry, biophysics, resonance raman spectroscopy.
Topich, Joseph Associate Professor Ph.D., Case Western Reserve University; inorganic chemistry, molybdenum coordination complexes.
Vallarino, Lidia M. Professor Ph.D., University of Milano; inorganic chemistry.
Winters, Lawrence J. Professor and Chairman Ph.D., Kansas University; organic chemistry.
Wysocki, Vicki H. Assistant Professor Ph.D., Purdue University; analytical chemistry, mass spectrometry.
Yu, Robert K. Professor (Biochemistry and Molecular Biophysics) Ph.D., University of Illinois; chemistry and metabolism of glycoconjugates, mechanism of auto-immune diseases; control of cellular-differentiation and proliferation; NMR spectroscopy.

The Department of Chemistry offers programs leading to the Master of Science and Doctor of Philosophy degrees. The programs provide opportunities for concentrated study in analytical, inorganic, organic, or physical chemistry, or chemical physics. A plan of study is worked out for each student to ensure a sound basis for research. In keeping with the University's commitment as an urban institution, the department also offers part-time programs leading to these degrees.

ADMISSION REQUIREMENTS

In addition to the general requirements for admission to graduate programs in the School of Graduate Studies (Part I of this bulletin) and the College of Humanities and Sciences, students are expected to have a bachelor's degree from an accredited college or university with 30 semester credits in chemistry. Admission on a provisional basis is possible for a student temporarily lacking this expected chemistry background. Acceptance is based upon undergraduate performance, satisfactory scores on the Graduate Record Examination and letters of recommendation.

1Department in parentheses indicates affiliate appointment.
2Affiliate appointment in parentheses indicates home department.
Graduate students in the Department of Chemistry may receive financial support via teaching or research assistantships or fellowships. Admission forms for graduate study and applications for fellowships and assistantships are available on request by writing to the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051.

DEGREE REQUIREMENTS

Entering graduate students are required to take proficiency examinations in analytical, inorganic, organic, and physical chemistry. These examinations are at the level of sound undergraduate courses and are offered preceding the start of the school's fall semester, preceding the start of the spring semester, and after the end of spring semester. These are used to evaluate the student's strengths and weaknesses, and the student's program is planned accordingly.

M.S. Requirements

Students preparing for the M.S. degree must demonstrate competency in analytical, inorganic, organic, and physical chemistry. New students who do well on the proficiency examinations may, by decision of the chemistry faculty, be considered to have demonstrated the necessary competency. The proficiency examinations may be repeated and must be completed by the end of the second semester of study. The M.S. student is expected to earn a minimum of 18 semester credits in graduate courses in chemistry, not including credit for seminar, and 12 semester credits in research. The credit hours must include a course selected from each of the four areas: Analytical: Chemistry 532 Advanced Analytical Chemistry, Chemistry 630 Electroanalytical Chemistry; Inorganic: Chemistry 620 Advanced Inorganic Chemistry I; Chemistry 621 Advanced Inorganic Chemistry II; Organic: Chemistry 504 Advanced Organic Chemistry I, Chemistry 604 Advanced Organic Chemistry II, Chemistry 605 Physical Organic Chemistry, Chemistry 606 Methods of Structural Determination in Organic Chemistry; Physical: Chemistry 510 Atomic and Molecular Structure, Chemistry 610 Applied Quantum Chemistry, Chemistry 615 Chemical Thermodynamics, Chemistry 616 Chemical Kinetics.

Additional graduate courses to be taken will be determined in consultation with the faculty research advisor and the faculty of the Department of Chemistry. Graduate students may elect to take courses offered on the MCV Campus. Among the courses taught at MCV of interest to chemistry students are medicinal chemistry, stereochemistry, heterocyclic chemistry, general biochemistry, circuit design and analysis, and molecular modeling. The School of Basic Health Sciences section of this bulletin should be consulted for other courses. Students are expected to participate in the department’s seminar program each semester and to present at least two formal talks in the seminar program. An acceptable research thesis and a final oral examination on the thesis are required. Full-time students should complete these degree requirements in two years.

Ph.D. Requirements

Students seeking the Ph.D. degree must demonstrate competency in analytical, inorganic, organic, and physical chemistry. Students who do exceptionally well in the proficiency examinations may, by decision of the chemistry faculty, be considered to have demonstrated the necessary competency. The proficiency examinations may be repeated and must be completed by the end of the second semester of study.

Students preparing for the Ph.D. degree must have a minimum of 24 credits in graduate courses, not including credit for seminar or research. Credits must include a course selected from each of the four areas listed above. Other graduate courses to be taken will be determined in consultation with the faculty research advisor and the faculty of the Department of Chemistry. Students are expected to participate in the department’s seminar program and present at least two formal talks in the seminar program. In addition to course work and seminar, the Ph.D. requires a minimum of 30 credits in CHE 697 (directed research), and the total of all credits must be at least 60. A reading knowledge of an approved foreign language is also required.

The student is required to complete written and oral examinations in his major field to become a Ph.D. candidate. The oral examination includes the presentation and defense of the proposed dissertation research. The student must conduct a substantial original investigation under the supervision of his advisor and must prepare a dissertation reporting the results of the research and analyzing its significance in relation to existing scientific knowledge. An oral defense of the dissertation will be held. Full-time students should complete the degree requirements in about four years.

PH.D. IN CHEMICAL PHYSICS OPTION

Students entering the chemical physics program must pass proficiency examinations in two areas of chemistry other than physical chemistry
and two areas of physics (mechanics, electricity and magnetism). Students entering with a bachelor's or master's degree in chemistry who have not taken the courses previously may satisfy the physics requirement with an "A" or "B" in PHY 301, 302, and 376. Students entering with a bachelor's or master's degree in physics who have not taken the courses previously may satisfy the chemistry requirement with an "A" or "B" in two of the three courses, CHE 301-302, CHE 406, and CHE 409.

Students in the chemical physics program are required to complete CHE 510, CHE 612, PHY 576, PHY 580, and PHY 641 plus three courses from the following list: CHE 504, 532, 550, 610, 611, 615, 616, 620; PHY 550, 507, 532, 535, 635; MAT 517, 518. A minimum of four graduate courses must be in chemistry. All graduate students seeking the Ph.D. degree must complete 30 hours of CHE 697 (research), as part of fulfilling the requirements for the degree. However, students electing the chemical physics option may substitute 15 credits of PHY 697 for 15 credits of CHE 697.

All other requirements are the same as those stated above.

Additional information and a more detailed description of the graduate program may be obtained from the Department of Chemistry.

GRADUATE COURSES IN CHEMISTRY
(CHE)

504 Advanced Organic Chemistry I. Semester course; 3 lecture hours. 3 credits. An integrated study of certain free radical and ionic reaction mechanisms with emphasis on electronic effects and stereochemical consequences of these reactions. Classical vs. nonclassical carbonium ions and the Hammett equation are discussed.

507 Introduction to Natural Products. Semester course; 3 lecture hours. 3 credits. A study of the biosynthetic origins, isolation, structure elucidation, and uses of naturally occurring organic compounds. Emphasis is placed upon three major classes of compounds, carboaromatics, terpenes, and alkaloids.

510 Atomic and Molecular Structure. Semester course; 3 lecture hours. 3 credits. Prerequisites: MAT 301 and PHY 208. Survey of the pertinent aspects of quantum mechanics. Line spectra, atomic structure, and molecular bonding.

532 Advanced Analytical Chemistry. Semester course; 3 lecture hours. 3 credits. Theories and principles of thermodynamics and kinetics relevant to analytical methods, including acid-base, redox, and metal complexation equilibria, nonaqueous systems, kinetics, and an introduction to surface chemistry.

550 Introduction to Polymer Chemistry. Semester course; 3 lecture hours. 3 credits. A study of macromolecular compounds which includes classifications, methods of preparation, mechanisms, stereochemistry, and applications. Physical characterizations, such as structure and property correlations, kinetics, thermodynamics, and molecular weight determinations are emphasized.

580 Mechanical Properties of Plastics and Polymers. Semester course; 3 lecture hours. 3 credits. Prerequisites: graduate standing or consent. This course provides a link between the more practical aspects of plastics and the fundamental properties of the polymers from which they are made. Topics covered deal with the structure of polymers with emphasis on relationships with mechanical properties; rubber elasticity; the glass transition and other secondary transitions; time and temperature dependency; yield and fracture; crystallization and morphology; influence of polymer processing on mechanical properties.

591 Topics in Chemistry. Semester course; variable credit. 1-6 credits per semester; maximum total of nine credits for all topics courses. An in-depth study of a selected topic in chemistry. See Schedule of Classes for specific topic(s) and prerequisites.

604 Advanced Organic Chemistry II. Semester course; 3 lecture hours. 3 credits. An integrated study of the mechanism and stereochemistry of organic reactions and their application to organic synthesis. Emphasis is placed on addition and condensation reactions, carbanions, carbenes, and other reactive intermediates.

605 Physical Organic Chemistry. Semester course; 3 lecture hours. 3 credits. The theory and application of physical methods in the study of the behavior of organic compounds. Topics covered include homogeneous kinetics, equilibria, acid-base catalysis, and the quantitative correlation of structure and reactivity as they apply to the understanding of the mechanisms of organic reactions.

606 Methods of Structural Determination in Organic Chemistry. Semester course; 3 lecture hours. 3 credits. Lecture and laboratory problems illustrating the application of instrumental analytical techniques for the solving of organic structural problems.

607 Organic Synthesis of Natural Products. Semester course; 3 lecture hours. 3 credits. Prerequisite: CHE 604 or permission of instructor. A study of the criteria for, applications of reactions to, and design of, complex organic syntheses, including functional group protection and control of stereochemistry.

610 Applied Quantum Chemistry. Semester course; 3 lecture hours. 3 credits. Prerequisite: CHE 510. Quantum mechanics applied to chemical problems in UV, IR, and NMR spectroscopy and the electronic structures of atoms and molecules; development of the self-consistent field equations.

611 Molecular Spectroscopy. Semester course; 3 lecture hours. 3 credits. Prerequisite: CHE 510. This course treats the interaction of radiation and molecules; the rotation, vibration, and electronic motion of molecules; molecular spectra and recent developments in laser spectroscopy.
612 Statistical Thermodynamics. Semester course; 3 lecture hours. 3 credits. Prerequisites: CHE 510 or PHY 580. The principles of quantum and classical statistical thermodynamics with application to selected chemical and physical systems.

615 Chemical Thermodynamics. Semester course; 3 lecture hours. 3 credits. They study the laws of thermodynamics and their application to pure phases, solutions, and changes in state.

616 Chemical Kinetics. Semester course; 3 lecture hours. 3 credits. A study of the rates and mechanisms of chemical reactions, reaction rate theory, kinetic theory of gases, and theories of catalysis.

620 Advanced Inorganic Chemistry I. Semester course; 3 lecture hours. 3 credits. The application of modern physical techniques for the determination of the symmetry, molecular structure, bonding, and reaction mechanisms of inorganic compounds.

621 Advanced Inorganic Chemistry II. Semester course; 3 lecture hours. 3 credits. Prerequisite: CHE 620 or permission of instructor. A coordinated study of synthetic methods, stereochemistry, and reaction mechanisms including catalysis of inorganic, organometallic and bioinorganic compounds.

630 Electroanalytical Chemistry. Modular course; maximum 2 modules per semester; 3 lecture hours. 1.5 credits per module. Prerequisite: CHE 532 or permission of instructor. Presents the theory and application of electroanalytical techniques including cyclic voltammetry, potential step methods, microelectrode voltammetry and spectroelectrochemistry.

631 Separation Science. Modular course; maximum 2 modules per semester; 3 lecture hours. 1.5 credits per module. Prerequisite: CHE 532 or permission of instructor. Discusses theories and principles of separation science as applied to chemical problems with emphasis on current techniques, instrumentation, and applications.

632 Chemometrics. Modular course; maximum 2 modules per semester; 3 lecture hours. 1.5 credits per module. Prerequisite: CHE 409 or permission of the instructor. Computer methods for experimental design and data analysis of spectroscopic, electrochemical and chromatograph data. Topics include sampling theory, detection limits, curve resolution, Fourier transform-based instruments, and factor analysis.

633 Mass Spectrometry. Modular course; maximum 2 modules per semester; 3 lecture hours. 1.5 credits per module. Prerequisite: CHE 532 or permission of the instructor. Topics include mass spectrometry ionization methods, mass analyzers, theory of unimolecular decompositions, and techniques used for ion structure determination.

634 Surface Science. Modular course; maximum 2 modules per semester; 3 lecture hours. 1.5 credits per module. Prerequisite: CHE 532 and 633 or permission of the instructor. Topics include types of surfaces requiring surface analysis, electron-surface scattering (AES, UPS, XPS, HREELS, LEED, STM, SEM), photon-surface scattering (IR, NMR, EXAFS), Molecule/Ion-Surface scattering (ISS, RMBS, ISS), chemisorption techniques and work function measurements.

635 Spectrochemical Analysis. Modular course; maximum 2 modules per semester; 3 lecture hours. 1.5 credits per module. Prerequisite: CHE 532 or permission of instructor. Topics include instrumental components, such as lasers, photomultipliers, array detectors, monochromators, lock-in and boxcar detection, waveguides and optical fibers, atomic spectroscopic methods, fluorescence, Raman and circular dichroism spectroscopies.

690 Research Seminar. Semester course; 1 credit. In addition to reports presented by students, staff, and visiting lecturers, current problems and developments in chemistry are discussed. May be repeated for credit.

691 Topics in Chemistry. Semester course; variable credit. 1-6 credits per semester; maximum total of nine credits for all topics courses. An advanced study of selected topic(s) in chemistry. See Schedule of Classes for specific topic(s) and prerequisites.

697 Directed Research. Semester course; 1-15 credits. Research leading to the M.S. and Ph.D. degree. May be repeated for credit.

Department of English

FACULTY
Armour, Robert A. Professor Emeritus Ph.D., University of Georgia; film.
Berry, Boyd M. Associate Professor Ph.D., University of Michigan; Renaissance, Milton.
Copper, Elizabeth Associate Professor Ph.D., University of North Carolina; composition & rhetoric, linguistics.
Coppedge, Walter R. Professor Ph.D., Indiana University; Shakespeare, English Renaissance drama, film.
Cornis-Pope, Marcel Professor Ph.D., University of Timisoara (Romania); literary theory, modern American literature, British Victorian and twentieth century.
Dance, Daryl C. Professor Emerita Ph.D., University of Virginia; American literature, folklore.
DeHaven, Tom Professor M.F.A., Bowling Green State University; creative writing, fiction, American studies.
Donovan, Gregory E. Associate Professor Ph.D., State University of New York at Binghamton; twentieth century American and British literature, creative writing.
Duke, Elizabeth F. Associate Professor Ph.D., University of Iowa; linguistics.
Duke, Maurice Professor Ph.D., University of Iowa; American literature, editing, and professional writing.
Fine, Richard A. Associate Professor and Associate Chairman Ph.D., University of Pennsylvania; American studies, American literature.
Gillespie, Carmen R. Assistant Professor Ph.D., Emory University; African-American literature.
Griffin, Claudius, W. Professor Ph.D., Indiana University; teaching composition, Shakespeare.
Harkness, Marguerite Associate Professor Ph.D., State University of New York at Binghamton; twentieth century British, nineteenth century British.
Hodges, Elizabeth Assistant Professor Ph.D., University of Pennsylvania; rhetoric and composition.
Kiney, James J. Professor and Chairman Ph.D., University of Tennessee; rhetoric and composition, American literature.
Kuhn, Elisabeth Assistant Professor Ph.D., University of California, Berkeley; linguistics.
Laban, Lawrence F. Assistant Professor Ph.D., Indiana University; British prose fiction.
Latané, David E. Associate Professor Ph.D., Duke University; nineteenth century British.
Longest, George C. Associate Professor Ph.D., University of Georgia; Southern literature, realism.
Mangum, A. Bryant Professor Ph.D., University of South Carolina; early twentieth century American.
Marshall, Paule Professor Emerita B.A., Brooklyn College; creative writing.
Morse, Charlotte C. Associate Professor Ph.D., Stanford University; Middle English literature, Medieval studies.
Oggel, L. Terry Associate Professor Ph.D., University of Wisconsin; nineteenth century American literature and theatre, bibliography.
Pendleton, James D. Professor Emeritus M.A., University of North Carolina; playwriting.
Perry, Patricia H. Assistant Professor Ph.D., State University of New York at Stony Brook; composition and rhetoric.
Priebe, Richard K. Professor Ph.D., University of Texas at Austin; African literature, folklore.
Reynolds, Elizabeth R. Professor Emerita Ph.D., University of South Carolina; Medieval studies.
Sange, Gary R. Associate Professor M.F.A., University of Iowa; poetry writing, modern poetry.
Sharp, Nicholas A. Assistant Professor Ph.D., Ohio State University; Renaissance.
Stryk, Lydia D. Assistant Professor Ph.D., City University of New York; Drama.
Whitesell, J. Edwin Professor Emeritus Ph.D., Harvard University.
Woodruff, Ann M. Associate Professor Ph.D., University of North Carolina; American literature.

The English Department offers two graduate programs, the Master of Arts in English and the Master of Fine Arts in creative writing.

MASTER OF ARTS IN ENGLISH
The Department of English offers a program leading to a Master of Arts degree in English with two areas of emphasis or concentration.

The program provides maximum flexibility by allowing each student, in consultation with the student’s graduate committee, to select the concentration that will best develop the student’s competence in those areas most relevant to scholarly and professional objectives.

Programs leading to the Master of Arts degree in English are

1. WRITING AND RHETORIC—designed for the candidate who is seeking intensive work in both writing and teaching expository prose, or for the candidate who plans to pursue the Ph.D. degree.

2. LITERATURE—designed for the candidate who desires intensive work in English or American literature beyond the bachelor’s level or for the candidate who plans to pursue the Ph.D. degree.

ADMISSION REQUIREMENTS
In addition to the general requirements for admission to graduate programs in the School of Graduate Studies (Part I of this bulletin) and the College of Humanities and Sciences, the following requirements, established by the English Graduate Studies Committee, represent the minimum acceptable standards for admission:

1. A baccalaureate degree in an area appropriate to the study of literature or writing;
2. A grade-point average that indicates the applicant can pursue successfully a graduate degree;
3. Three letters of recommendation from former instructors; and
4. Completion of the Graduate Record Examination. (Applicants for the Literature track may—but are not required to—submit scores for the GRE subject test in literature.)

DEGREE REQUIREMENTS
The English program consists of a minimum of 30 semester credits. After these credits have been attained, students shall be examined over their courses and research as the Graduate Committee recommends. Students may wish also to present a thesis or project, credit for which shall be determined by the M.A. Committee.

MASTER OF FINE ARTS IN CREATIVE WRITING
DeHaven, Tom Professor M.F.A., Bowling Green State University; creative writing, fiction, American studies.
Donovan, Gregory E. Professor Ph.D., State University of New York at Binghamton; 20th century American and British literature creative writing.
Levis, Larry Professor Ph.D., University of Iowa; poetry.
Marshall, Paule Professor Emerita B.A., Brooklyn College; creative writing, fiction.
Pendleton, Jame D. Professor Emeritus M.A., University of North Carolina; creative writing, playwriting.
Sange, Gary R Associate Professor M.F.A., University of Iowa; creative writing, poetry

The Master of Fine Arts in creative writing program is designed to attract students from diverse undergraduate backgrounds who are writers of promise. The program is suited particularly to those interested primarily in the writing of fiction and poetry; however, some emphasis also is placed on the writing of drama, nonfiction, and on editing.

Graduate students in creative writing are encouraged to develop a strong personal sense of aesthetics and ethics and to pursue excellence in writing and scholarship, as well as in teaching, if they are pursuing that career option. Through the workshop experience, as well as personal conferences with the writing faculty, the program aims to help students significantly advance the quality
of their writing, to enable them to become expert critics of their own and others’ work, and to advise them as they seek to publish their writing.

ADMISSION REQUIREMENTS

Admission to the M.F.A. program is based most importantly on the candidate’s submitted creative writing portfolio (thus students who have produced little or no creative writing prior to their application would not be eligible). The deadline for application to the M.F.A. program is March 1. In addition to the general requirements for admission to graduate programs in the School of Graduate Studies (Part I of this bulletin) and the College of Humanities and Sciences, the following requirements, established by the Creative Writing M.F.A. Committee, represent the minimum acceptable standards for admission:

1. A portfolio of promising fiction or poetry, possibly with drama (as a minimum, approximately eight to ten poems, or twenty or more pages of fiction, or one act from a play, or some combination of these; in all cases, applicants should submit only their strongest creative writing samples) to be submitted to the M.F.A. program director;
2. Three recommendations from persons who are qualified to give information concerning the applicant’s probable success in graduate school, especially in a creative writing program;
3. A scholastic record that is indicative of the applicant’s ability to pursue a graduate degree successfully;
4. A baccalaureate degree, or its equivalent; and
5. Completion of the Graduate Record Examination (the subject test in literature is not required for M.F.A. applicants).

DEGREE REQUIREMENTS

A total of 48 semester hours is required to complete the degree. The basic course of study required in the program includes: 12 semester hours of graduate creative writing workshops (required), 12 hours of British or American graduate literature courses (required), and 6 to 12 hours of thesis work (required); the remaining 12 to 18 hours are electives, taken in literature, workshops, or other graduate courses. Beyond the required courses, the student is free to work out a total program of 48 hours, with the advice of the program director or the student’s thesis advisor, which is appropriate to the individual student’s aims and interests. The thesis work gives students the opportunity to produce a manuscript of publishable quality. Course work also is available in the techniques of teaching creative writing, and the program is flexible enough to include studies undertaken in other departments of the university as well, including Art History, Theatre, Philosophy, and Mass Communications.

GRADUATE COURSES IN ENGLISH

(ENG)

500 Practicum in College English. Semester course; 1-6 credits. Prerequisite: permission of director of graduate studies. Student participation in planned educational experience under the supervision of English department faculty. The practicum may include classroom teaching, Writing Center tutoring, or participation in research projects. May be repeated for credit. May not be applied toward degrees in English.

528/EDU 528 Children’s Literature II. Semester course; 3 lecture hours. 3 credits. A study of classic and current children’s books from a variety of literary genre. Magazines and media-related reference resources and journals are reviewed. The creative use of literature, its sociocultural functions, and its contribution to the development of the oral and written expression of children from nursery to grade eight are explored. A focus on children with special problems is included. (May not be taken for credit toward undergraduate English major if student has taken ENG/EDU 351. May not be used to fulfill Literature requirement for M.A. in English or M.F.A. in Creative Writing, but may be taken as elective credit.)

531 Literary Criticism. Semester course; 3 lecture hours. 3 credits. A study of the fundamental concepts involved in the practice of criticism. Some attention is given to the historical development of criticism, but the primary focus is on its methods and aims.

532/ENE 532 Applied English Linguistics. Semester course; 3 lecture hours. 3 credits. Application of linguistics theories and methods to selected teaching problems, such as teaching English as a second or foreign language, or teaching standard English to students who speak different dialects. May be repeated for credit.

552/EDU 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 analyses of morphology, phonology, and syntax are used to isolate areas of difficulty in learning English.

553 Studies in Linguistics. Semester course; 3 lecture hours. 3 credits. A general introduction to one area of linguistic study, such as pronunciation, grammar, stylistics, dialects, usage standards, lexicography, onomastics, or semantics. May be repeated for credit.

561 Medieval Literature. Semester course; 3 lecture hours. 3 credits. A survey of major works of British literature in the Middle Ages with some attention to continental influences upon both Old English and Middle English works. The study will include poetry, prose, and drama from Beowulf to Morte
d'Arthur. Some reading in modern English translation, some in Middle English.

563 Renaissance Literature. Semester course; 3 lecture hours. 3 credits. A survey of British poetry, prose, and drama written in the sixteenth and seventeenth centuries. Attention will be divided among major figures—such as More, Marlowe, Spenser, Shakespeare, Donne, Jonson, Milton, and minor authors.

565 Restoration and Eighteenth-Century Literature. Semester course; 3 lecture hours. 3 credits. A survey of Restoration and eighteenth-century poetry, drama, fiction, and prose. Readings in major figures of the period including Behn, Dryden, Etheredge, Congreve, Steele, Defoe, Swift, Pope, Montagu, Richardson, Fielding, Johnson, Sheridan, and Austen.

567 Romantic and Victorian British Literature. Semester course; 3 lecture hours. 3 credits. A survey of British literature during the nineteenth century. Readings in the major writers, especially poets and novelists such as Wordsworth, Shelley, Dickens, the Brownings, the Brontes, Eliot, and Hardy.

569 Twentieth-Century British Literature. Semester course; 3 lecture hours. 3 credits. A survey of the literature of twentieth-century Britain and Ireland. Major figures of the early part of the century—such as Conrad, Lawrence, Woolf, Joyce, Yeats, Shaw, Auden—will be complemented by the emerging writers of the second half of the century.

571 American Literature I. Semester course; 3 lecture hours. 3 credits. A survey of the literature of the United States from the Puritan period through the Romantic period.

572 American Literature II. Semester course; 3 lecture hours. 3 credits. A survey of the literature of the United States from the Age of Realism through the Contemporary period.

601/ENE 601 Young Adult Literature. Semester course; 3 lecture hours. 3 credits. An extended examination of literature written for young adults, literature appealing to adolescents, literature appropriate for young people in middle schools and high schools. The course focuses on the content, characteristics, and teaching of such literature.

605 Introduction to Literary Scholarship. Semester course; 3 lecture hours. 3 credits. An introduction to the forms and practice of modern literary research and criticism. Attention will be paid to bibliographical and textual criticism and to the most commonly employed approaches of literary historians and critics in English and American literature.

611 The Writer in His Own Time. Semester course; 3 lecture hours. 3 credits. A study of the biographical, intellectual, and sociological influences on a selected British or American writer and his work. The course is designed to discover how the external factors of a writer's life are absorbed and transmuted into art by drawing upon the resources of other disciplines when relevant. May be repeated for credit.

614 Major Works of Literature. Semester course; 3 lecture hours. 3 credits. A study of the aesthetic backgrounds, composition, and continuing interpretation of a selected work of English or American literature generally regarded as a classic. The intent of the course is to comprehend as fully as possible the literary work of art through studying the aesthetic influences upon it and by applying various critical approaches to it. May be repeated for credit.

617 Major Literary Modes. Semester course; 3 lecture hours. 3 credits. A study, through the analysis of selected literary works of several genres, of modes which are useful to understand and judge literature. The study may draw upon the literature of many nations in English translation. The following modes are examples of those which may be studied: the heroic mode, the tragic mode, the comic mode, the ironic mode. May be repeated for credit.

620 Patterns in Literary Thought. Semester course; 3 lecture hours. 3 credits. A study of significant recurring intellectual attitudes and concepts which have found expression in literature and shaped the development of literary style and thought. The study will draw upon the literature of many nations in English translation. May be repeated for credit.

624 Literature in Society. Semester course; 3 lecture hours. 3 credits. A study of the ways in which literature often reflects, supports, and influences political and philosophical movements in society. Creative literature—primarily English and American—will be studied in terms of its response to or effect upon social issues. May be repeated for credit.

627 Literary Genre. Semester course; 3 lecture hours. 3 credits. A study of a literary genre, such as poetry, fiction, or drama. May be repeated for credit.

635 Theories of Rhetoric and Composition. Semester course; 3 lecture hours. 3 credits. A study of the ways in which literature often reflects, supports, and influences political and philosophical movements in society. Creative literature—primarily English and American—will be studied in terms of its response to or effect upon social issues. May be repeated for credit.

636/ENE 636 Teaching Composition. Semester course; 3 lecture hours. 3 credits. A study of the traditional and modern instructional strategies for teaching composition. The validity of strategies will be tested in the student's own writing.

643/ENE 643 Teaching Basic Writing Skills. Semester course; 3 lecture hours. 3 credits. Emphasis on developing the student's ability to teach fundamental writing skills, including such topics as diagnosis of writing problems, strategies for correcting problems, and methods for evaluating progress.

651/ENE 651 Topics in Teaching Composition. Semester course; 1-3 lecture hours. 1-3 credits. A course for the examination of a specialized issue, topic, or problem in teaching composition.

661 Themes in Interdisciplinary Studies. Semester course; 3 lecture hours. 3 credits. A study in depth of a theme, topic, or concept involving two or more disciplines. May be repeated for credit.

666 Creative Writing: Fiction. Fall and spring semester course; 3 workshop hours. 3 credits. Prerequisite: graduate standing in M.F.A. program or permission of the Creative Writing Committee. Study of the art of fiction writing, with the goal of producing professionally acceptable and publishable fiction. Workshop members shall produce a substantial amount of writing—short stories or a portion of a novel—and in addition shall be able to evaluate and articulate the strengths of their own work. May be repeated for credit. Grading is pass/fail. All students seeking to enroll must contact the creative writing M.F.A. director.
667 Creating Writing: Poetry. Fall and spring semester course; 3 workshop hours. 3 credits. Prerequisite: graduate standing in M.F.A. program or permission of the Creative Writing Committee. Study of the art of poetry writing, with the goal of producing professionally acceptable and publishable poetry. Workshop members shall produce a substantial amount of poetry and in addition shall be able to evaluate and articulate the strengths of their own work. May be repeated for credit. Grading is pass/fail. All students seeking to enroll must contact the creative writing M.F.A. director.

668 Creative Writing: Drama. Semester course; 3 workshop hours. 3 credits. Prerequisite: graduate standing in M.F.A. program or permission of the Creative Writing Committee. Study of the art of playwriting with the goal of creating plays that are suitable for production. Workshop members shall produce a substantial volume of writing, one-act plays, or a portion of a longer play, in addition, shall be able to evaluate and articulate the strengths of their own work. May be repeated for credit. Grading is pass/fail. All students seeking to enroll must contact the creative writing M.F.A. director.

670 Literary Editing and Publishing. Semester course; 3 lecture hours. 3 credits. A course in which the student learns to edit fiction, poetry, drama, or nonfiction. Genre covered will vary from semester to semester. Attention will be paid to the ways in which editors work with writers in all the technical aspects of editing, revising, and publishing. Ethical responsibilities of editors to authors and their text will be stressed. Questions centering on the publishing world at large will be considered. May be repeated for credit.

671 Film and Television Scripts. Semester course; 3 lecture hours. 3 credits. Study of the theory and practice of producing shooting scripts for television and motion pictures. Emphasis will be placed on the various kinds of scripts most commonly used by directors and cinematographers (e.g., silent, narrated, and dramatized). Attention will also be paid to the ways in which script writers adapt material to audiences, and the ways in which strict time frames are imposed on scripts. Students will write scripts of various kinds and lengths.

672 Writing Nonfiction. Semester Course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Study and practice of writing one or more modes of nonfiction on the professional or preprofessional level, under critical supervision. Emphasis will be placed on such matters as organization, style, revision, and adaptation to particular audiences and publications. Possible kinds of writing could include reports; writing based on statistics; writing textbooks; writing separate chapters of books, and writing reviews, criticism, and advocacy materials. May be repeated for credit.

673 Teaching Creative Writing. Semester course; 3 lecture hours. 3 credits. A comparative analysis of different approaches to the teaching of creative writing. Attention will be paid to the different ways in which elements such as dialogue, sound pattern, scene development, line break, meter, voice, and distance can be taught. The course is intended for those who teach or plan to teach creative writing.

692 Independent Study. 1-3 hours. Variable credit; maximum six credits. To be offered each semester. Prerequisite: permission from department chairman. For students in English/English Education to pursue, in depth, a particular problem or topic about which an interest or talent has been demonstrated.

694 Internship in Writing. Semester course; 1 lecture and 6 practicum hours. 3 credits. Analyses and practices of professional writing in settings such as business, government and industry. Permission of Director of M.A. Program required. 798-799 Thesis. Continuous course. 1-3 credits per course. Credits and hours to be arranged. Preparation of a thesis or project based on independent research or study and supervised by a graduate advisor.

SELECTED UNDERGRADUATE COURSES

After consultation with the student's advisor, a graduate student may take an undergraduate course listed below if the student has not previously taken a course covering the subject matter. No more than two 400-level courses from this list may be used toward the graduate degree. Consult the Academic Campus Undergraduate Bulletin for a description of the courses.

ENG 400 Shakespeare: The Early Works
ENG 401 Shakespeare: The Later Works
ENG 402 Chaucer
ENG 403 Milton
ENG 449 Introduction to Linguistics
ENG 450 Modern Grammar
ENG 451 History of the English Language

Department of History

FACULTY

Bendersky, Joseph W. Professor Ph.D., Michigan State University; German history.
Blake, William E., Jr. Professor Emeritus Ph.D., Union Theological Seminary; Renaissance and Reformation history; history of Christianity.
Briceland, Alan V. Associate Professor Ph.D., Duke University; Virginia, early national, and military history.
Cromey, Robert D. Associate Professor Ph.D., University of Wisconsin; Greek and Roman history.
Engel, Arthur J. Associate Professor Ph.D., Princeton University; English history.
Greer, Harold E., Jr. Associate Professor Ph.D., University of Alabama; Latin American history.
Hawthorne, Marijane E. Associate Professor Ph.D., University of California at Berkeley; cultural geography.
Jones, Norrece T., Jr. Associate Professor Ph.D., Northwestern University; African-American history.
Kennedy, Susan Estabrook Professor PhD., Columbia University; modern American and women's history.
Messmer, Michael W. Associate Professor Ph.D., Yale University; European intellectual history.
Mooney, Catherine M. Assistant Professor Ph.D., Yale University; medieval and Renaissance history; women's history.
Moore, James T. Professor Ph.D., University of Virginia; southern and Virginia history.
 Munro, George E. Professor Ph.D., University of North Carolina; Russian history.
 Schwarz, Philip J. Professor Ph.D., Cornell University; colonial and American constitutional history.
 Talbert, Robert M. Professor Ph.D., Hebrew Union College; ancient medieval history.
 Trani, Eugene P. Professor and University President Ph.D., Indiana University; American diplomatic history.
 Tunnell, Ted Associate Professor Ph.D., University of California at Berkeley; southern and Civil War history.

58 ▼ COLLEGE OF HUMANITIES AND SCIENCES
Urofsky, Melvin. *Professor* Ph.D., Columbia University, J.D. University of Virginia; American constitutional and legal history.

The Department offers a program leading to a Master of Arts in History. The program allows maximum flexibility by permitting each student, in consultation with the department’s Director of Graduate Studies, to select those courses most appropriate to the student’s interests, in order to develop the student’s competence in pursuit of his or her scholarly and professional objectives.

**ADMISSION REQUIREMENTS**

In addition to the general requirements for admission to graduate programs in the School of Graduate Studies (Part I of this Bulletin) and the College of Humanities and Sciences, the following requirements, established by the History Graduate Committee, represent the minimum acceptable standards for admission:

1. Thirty (30) hours of undergraduate history courses, of which eighteen (18) should be at the upper-division level;
2. A grade-point average that is indicative of the applicant’s ability to pursue successfully a graduate degree;
3. Three recommendations from persons who are qualified to give information concerning the applicant’s probable success in graduate school;
4. Completion of the Graduate Record Examination; and
5. Submission of a written statement of intent, indicating why the applicant wishes to pursue a graduate degree in history.

A personal interview is not required, but may be requested by either the applicant or the department’s Graduate Committee.

**DEGREE REQUIREMENTS**

The M.A. in History may be achieved through one of two options. The thesis option requires thirty (30) semester credits, including six (6) credits of HIS 698; or the non-thesis option requires thirty-six (36) semester credits. Those in the non-thesis track must take a minimum of six (6) semester credits in one of the research-level courses, and also an oral comprehensive exam. All students in both tracks must take HIS 601 as a pre-requisite or co-requisite for all research courses; students entering in January should take HIS 601 the next time it is offered.

**GRADUATE COURSE IN HISTORY (HIS)**

511 Studies in American History. Semester course; 3 lecture hours. 3 credits. Study of a selected topic in American history, primarily through lectures and readings. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.

515 Studies in European History. Semester course; 3 lecture hours. 3 credits. Study of a selected topic in European history, primarily through lectures and readings. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.

519 Studies in Ethnic and Social History. Semester course; 3 lecture hours. 3 credits. Study of a selected topic in ethnic or social history, primarily through lectures and readings. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.

523 Studies in Virginia and Southern History. Semester course; 3 lecture hours. 3 credits. Study of a selected topic in Virginia or southern history, primarily through lectures and readings. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.

527 Studies in African-American History. Semester course; 3 lecture hours. 3 credits. Study of a selected topic in African-American history, primarily through lectures and readings. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.

591 Special Topics in History. Semester course; 3 lecture hours. Variable credits; 1-3 credits. An intensive study of a selected topic in history. May be repeated with different topics for a maximum of nine credits.

601 Historiography and Methodology. Semester course; 3 lecture hours. 3 credits. A study of the development of history as a discipline from ancient times to the present. The course examines the evolution of historical theory and philosophy, great historians, schools of interpretation, and problems of historical methodology. This course is a prerequisite for research seminars.

611 Readings in American History. Semester course; 3 lecture hours. 3 credits. Analysis of major studies and interpretative trends in a particular area of American history through readings and class discussions. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.

615 Readings in European History. Semester course; 3 lecture hours. 3 credits. Analysis of major studies and interpretative trends in a particular area of European history through readings and class discussions. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.

619 Readings in Ethnic and Social History. Semester course; 3 lecture hours. 3 credits. Analysis of major studies and interpretative trends in a particular area of ethnic or social history through readings and class discussions. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.
623 Readings in Virginia and Southern History. Semester course; 3 lecture hours. 3 credits. Analysis of major studies and interpretative trends in a particular area of Virginia or southern history through readings and class discussions. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.

627 Readings in African-American History. Semester course; 3 lecture hours. 3 credits. Analysis of major studies and interpretative trends in a particular area of African-American history through readings and class discussions. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.

631 Research in American History. Semester course; 3 lecture hours. 3 credits. Analysis of significant problems in a particular field of American history through research, writing, in-class presentations and discussions. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.

635 Research in European History. Semester course; 3 lecture hours. 3 credits. Analysis of significant problems in a particular field of European history through research, writing, in-class presentations and discussions. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.

639 Research in Ethnic and Social History. Semester course; 3 lecture hours. 3 credits. Analysis of significant problems in a particular field of ethnic or social history through research, writing, in-class presentations and discussions. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.

643 Research in Virginia and Southern History. Semester course; 3 lecture hours. 3 credits. Analysis of significant problems in a particular field of Virginia or southern history through research, writing, in-class presentations and discussions. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.

647 Research in African-American History. Semester course; 3 lecture hours. 3 credits. Analysis of significant problems in a particular field of African-American history through research, writing, in-class presentations and discussions. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.

691 Special Topics in History. Semester course; 1-3 lecture hours. Variable credits; 1-3 credits. An intensive study of a selected topic in history. May be repeated for credit to a maximum of 12 credits. See Schedule of Classes for specific topic to be offered each semester.

692 Independent Study. Semester course. 1-3 credits. Maximum of 6 credits. Prerequisite: permission of chairman of Department of History and director of graduate studies in department in which student is pursuing graduate work. For students in English or other graduate programs to analyze a historical problem or topic in depth under faculty supervision.

693 Internship in History. Semester course; Variable credits; 2-4 credits per semester. Maximum total of 6 credits. 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 this course.

698 M.A. Thesis. 3 credits. May be repeated for credit to a maximum of 6 credits.

ELECTIVE COURSES
Students may take up to six (6) semester credits of approved electives from an approved list, which includes graduate courses in Geography. The department’s Graduate Committee maintains the list of approved courses, and students may use these courses for credit with the approval of the Graduate Director. In addition, students who wish to pursue specific areas of study may, with the approval of the Graduate Director, substitute other courses when appropriate, but in no case shall be able to count more than six semester hours of non-history courses.

Department of Mathematical Sciences

FACULTY
Division of Applied Mathematics and Mathematics
Asmerom, Ghidewon Abay Assistant Professor Ph.D., Western Michigan University; topological graph theory.

Berglund, John F. Professor Ph.D., Tulane University; topological algebra and harmonic analysis.

Deveney, James K. Professor Ph.D., Florida State University; commutative algebra.

Farley, Reuben W. Professor and Chairman Ph.D., University of Tennessee; topological algebra.

Glynn, William A. Professor Ph.D., Oklahoma State University; topology.

Haver, William E. Professor Ph.D., State University of New York, Binghamton; geometric topology.

Lewis, Andrew M. Assistant Professor Ph.D., University of California at Berkeley; mathematical logic.

Lohr, C. Michael Associate Professor Ed.D., University of Virginia; mathematical education.

Morris, J. Richard Associate Professor Ph.D., University of Alabama; topology.

Raychowdhury, Pratip N. Professor Ph.D., George Washington University; applied mathematics and mathematical physics.

Schmeelk, John F. Associate Professor Ph.D., George Washington University; applied mathematics.

Sedaghat, Hassan Assistant Professor Ph.D., George Washington University; topological algebra and applied mathematics.

Terrell, William J. Assistant Professor Ph.D., North Carolina State University; applied Mathematics, differential equations and mathematical control theory.

Thompson, Gary Assistant Professor Ph.D., University of Virginia; algebra.

Wood, James A. Professor and Director of Graduate Studies Ph.D., University of Virginia; functional analysis.
Division of Computer Science
Allan, Richard E. Associate Professor Ph.D., George Peabody College of Vanderbilt University; computer graphics.
Ames, James E, IV Associate Professor Ph.D., Duke University; medical applications of computer science.
Brillant, Susan S. Assistant Professor Ph.D., University of Virginia; software engineering.
Cheng, Chao-Kun Associate Professor Ph.D., University of Notre Dame; programming languages and compilers.
Evans, William B. Assistant Professor Ph.D., Louisiana State University; parallel and distributed computing, scientific computation.
Murrill, Branson W. Assistant Professor Ph.D., College of William and Mary; software engineering.

Parker, Lorraine M. Associate Professor and Assistant Chairman Ph.D., University of Wales, Great Britain; computer science.

Resler, Daniel R. Assistant Professor Ph.D., Queen's University, Ireland; computer languages and compilers.
Schedler, David A. Associate Professor Ph.D., George Washington University; theory of computation.
West, Lawrence W. Assistant Professor Ph.D., University of Kansas; computer science

Division of Operations Research and Statistics
Barnes, John A. Assistant Professor Ph.D., Virginia Polytechnic Institute and State University; applied probability and operations research.
Bauer, David F. Associate Professor and Assistant Chairman [Biostatistics and Occupational Therapy] Ph.D., University of Connecticut; mathematical statistics and nonparametric methods.
Davenport, James M. Associate Professor Ph.D., Southern Methodist University; statistics.
Henry, Neil W. Associate Professor (Sociology and Anthropology) Ph.D., Columbia University; multivariate statistics and survey analysis.
Johnson, Robert E. Associate Professor [Biostatistics] Ph.D., University of North Carolina at Chapel Hill; statistics and biostatistics.
Lamb, Ron Assistant Professor Ph.D., North Carolina State University; mathematical statistics.
Leleno, Joanna M. Assistant Professor Ph.D., Virginia Polytechnic Institute and State University; optimization and operations research.
Mays, D'Arcy P. Assistant Professor Ph.D., Virginia Polytechnic Institute & State University; experimental design, regression analysis, and response surface methodology.
Navard, Sharon E. Assistant Professor Ph.D., University of Southwestern Louisiana; probability and mathematical statistics.
Rein, Steven R. Assistant Professor Ph.D., University of California at Berkeley; time series analysis, stochastic modeling, and statistical computing.
Williamson, Patrician Pepple Assistant Professor Ph.D., Bowling Green State University; Bayesian analysis and decision theory.

The Department of Mathematical Sciences offers programs leading to a Master of Science degree in mathematical sciences or a Master of Science degree in computer science. The Master of Science degree in mathematical sciences offers specializations in several possible areas, including mathematics, applied mathematics, operations research, statistics, statistical computing, applied computational mathematics, discrete structures, and others.

The department also offers mathematical sciences certificates in computer science and statistics and, in conjunction with the School of Education, offers the Master of Education in mathematics education.

ADMISSION REQUIREMENTS FOR BOTH DEGREES
In addition to the general requirements for admission to graduate programs in the School of Graduate Studies (Part I of this bulletin) and the College of Humanities and Sciences, the following represent the minimum acceptable standards for admission:

1. 30 semester credits in undergraduate mathematical sciences, computer science, or related areas of which at least 18 semester credits must represent upper-level courses.
2. Three letters of recommendation pertaining to the student's potential ability as a graduate student in mathematical sciences.
3. Graduate Record Examination scores, including those of the advanced examination in either mathematics or computer science, whichever is appropriate.

Provisional admission may be granted when deficiencies exist. These deficiencies must be removed by the end of the first year of residence, or its part-time equivalent, when the student's application will be re-examined. Courses that are remedial or designed to remove deficiencies will not be accepted for credit toward the fulfillment of the course requirements for the master's degree.

DEGREE REQUIREMENTS FOR BOTH DEGREES
The program offers maximum flexibility by allowing students, in consultation with their graduate committees, to design a course of study which will best develop competence in those areas most relevant to their scholarly and professional objectives. This program consists of a minimum of 30 semester credits of which at least half must be at the 600 level. Each student in the mathematical sciences or computer science program will select either the thesis or nonthesis option. A student who chooses the thesis option has a choice of writing a research thesis or an expository thesis.
A research thesis is one which, in the opinion of the student's thesis advisor and thesis committee, contains significant original research. For such theses the student may count six credits of the 698 course appropriate to the discipline (MAT, SAT, CSC) in which the degree is offered. Otherwise a student may write an expository thesis. For this type of thesis the student may count three credits of the 698 course appropriate to the discipline (MAT, STA, CSC) in which the degree is offered. The student who elects the nonthesis option must pass a written examination and may be asked to take an oral examination.

Note that the following courses may not be applied to the credit requirements for the M.S. degree in mathematical sciences or the M.S. degree in computer science: CSC 554, 555; STA 500, 508, 543, 608; MAT 593. In addition, only one of MAT 530, 531 may be applied to the above degrees.

**PROGRAM LEADING TO THE MASTER OF SCIENCE DEGREE IN MATHEMATICAL SCIENCES**

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<thead>
<tr>
<th>Nonthesis Option</th>
<th>Credits</th>
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<tr>
<td>Mathematical Sciences .................................................</td>
<td>21</td>
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<tr>
<td>(Including both semesters of a 600-level sequence)</td>
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<tr>
<td>Mathematical Sciences or Allied Field^{3} ...............................</td>
<td>6-9</td>
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<tr>
<td>Research Seminar Credits^{3} ...........................................</td>
<td>2-4</td>
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<tr>
<td>Directed Research Credits^{3} .........................................</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
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<th>Thesis Option</th>
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<tr>
<td>Mathematical Sciences ..................................................</td>
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<tr>
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<tr>
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<td>6-9</td>
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<tr>
<td>Thesis Credits ........................................................................</td>
<td>3 or 6</td>
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<tr>
<td>Research Seminar Credits^{4} .............................................</td>
<td>1-3</td>
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<tr>
<td>Directed Research Credits^{4} ...........................................</td>
<td>0-2</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
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</table>

^{3}Courses selected from an allied field must be approved by the department's Graduate Affairs Committee.
^{4}The student who chooses the nonthesis option may receive a maximum total of four credits for 690 Research Seminar and 697 Directed Research. The student who chooses the thesis option usually will not take directed research, but he/she is not prohibited from doing so. In the thesis option a total of seven credits for thesis, research seminar, and directed research is the maximum credit permitted.
^{5}If a student previously received credit for one or both of these courses or their equivalent, then one or two of the other courses mentioned for this concentration must be taken as substitute(s) to satisfy the minimum requirement of 15 credit hours of course work in the concentration.

M.S. Degrees in the Mathematical Sciences

Students may obtain a designation on their transcripts indicating that their graduate study has emphasized one of the following graduate concentrations by completing the requirements that are listed here for that concentration. A student who has not satisfied the requirements for one of these concentrations, but who has otherwise fulfilled all the requirements for a master's degree, will be awarded a degree of Master of Science in mathematical sciences without any specialty concentration designation.

1. **M.S. in Applied Mathematics/Mathematical Sciences.** MAT 517-518, a six-credit sequence selected from MAT 617-618, 619, 620, 621, and at least six credits selected from MAT 511, 512, 515, 516, 527, 528, 698, 699, CSC 615, STA 513-514. Also, at least one seminar and the thesis (if chosen) must concern topics of applied mathematics.

2. **M.S. in Mathematics/Mathematical Sciences.** MAT 507-508, a six-credit sequence selected from MAT 601-602, 603-604, 607-608, 611-612, or 609 taken twice, and at least three credits selected from MAT 505, 509, 510, 521, 525, or any otherwise uncounted 600-level course for this concentration. Also, at least one seminar and the thesis (if chosen) must concern topics of pure mathematics.

3. **M.S. in Operations Research/Mathematical Sciences.** MAT 527-528, an approved two-course sequence from 639, 641, 645, 649, and at least one course in two of the following three groups: (a) CSC 615, 691; (b) MAT 511, 515, 516, 525; and (c) STA 503, 533, 613, 614, 691. Also, at least one seminar and the thesis (if chosen) must concern topics of operations research.

4. **M.S. in Statistics/Mathematical Sciences.** STA 513-514 and nine additional credits in STA courses, including at least six credits in 600-level STA courses. Three of the 600-level credits must be selected from STA 613-614, STA 645, or STA 691 and three credits from STA 623, STA 626, STA 628, or STA 691. Also, at least one seminar and the thesis (if chosen) must concern topics of statistics.

**PROGRAM LEADING TO THE MASTER OF SCIENCE DEGREE IN COMPUTER SCIENCE**

Students are required to complete the following:

1. A minimum of 30 credits of which at least
half must be at the 600 level. Up to six of
these credits may be obtained from courses
outside the Department of Mathematical
Sciences with the approval of the departmen
tal Graduate Affairs Committee.
2. At least 21 credits in courses labeled CSC,
a minimum of nine which must be at the 600
level. Only three credits of thesis may count
towards this requirement.
3. One of the following sequences: CSC 502-
602; CSC 505-605; CSC 508-608; CSC 511-
611; CSC 521-621; CSC 535-635. Other
sequences may be offered as approved by the
departmental Graduate Affairs Committee.

Nonthesis Option

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<th>Credits</th>
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<tr>
<td>Research Seminar Credits</td>
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<tr>
<td>Directed Research Credits</td>
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At least one credit of research seminar must concern a topic of computer science.

A total of four credits for research seminar and directed research is the maximum that may be counted toward the degree.

Thesis Option

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<tr>
<td>Thesis Credits</td>
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<tr>
<td>Research Seminar Credits</td>
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<tr>
<td>Directed Research Credits</td>
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</tbody>
</table>

A maximum of two credits of directed research may be counted toward the degree. At least one credit of research seminar and the thesis must concern topics of computer science.

A total of seven credits for thesis, research seminar, and directed research is the maximum that may be counted toward the degree.

Other Postbaccalaureate Programs in Mathematical Sciences

For the student who hold bachelor’s degrees in appropriate areas, the Department of Mathematical Sciences offers the following alternative postbaccalaureate degree programs.

Master of Education in Mathematics Education

For information about the graduate program in mathematics education, see the School of Education section of this bulletin.

Mathematical Sciences Certificates in Computer Science and Statistics

The Department of Mathematical Sciences offers certification programs in both computer science and statistics. These are designed for students who have received bachelor’s degrees in other areas and wish to undertake a study of these subjects.

Students who gain certification through the computer science program are well suited for many professional opportunities available in the scientific community and with government agencies. Further, the certification process is designed to allow interested students to prepare for graduate study in computer science.

The certification program in statistics is designed to allow students with undergraduate majors in various disciplines an opportunity to acquire the formal training in statistics that is currently in demand in industry and government. Some students also may find this program a useful way to prepare for graduate study in statistics.

Students seeking more information or wishing to enter these certificate programs should contact the Department of Mathematical Sciences.

GRADUATE COURSES IN MATHEMATICS (MAT)

501 Introduction to Abstract Algebra. Semester course; 3 lecture hours. 3 credits. Prerequisites: MAT 211 and 310 (or their equivalents). An introduction to groups, rings, and fields from an axiomatic point of view. Basic definitions and structure theorems.

505 Modern Geometry. Semester course; 3 lecture hours. 3 credits. Prerequisite: MAT 307. Corequisite: MAT 310. Topic in Euclidean, projective, and non-Euclidean geometries from a modern viewpoint.

507-508 Analysis I, II. Continuous course; 3 lecture hours. 3-3 credits. Prerequisites: MAT 211, 307, and 310 or permission of instructor. Theoretical aspects of calculus, sequences, limits, continuity, infinite series, series of functions, integration, differential geometry.

509-510 General Topology I, II. Continuous course; 3 lecture hours. 3-3 credits. Prerequisite: MAT 211 and MAT 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.

511 Applied Linear Algebra. Semester course; 3 lecture hours. 3 credits. Prerequisite: MAT 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.

512 Complex Analysis for Applications. Semester course; 3 lecture hours. 3 credits. Prerequisite: MAT 307. The algebra and geometry of complex numbers, analytic functions, integration, series, contour integration, analytic continuation, conformal mapping, with particular attention to applications.

515 Numerical Analysis I. Semester course; 3 lecture hours. 3 credits. Prerequisite: MAT 302 or permission of instructor. Solutions of equations, interpolation and approximation, orthogonal polynomials, numerical integration, iterative methods for solving linear equations, calculation of eigenvalues and eigenvectors. Selected algorithms may be programmed for solution on computers.
516 Numerical Analysis II. Semester course; 3 lecture hours. 3 credits. Prerequisite: MAT 515. Numerical solution of initial value problems in ordinary differential equations, 2 point boundary value problems. Introduction to numerical techniques for solving partial differential equations. Selected algorithms may be programmed for solution on computers.

517-518 Methods of Applied Mathematics. Continuous course; 3 lecture hours. 3-3 credits. Prerequisite: MAT 301 and 307. 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.

520 Game Theory and Linear Programming. Semester course; 3 lecture hours. 3 credits. Prerequisite: MAT 310. The mathematical basis of game theory and linear programming. Matrix games, linear inequalities and convexity, the minimax theorems in linear programming, computational methods, and applications.

521 Introduction to Algebraic Number Theory. Semester course; 3 lecture hours. 3 credits. Prerequisite: MAT 501. Introduction to algebraic numbers and algebraic number fields with emphasis on quadratic and cyclotomic fields. Units, primes, unique factorization.

523 Discrete Event Simulation. Semester course; 3 lecture hours. 3 credits. Prerequisite: STA 212 and MAT 309 or their equivalents, or permission of instructor. An introduction to the theory and practice of discrete event simulation. Topics include random variable generation, model development and validation, variance reduction techniques, and statistical analysis of output. Applications will be taken from areas such as queueing theory and manufacturing systems. A high level simulation language will be utilized.

525 Introduction to Combinatorial Mathematics. Semester course; 3 lecture hours. 3 credits. Prerequisites: MAT 211, 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.

527-528 Mathematical Foundations of Operations Research. Continuous course; 3 lecture hours. 3-3 credits. Prerequisites: CSC 201 or 255, MAT 310. (MAT 309 is prerequisite for MAT 528 and STA 503 is strongly recommended for MAT 528). Introduction to the mathematical foundations of deterministic and stochastic operations research, including the simplex method for linear programming, nonlinear optimization, dynamic programming, and some stochastic models. Real world applications will be discussed throughout.

530 The History of Mathematics. Semester course; 3 lecture hours. 3 credits. Prerequisite: 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 nineteenth century and considers the cultural and social contexts of mathematical activity. Either MAT 530 or MAT 531 (but not both) may be applied to the master's degree in mathematical sciences or the M.S. degree in computer science. Both MAT 530 and MAT 531 may be applied to the M.Ed. degree in mathematics education.

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 twentieth century, and the computer revolution. Either MAT 530 or MAT 531 (but not both) may be applied to the master's degree in mathematical sciences or the M.S. degree in computer science. Both MAT 530 and MAT 531 may be applied to the M.Ed. degree in mathematics education.

591 Topics in Mathematics. Semester course; 1-3 credits per semester. Prerequisite: permission of the instructor. A study of selected topics in mathematical sciences. Open to qualified undergraduates. May be repeated for credit with different topics.

593 Internship in Mathematical Sciences. Semester course; 1-6 credits. Prerequisite: graduate standing. Student participation in a planned educational experience under the supervision of a mathematical sciences faculty member. The internship may include supervised teaching, statistical or computer science consulting, or participation in theoretical or applied research projects. May be repeated for credit. May not be applied toward the degree in mathematical sciences. A grade of "P" may be assigned students in this course.

601-602 Abstract Algebra I, II. Continuous course; 3 lecture hours. 3-3 credits. Prerequisite: MAT 501. A study of algebraic structures (including groups, rings, and fields), Galois theory, homomorphisms, subalgebras, direct products, direct decompositions, subdirect decompositions, free algebras, varieties of algebras.

603-604 Advanced Probability Theory. Continuous course; 3 lecture hours. 3-3 credits. Prerequisites: MAT 508 and STA 503 or STA 513. A measure-theoretic approach to the theory of probability. Borel sets, probability measures, and random variables. Special topics include characteristic functions, modes of convergence, and elements of stochastic processes.

607-608 Real Analysis I, II. Continuous course; 3 lecture hours. 3-3 credits. Prerequisite: MAT 508. The real number system, Lebesgue measure, functions of bounded variation, differentiation and integration, the LP spaces, introduction to Banach and Hilbert spaces, general measure theory, and the Lebesgue-Stieltjes integral.

611-612 Complex Analysis I, II. Continuous course; 3 lecture hours. 3-3 credits. Prerequisite: MAT 508. Elementary functions, analyticity, Cauchy's theorem and integral formula, Taylor and Laurent series, poles, residues, analytic continuation, Riemann surfaces, periodic functions, conformal mapping, and applications.

615 Topics in Numerical Analysis. Semester course; 3 lecture hours. 3 credits. May be taken twice for credit. Prerequisites: MAT 515-516 and permission of instructor. Special topics in computer methods for numerical analysis selected from such subjects as analysis of numerical methods for solving ordinary differential equations; elliptic, hyperbolic, and parabolic partial differential equations; solutions of large linear systems by iterative methods.

617-618 Applied Mathematics I, II. Continuous course; 3 lecture hours. 3-3 credits. Prerequisites: MAT 517 and 518.
Partial differential equations; equations of Helmholtz, Laplace, and Poisson; the diffusion equation, integral transforms, Green’s function methods, calculus of variation, eigenvalues and eigenfunctions by variational methods, integral equations, Fredholm and Volterra equations, and Fredholm and Hilbert-Schmidt theories.

619 Operational Methods. Semester course; 3 lecture hours. 3 credits. Prerequisite: MAT 508. Transform methods applied to existence theory, explicit solutions to problems of mathematical physics, distributions of Schwartz and Gelfand-Silov, kernel theorems of Schwartz, mathematical framework of quantum field theory.

620 Theory of Partial Differential Equations. Semester course; 3 lecture hours. 3 credits. Prerequisites: MAT 301 and 508. Classification of partial differential equations; elliptic, hyperbolic, and parabolic equation; potential theory, techniques of solving various partial differential equations; application to electromagnetism and solid mechanics.

621 Boundary-Value Problems. Semester course; 3 lecture hours. 3 credits. Prerequisites: MAT 517-518. Survey of boundary-value problems, approximate analytic solutions such as Galerkin’s method and the Ritz method; application to heat transfer, fluid mechanics, and potential theory.

639 Studies in Operations Research. Semester course; 3 lecture hours. 3 credits. Prerequisites: at least one graduate-level course in mathematical sciences pertaining to the study area and permission of instructor. Selected areas in operations research will be studied, such as integer programming, nonlinear programming, large scale systems, stochastic models.

641 Mathematical Programming. Semester course; 3 lecture hours. 3 credits. Prerequisite: MAT 527. Necessary and sufficient conditions for optimal solutions. Duality theory. Theoretical and practical development of solution techniques for operations research problems. Some current algorithms will be discussed.

645 Queueing Theory. Semester course; 3 lecture hours. 3 credits. Prerequisite: STA 503. This operations research course provides a development of some basic queueing systems. Such systems will include birth-death queues, as well as the M/G/1 and GI/M/S queueing systems. Other topics may include the GI/G/1 queues, overflow queues, and some basic queueing networks.

649 Practical Optimization. Semester course; 3 lecture hours. 3 credits. Prerequisites: MAT 527 and CSC 255. The application of optimization theory toward the solution of practical problems in operations research. The use and analysis of computer programs available to solve such problems. The algorithms used in these programs will be discussed from a practical and theoretical point of view.

690 Research Seminar. Semester course; 1 credit. Prerequisite: graduate standing. Discussion of topics in the mathematical sciences as stimulated by independent reading in selected areas and at least one oral presentation by each student. May be taken more than once for credit.

691 Special Topics in Mathematics. Semester course; 1-3 lecture hours. 1-3 credits. Prerequisite: Permission of instructor. A detailed study of selected topics in mathematics. Possible topics include commutative rings and algebras, topological groups, special functions, Fourier analysis, abstract harmonic analysis, operator theory, functional analysis, differential geometry, Banach algebras and control theory. May be taken more than once for credit.

697 Directed Research. Semester course; variable credit, 1-3 credits per semester. Prerequisite: graduate standing. Supervised individual research and study in an area not covered in the present curriculum or in one which significantly extends present coverage. Research culminates with an oral presentation and submission of a written version of this presentation to the supervising faculty member. May be taken more than once for credit.

698-699 Thesis. Continuous course; 1-3 credits per course. Credits and hours to be arranged. Prerequisite: graduate standing. Independent research culminating in the writing of the required thesis as described. A grade of “S” (satisfactory), “U” (unsatisfactory), or “F” (failure) may be assigned in this course.

GRADUATE COURSES IN COMPUTER SCIENCE (CSC)

502 Concepts of Concurrency. Semester course; 3 lecture hours. 3 credits. Prerequisites: CSC 312 and CSC 401. Software and hardware mechanisms for providing mutual exclusion in uniprocessor and multiprocessor environments. Concurrency problems and solutions in a distributed environment including message passing and remote procedure calls.

504 Compiler Construction. Semester course; 3 lecture hours. 3 credits. Prerequisites: CSC 401 and CSC 403. Review of programming language structures, translation, loading, execution, and storage allocation. Compilation of simple expressions and statements. Organization of a compiler. Use of bootstrap and compiler writing languages.

505 Computer Architecture. Semester course; 3 lecture hours. 3 credits. Prerequisites: CSC 312. Basic digital circuit combinational logic, data transfer, and digital arithmetic. Memory and memory access, control functions, CPU organization, microprogramming, input/output interfaces.

506 Computer Networks and Communications. Semester course; 3 lecture hours. 3 credits. Prerequisite: CSC 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.

508 Data Base Theory. Semester course; 3 lecture hours. 3 credits. Prerequisites: CSC 401. Design and implementation of hierarchial, network, and relational data base systems. Relational algebra, normal forms, and normalization.

509 Artificial Intelligence. Semester course; 3 lecture hours. 3 credits. Prerequisites: CSC 401 and CSC 403. Problem spaces, problem-solving methods, game playing, knowledge representation, expert systems, natural language understanding.

511 Computer Graphics. Semester course; 3 lecture hours. 3 credits. Prerequisites: CSC 256 and either MAT 307 or MAT 310. Mathematical techniques for picture development and transformation, curve and surface approximation and projec-
519 Software Engineering. Semester course; 3 lecture hours. 3 credits. Prerequisite: CSC 401. Systematic approach to the development and maintenance of software and the associated documentation. Includes software life cycle, scheduling and budgeting, configuration management, quality assurance, and software tools.

521 Introduction to the Theory of Computation. Semester course; 3 lecture hours. 3 credits. Prerequisite: CSC 301. An introduction to automata theory, formal languages and computability. Topics include finite automata, pushdown automata, Turing machines, decidability and computational complexity.

526 Theory of Programming Languages. Semester course; 3 lecture hours. 3 credits. Prerequisite: CSC 403. An introduction to the formal semantics of programming languages, logic programming and functional programming. Topics include denotational semantics, attribute grammars, Backus Formal Functional Programming, fixed point semantics, model-theoretic semantics and PROLOG.

535/PHY 535 Advanced Interfacing. Semester course; 3 lecture hours. 3 credits. Prerequisite: PHY 432 or equivalent. Self-paced course in interfacing microprocessors to a variety of devices. The Motorola 6800 MPU is studied in depth with an introduction to the 6809 and 68000 16-bit MPs. Interfacing topics include use of the peripheral interface adapter; D/A and A/D converters; standard serial and parallel interface buses; EPROM programming; asynchronous interface adapters; video monitors; printers; MODEMS; and connecting the MPU to magnetic recording devices such as floppy disks.

554 Applications of Computers in the Teaching of Mathematics I. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: 17 credits at the 200 level or above in mathematics or permission of the instructor. Introduction to computers and programming language, BASIC. Applications of the computer in algebra, geometry, trigonometry, statistics, and calculus. Not applicable toward certicate program, B.S., or M.S. degree in mathematical sciences.

555 Applications of Computers in the Teaching of Mathematics II. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: CSC 554. Continuing study of computer applications in the BASIC language to typical mathematical problems arising in practical settings. The most commonly encountered difficulties in solving scientific problems are discussed. Not applicable toward M.S. degree in mathematical sciences or the M.S. degree in computer science.

591 Topics in Computer Science. Semester course; 3 lecture hours. 3 credits. Prerequisites may vary. Permission of the instructor required. Selected topics in computer sciences such as: Theory of data bases, information retrieval and artificial intelligence. Course is open to qualified undergraduates. May be repeated for credit.

602 Operating Systems. Semester course; 3 lecture hours. 3 credits. Prerequisite: CSC 502. A study of operating systems including those in multiprocessor and distributed environments. I/O programming, resource management (including process and memory management), security and system performance evaluation.

605 Advanced Computer Architecture. Semester course; 3 lecture hours. 3 credits. Prerequisite: CSC 505. Investigation of topics including memory design and management, pipelining and pipeline systems, multiprocessor and data flow architectures. Comparative analysis of various types of architectures.

608 Advanced Data Base. Semester course; 3 lecture hours. 3 credits. Prerequisite: CSC 508. Studies the theory of the logical structure of the relations in a relational data base and the theory of concurrency in a distributed data base system. Functional dependencies, covers for functional dependencies, representation theory, query modification, null value, concurrency and distributed data base systems.

611 Advanced Computer Graphics. Semester course; 3 lecture hours. 3 credits. Prerequisite: CSC 511. Modeling, representation of three-dimensional (3D) shapes, displaying depth relationships, algorithms for removing hidden edges and surfaces, color, shading models, and intensity.

621 Theory of Computation. Semester course; 3 lecture hours. 3 credits. Prerequisite: CSC 521. Discussion of the complexity and computability of problems and programs. Topics will include unsolvability, universal programs and abstract complexity.

635/PHY 635 Microcomputer-based Laboratory Control. Semester course; 3 lecture hours. 3 credits. Prerequisites: PHY 532, 535. Use of the microcomputer for integrated interactive control, data-collection, and data-logging. Signal conditioning in a digital environment. Introduction to control theory. Specialized high-level computer languages for process-control applications, software design considerations. An overview of available hardware.

664 Image Processing. Semester course; 3 lecture hours. 3 credits. Prerequisites: CSC 401, CSC 403, and MAT 201. Image digitization, sampling theory, image enhancement, and restoration using various spatial and frequency domain techniques (histogram modification, filtering), the Fourier transform and convolution, image encoding, image segmentation, and feature detection.

691 Special Topics in Computer Science. Semester course; 3 lecture hours. 3 credits. Prerequisites: at least one graduate-level computer science course pertaining to the topic area, and permission of instructor. Selected topics in computer science from such areas as data base management, communications, advanced computer architecture, analysis of algorithms, program correctness, computational complexity. May be taken more than once for credit.

698 Thesis. 1-3 credits per course. A total of either 3 or 6 credits may be applied to the M.S. degree in Computer Science. (A total of 3 credits for an expository thesis or a total of 6 credits for a research thesis). Hours to be arranged. Prerequisite: graduate standing. Independent research culminating in the writing of the required thesis as described in this bulletin. A grade of "S" (satisfactory), "U" (unsatisfactory) or "F" (failure) may be assigned in this course. May be taken more than once for credit.

GRADUATE COURSES IN STATISTICS (STA)

500 Survey of Statistical Software. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: one
course in statistics. Examines software systems for statistical analysis of data on mainframe and/or mini-computers; reviews statistical procedures appropriate to the research interests of students; emphasizes when and how to use these procedures appropriately. Requires students to prepare data for statistical analysis; encourages students to analyze data from their respective disciplines. While several systems (SAS, SPSSx, S, etc) will be used, students will study one in depth. Not applicable toward M.S. degree in mathematical sciences or the M.S. degree in computer science.

503 Introduction to Stochastic Processes. Semester course; 3 lecture hours. 3 credits. Prerequisites: MAT 307 and 309. A continuation of topics given in MAT 309. An elementary introduction to stochastic processes and their applications, including Markov chains and Poisson processes.

508/Sociology 508. Introduction to Social Statistics. Semester course; 2 lecture hours and 2 laboratory hours. 3 credits. Introduction to statistical methods applicable in a variety of settings, with emphasis on nonexperimental data. Data description and analysis including chi-square and t-tests, using a statistical computing package. Not applicable toward M.S. degrees in mathematical sciences or sociology or the M.S. degree in computer science.

513-514/BIS S13-514 Mathematical Statistics. Continuous course; 3 lecture hours. 3-3 credits. Prerequisite: MAT 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.

523/BIS 523 Nonparametric Statistical Methods. Semester course; 3 lecture hours. 3 credits. Prerequisites: any two semesters 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.

533 Applied Linear Regression. Semester course; 3 lecture hours. 3 credits. Prerequisites: any two semesters of statistics and one semester of calculus. An introduction to the concepts and methods of regression analysis, including simple linear regression and correlation, multiple regression and correlation. Application of the multiple regression model to the analysis of variance.

541 Applied Statistics for Engineers and Scientists. Semester course; 3 lecture hours. 3 credits. Prerequisites: MAT 200-201 or equivalent and operational knowledge of MSDOS. An introduction to applied statistics intended primarily for graduate students in Mathematical Sciences and the Cooperative 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 hypothesis and confidence intervals for one and two sample problems; ANOVA, principles of one-factor experimental designs including block designs and Latin squares, fixed and random effects, multiple comparisons; correlation and linear regression analysis; control charts; contingent tables and goodness-of-fit.

543/BIS 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 STA 541 and STA 543. STA 543 is not applicable toward the M.S. degree in mathematical sciences or the M.S. degree in computer science.

544/BIS 544 Statistical Methods II. Semester course; 3 lecture hours. 3 credits. Prerequisite: STA 541 or STA 543, or equivalent. Introductory treatment of the design of experiments and the statistical analysis of experimental data based on analysis of variance (ANOVA) and multiple-regression problems will be covered. Includes the use of a statistical software package for data analysis.

549 Statistical Quality Control. Semester course; 3 lecture hours. 3 credits. Prerequisite: STA 212 and MAT 309 or their equivalents, or permission of instructor. Methods of statistical quality control, with an emphasis on the probabilistic and statistical foundations used in designing and evaluating the techniques. Includes variables and attributes control charts, CUSUM charts, process capability analysis, design of experiments, and acceptance sampling.

591 Topics in Statistics. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of the instructor. Selected topics in statistics. Course open to qualified undergraduates. May be repeated for credit.

608/Sociology 608 Statistics for Social Research. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: STA 508, SOC 214, or permission of instructor. Statistical methods applied in social research. Topics include analysis of variance, correlation and regression, including stepwise methods, and the analysis of discrete data. Study of a statistical package, emphasizing manipulation of survey data sets. Not applicable toward M.S. degree in mathematical sciences or the M.S. degree in computer science.

613-614 Stochastic Processes. Continuous course; 3 lecture hours. 3-3 credits. Prerequisites: MAT 508 and STA 514. Introduction to the theory and applications of stochastic processes. Random walks, Markov processes, queueing theory, renewal theory, birth-death and diffusion processes. Time series, spectral analysis, filter, autocorrelation. (Offered in conjunction with the biostatistics department.)

623 Discrete Multivariate Analysis. Semester course; 3 lecture hours. 3 credits. Prerequisites: STA 543, or permission of instructor. Methods for the analysis of contingency tables. Emphasis on social and biomedical applications of the general log-linear model.

626 Complex Sampling Designs and Variance Estimation. Semester course; 3 lecture hours. 3 credits. Prerequisites: STA 544 and 514. The analysis of data from surveys that use multistage samples, and connections to the analysis of observational studies and experiments with missing data. Computer intensive methodologies such as the jackknife and bootstrap will be introduced and applied to the problem of variance estimation in these diverse settings.
628 Advanced Regression. Semester course; 3 lecture hours. 3 credits. Prerequisites: STA 513 and one of the following: STA 533, STA 544, or BIS 546. Theoretical development and advanced applications of the general linear regression model and generalizations of this model. Course material is selected from these general areas: Advanced treatment of analysis of variance (ANOVA) in balanced and unbalanced designs with regression models, including fixed, random, and mixed effects problems; nonlinear and weighted least squares, generalized linear models and maximum-likelihood estimation via iteratively reweighted least squares; and advanced treatment of selection of variables problems, and use of cross-validation and bootstrap methods in regression applications.

645 Bayesian Decision Theory. Semester course; 3 lecture hours. 3 credits. Prerequisite: STA 514. Presents statistical decision theory and Bayesian analysis, with discussions of loss functions, risk, utility, prior information; conjugate families; posterior distributions, estimation, hypothesis testing; empirical and hierarchical Bayes analysis; and robustness.

691 Special Topics in Statistics. Semester course; 1-3 lecture hours. 1-3 credits. Prerequisite: permission of instructor. A detailed study of selected topics in statistics. May be repeated for a maximum of six credits.

697 Directed Research. Semester course; variable credits, 1-3 credits per semester. Prerequisite: graduate standing. Supervised individual research and study in an area not covered in the present curriculum or in one which significantly extends present coverage. Research culminates with an oral presentation and submission of a written version of this presentation to the supervising faculty member. May be taken more than once for credit.

698 Thesis. 1-3 credits per course. A total of 3 or 6 credits may be applied to the M.S. degree in Statistics/Mathematical Sciences. (A total of 3 credits for an expository thesis or a total of 6 credits for a research thesis). Hours to be arranged. Prerequisite: graduate standing. Independent research culminating in the writing of the required thesis as described in this bulletin. A grade of "S" (satisfactory), "U" (unsatisfactory) or "F" (failure) may be assigned in this course. May be taken more than once for credit.

Department of Physics

FACULTY
Bishop, Marilyn F. Associate Professor Ph.D., University of California, Irvine; transport theory for simple metals, charge density waves, superconductivity, polymerization kinetics of biological polymers, light scattering from polymers

Gowdy, Robert H. Associate Professor Ph.D., Yale University; theory of general relativity, cosmology, quantum gravity

Herr, Steven L. Assistant Professor Ph.D., University of Kentucky, Lexington; experimental condensed matter physics, optical properties, high temperature superconductivity, conducting polymers, laser imaging of biological tissues,

Jeno, Purusottam Professor Ph.D., University of California, Riverside; electronic structure and properties of defects in metals and small atomic clusters, metal-matrix composites, surface and interfaces, hydrogen-metal systems, cluster solids.

Khanna, Shiv N. Professor Ph.D., University of Delhi, India; theory of small clusters, cluster assembled materials, novel cage clusters, quasicrystals, low dimensional systems, magnetism in small clusters and low dimensions.

Niculescu, Vasile A. Associate Professor Ph.D., University of Cluj, Romania; experimental solid state, surface structure and properties of alloys, magnetic adn structural properties of metals and alloys.

Pappas, David P. Assistant Professor Ph.D., University of California, Irvine; experiments in magnetism and structure of thin films, ultra-high vacuum growth, spin polarized electron spectroscopy, and scanning tunneling microscopy.

Rao, Bijan K. Professor and Chairman Ph.D., University of California, Riverside; electronic structure and properties of atomic clusters, conducting polymers, many-body theory.

Smith, Elske v. P. Professor and Director of Environmental Studies Ph.D., Harvard University; solar astronomy, environmental studies.

The Department of Physics offers a program leading to a Master of Science degree with an emphasis on four tracks: instrumentation, the physics of materials, chemical physics, or physics research. In keeping with VCU’s commitment as an urban institution, the program is available exclusively in the evening and is oriented toward part-time students.

Accelerated B.S.-M.S. Program

Students who are enrolled in the physics B.S. program may elect to take graduate courses which will count toward the physics M.S. degree. Up to six hours of graduate credit may be earned in this way without any special provision. In order to offer more than six hours of pre-admission graduate credit toward the graduate degree, a student must apply to the physics department Graduate Admission Committee for admission to the accelerated B.S.-M.S. program. Persons applying for admission to this program (1) should submit a curricular plan for completing the physics B.S. degree within two years or its part-time equivalent; (2) should indicate which graduate courses they intend to offer toward the physics M.S. degree; (3) should have a “B” average or better. The M.S. Degree Completion Form should be accompanied by a memo from the physics department Graduate Admission Committee to indicate which graduate courses were taken under the accelerated B.S.-M.S. program.

ADMISSION REQUIREMENTS

In addition to the general requirements for admission to graduate programs in the School of Graduate Studies (Part I of this bulletin) and the College of Humanities and Sciences, students are expected to satisfy the following minimum standards for admission:

1. 30 semester credits in undergraduate physics or engineering of which at least 18
semester credits must be at the upper level. Each of the three available tracks requires the 18 credits to include particular upper-level courses:

a. Admission to the instrumentation track requires courses equivalent to PHY 376 Electromagnetic Theory and PHY 432 Digital Electronics.
b. Admission to the materials, chemical physics, and research tracks requires courses equivalent to PHY 340 Thermodynamics, PHY 376 Electromagnetism, and PHY 380 Modern Physics.

2. Three letters of recommendation pertaining to the student’s potential as a physics graduate student.
3. Satisfactory Graduate Record Examination Scores.

Applicants must state which of the four degree tracks they wish to pursue.

Provisional admissions may be granted where deficiencies exist. These deficiencies must be removed by the end of the first year of residence or its part-time equivalent, when the student’s application will be reexamined. Courses which are designed to remove deficiencies will not be accepted for credit toward the Master of Science degree.

Students can select graduate courses in chemistry, mathematics, computer science, and appropriate courses in the School of Basic Health Sciences. These electives must be approved by the graduate program committee of the department to count toward degree requirements.

Students who intend to continue their studies in the Ph.D. in Chemistry Program/Chemical Physics Option should choose the Chemical Physics Track. The Department of Chemistry can waive degree requirements that are duplicated in the Chemical Physics Track. Students enrolled in the Ph.D. program for Chemical Physics may earn in addition an M.S. in physics by satisfying the above requirements.

DEGREE REQUIREMENTS

Each track requires 30 semester credits of approved graduate courses with at least 15 semester credits at the 600-level. All tracks require the following core courses:

PHY 550 Graduate Laboratory
PHY 571 Theoretical Mechanics
PHY 576 Electromagnetic Radiation

Each student can elect either the thesis or non-thesis option. For the thesis option at least six semester credits of PHY 697 Directed Research are required with a satisfactory oral defense of a written thesis. However, no more than nine semester credits of Directed Research may be counted toward the 15 credit 600-level requirement, and no more than three credits for the non-thesis option.

A student who elects the non-thesis option must pass a written comprehensive examination. Each of the tracks requires additional courses beyond the core.

Instrumentation Track:
PHY 532 Instrumentation
PHY 535 Advanced Interfacing
PHY 635 Microcomputer-based Lab

Control Physics of Material Track:
PHY 507 Materials Characterization
PHY 508 Quantum Mechanics
PHY 641 Solid State Physics

Chemical Physics Track:
PHY 580 Quantum Mechanics
Six credits of additional physics chemistry or mathematics courses with at least three at the 600-level.

Research Track:
PHY 580 Quantum Mechanics
Six credits of additional physics and mathematics courses with at least three at the 600-level.

GRADUATE COURSES IN PHYSICS (PHY)

507 Materials Characterization. Semester course; 3 lecture hours. 3 credits. Prerequisites: PHY 440 or equivalent. An advanced survey of the structural and mechanical properties of materials and the methods for characterizing them. The connection between atomic and electronic structure and large-scale properties is emphasized. Topics include diffraction studies of crystals, crystal imperfections, annealing processes, magnetic interactions, optical properties, and a variety of measurement techniques.

532 Introduction to Instrumentation. Semester course; 3 lecture hours. 3 credits. Prerequisites: PHY 432 or equivalent; MAT 301, 307, or equivalent. The application of advanced electronic techniques to data gathering. Includes analysis of noise, the electronic properties of input/output transducers, and signal recovery techniques.

535/CSC Advanced Interfacing. Semester course; 3 lecture hours. 3 credits. Prerequisites: PHY 432 or equivalent. Self-paced course in interfacing microprocessors to a variety of devices. The Motorola 6800 MPU is studied in depth with an introduction to the 6809 and 68000 16-bit MPUs. Interfacing topics include: use of the peripheral interface adapter, D/A and A/D converters, standard serial and parallel interface buses, EPROM programming, asynchronous interface adapters, video monitors, printers, MODEMS, and connecting the MPU to magnetic recording devices such as floppy disks.
550 Graduate Laboratory. Semester course; 6 laboratory hours. 3 credits. Prerequisite: four semesters of undergraduate physics laboratory equivalent to PHY 207, 208, 320, and PHY 350. Applications of modern measurement techniques including the use of pulse-height analyzers, X-ray diffractometers, magnetometers, and mass spectrometers as well as techniques for characterizing materials by their transport properties (including Hall effect and thermoelectric power) and by their mechanical properties.

571 Theoretical Mechanics. Semester course; 3 lecture hours. 3 credits. Prerequisites: PHY 301 and MAT 301 or permission of instructor. An introduction to advanced dynamics involving the Lagrangian and Hamiltonian formalisms.

576 Electromagnetic Theory. Semester course; 3 lecture hours. 3 credits. Prerequisites: PHY 376 and MAT 301 or permission of instructor. Maxwell's equations of electromagnetism, vector and scalar potentials, electromagnetic waves, and radiation theory.

580 Quantum Mechanics. Semester course; 3 lecture hours. 3 credits. Prerequisites: PHY 380, MAT 301, 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.

591 Topics in Physics. Semester course; 3 lecture hours. 1-3 credits per semester. Open to graduate students and to undergraduate students with advanced standing. Applicable toward physics major requirements. An in-depth study of a selected topic in advanced physics. See Schedule of Classes for specific topic(s) and additional prerequisites.


641 Solid State Physics I. Semester course; 3 lecture hours. 3 credits. Prerequisites: CHE 510, PHY 302 and MAT 317, or permission of instructor. Study of structure and electronic properties of materials in the solid phase.

650 Subatomic Physics I. Semester course offered in cooperation with Virginia State University. 3 credits. Prerequisites: PHY 576, PHY 580, CHE 510. Studies of nuclei and elementary particles, reaction dynamics, particle accelerators, detection devices, particle classification, symmetries and conservation laws, quantum electrodynamics, the weak interaction, quantum chromodynamics, unified theories, the nuclear shell model and collective model, and nuclear reactions.

651 Subatomic Physics II. Semester course offered in cooperation with Virginia State University. 3 credits. Prerequisites: PHY 650. A continuation of PHY 650.

660 Studies in Electronic Instrumentation. Semester course; 3 credits. Courses televised by the Virginia Cooperative Graduate Engineering Program. See Schedule of Classes for selected topics and prerequisites. Credits for only two televised courses will count toward degree requirements.

661 Studies in Material Science I. Semester course; 3 credits. Courses televised by the Virginia Cooperative Graduate Engineering Program. See Schedule of Classes for selected topics and prerequisites. Credits for only two televised courses will count toward degree requirements.

662 Studies in Material Science II. Semester course; 3 credits. Courses televised by the Virginia Cooperative Graduate Engineering Program. See Schedule of Classes for selected topics and prerequisites. Credits for only two televised courses will count toward degree requirements.

663 Studies in Nuclear Physics. Semester course; 3 credits. Courses televised by the Virginia Cooperative Graduate Engineering Program. See Schedule of Classes for selected topics and prerequisites. Credits for only two televised courses will count toward degree requirements.

690 Research Seminar. Semester course; 1 credit. Examines current problems and developments in physics. May be repeated for credit.

691 Special Topics. Semester course; 3 credits. Prerequisites: at least one graduate-level physics course and permission of instructor. Selected topics in physics from such areas as statistical physics, quantum field theory, semi-conductor device physics, general relativity, electronic structure of solids, thin-film fabrication techniques, superconductivity, nuclear magnetic resonance techniques, crystallography, and nuclear physics.

697 Directed Research. Semester course; 1-6 credits. Prerequisites: at least one graduate-level physics course and permission of instructor. Research leading to the M.S. degree. May be repeated for credit up to a limit of 9 credits.

Department of Psychology

FACULTY

Auerbach, Stephen M. Professor Ph.D., Florida State University; stress and coping theory and research; stress management in behavioral medicine and law enforcement settings and with the elderly.

Bailey, Kent G. Professor Ph.D., West Virginia University; individual tests of intelligence, psychotherapy, human ethology.

Chartrand, Judy Assistant Professor Ph.D., University of Minnesota; career counseling, multiple role adjustment, counseling issues in sports psychology.

Clark, Maxine L. Associate Professor Ph.D., University of Illinois; social development of minority children; peer relations and ethnic attitudes.

Corazzini, John G. Professor Ph.D., University of Notre Dame; college counseling.

Danish, Steven J. Professor and Chairperson Ph.D., Michigan State University; health and sports psychology, promotion and enhancement of competence, prevention of substance abuse.

Dougherty, Linda M. Assistant Professor (Gerontology) Ph.D., University of Southern California; human emotions, effects of status on well-being in the elderly.

Erickson, Marilyn T. Professor Ph.D., University of Washington; etiology of psychopathology; child and adolescent assessment/diagnostic issues; psychological intervention with children, adolescents, and families.

Farrell, Albert D. Professor Ph.D., Purdue University; behavioral assessment, behavior therapy, social skills training, computer applications in mental health.
Forsyth, Donelson R. Professor and Director of the Social Psychology Division of the Doctoral Program in General Psychology Ph.D., University of Florida; social psychology, attitudes and social cognition, group processes.

Gramling, Sandra E. Associate Professor Ph.D., University of Mississippi; behavioral medicine, psychophysiology, behavior therapy, psychopharmacology.

Hamm, Robert J. Professor Ph.D., Southern Illinois University; neuronal trauma, stress reactions, animal behavior.

Hanna, Aura Assistant Professor Ph.D., University of Toronto; visual memory, verbal memory.

Harkins, Stephen Professor (Gerontology) Ph.D., University of North Carolina; pain and age, memory changes with age, evoked potentials.

Harnett, John J. Associate Professor Ph.D., Wayne State University; social-industrial psychology, person perception, job satisfaction, selection, classification.

Howard, Catherine W. Assistant Professor Ph.D., Pennsylvania State University; lifespan development with emphasis on adolescence, family relations, prevention programs for at-risk youth.

Kiesler, Donald J. Professor and Director of the Doctoral Program in Clinical Psychology Ph.D., University of Illinois; interpersonal communication approaches to psychotherapy, psychotherapy change-process research and personal relationships.

Kiewer, Wendy Assistant Professor Ph.D., University of California, Irvine; parental influence on children's use of coping strategies for coping with normative and stressful situations in elementary school years.

Leahy, Thomas H. Professor Ph.D., University of Illinois; history and philosophy of psychology; cognitive science, sociobiology.

Mahoney, John M. Associate Professor Ph.D., State University of New York Buffalo; social psychology, values, individual differences.

McCullough, James P. Associate Professor Ph.D., University of Georgia; cognitive-behavior psychotherapy with adults, research with early and late onset characterological dysthymia, N = 1 methodology.

McCreary, Micah Assistant Professor Ph.D., Virginia Commonwealth University; family issues with African-Americans, African-American males, adolescent and spiritual stress and coping.

McGrath, Melanie Assistant Professor Ph.D., University of Mississippi; pediatric psychology, child behavior and management issues.

Myers, Barbara J. Associate Professor and Director of the Developmental Psychology Division of the Doctoral Program in General Psychology Ph.D., Temple University; infancy and early childhood, social development, medical problems in infants

Parham, Iris A. Associate Professor (Gerontology) Ph.D., University of Southern California; psychology of aging, developmental psychology.

Porter, Joseph H. Professor and Director of the Biopsychology Division of the Doctoral Program in General Psychology Ph.D., University of Georgia; biopsychology, animal learning and behavior, behavioral pharmacology.

Reese, Finetta Assistant Professor Ph.D., Arizona State University; alcohol expectancies and substance abuse prevention; stress and social support processes.

Robbins, Steven B. Associate Professor and Chairperson Ph.D., University of Utah; psychodynamic theory research and practice, consultation, career indecision

Stasson, Mark F. Assistant Professor Ph.D., University of Illinois; group decision making, social psychological applications in organizational settings

Stolberg, Arnold L. Professor and Director of Undergraduate Studies Ph.D., University of South Florida; clinical child and community psychology; prevention of child psychopathology, divorce, and child adjustment.

Strong, Stanley R. Professor and Director of the Doctoral Program in Counseling Psychology Ph.D., University of Minnesota; interpersonal influence theory, change processes in counseling and psychotherapy.

Weitzman, Lauren Assistant Professor Ph.D., University of Illinois, Urbana-Champaign; women's career development, sexual harassment.

Williams, Julie Assistant Professor and Director of the Center for Psychological Services and Development Ph.D., University of Tennessee; short term therapy

Worthington, Everett L. Professor Ph.D., University of Missouri; marriage and family, religious counseling, theories and methods of counseling.

Emeritus Professors:
 William D. Groman Robert M. Tipton

The clinical psychology program prepares students for research and service in the clinical area, including positions in university academic and medical school departments, mental health agencies and hospitals, physical health facilities, and other organizations. It offers specialized tracks or Institutes in unipolar mood disorders, in behavioral health, in adult psychopathology and psychotherapy, and in child clinical.

Clinical Professors:
Cohen
Laskin

Associate Clinical Professors:
Kreutzer
Petrella

Assistant Clinical Professor:
Ax
Browne
Buczek
Casson
Colbs
Doyle
Ehrmantraut
Fisher
Hogan
Ito
Martelli
Peoples
Schulman
Shaw
Weaver

Research Professors:
Balster
Schnoll

Associate Research Professors:
Allison
Peck

Assistant Research Professors:
Coogle
Harris

1Department in parentheses indicates joint appointment.
The Department of Psychology offers instruction in clinical, counseling, and general psychology leading to the Doctor of Philosophy degree. Students in all three programs are educated first as psychologists and then helped to develop competence in a more specialized area relevant to their scholarly and professional objectives.

The clinical psychology program prepares students for research and service in the clinical area, including positions in university academic and medical school departments, mental health agencies and hospitals, physical health facilities, and other organizations. It offers specialized tracks or Institutes in unipolar mood disorders, in behavioral health, in adult psychopathology and psychotherapy, and in child clinical.

The doctoral programs in clinical and counseling psychology have been fully accredited by the American Psychological Association. These programs emphasize the scientist-practitioner model.

The counseling psychology program prepares students for research and service in the counseling area including university, mental health, and organizational settings.

The program in general psychology prepares students for either basic or applied research and includes three divisions: biopsychology, developmental, and social psychology.

All three doctoral programs provide opportunities for selected students who are interested in college teaching to obtain special training and experience in that activity. The Center for Psychological Services and Development, operated by the department, is located on campus and serves as a practicum training and research facility for graduate students in counseling and clinical psychology and provides training opportunities for graduate students from other departmental participating programs. A wide variety of off-campus practicum placements are available also.

The department maintains laboratory facilities for research in the areas of behavioral assessment, behavioral medicine, developmental, learning, behavioral pharmacology, psycho physiology, psychotherapy process, social perception, social influence, and group dynamics. Opportunities for field research also are available in a variety of settings.

An outstanding collection of current journals and books in psychology is housed in the James Branch Cabell Library on the Academic Campus and in the Tompkins-McCaw Library on the MCV Campus.

Teaching assistantships, research assistantships, and paid practicum placements are available. The amount of stipend is dependent upon the amount of service required.

ADMISSION REQUIREMENTS

In addition to the general requirements for admission to the graduate programs in the School of Graduate Studies (Part I of this bulletin) the following requirements represent the minimum acceptable standards for admission:

1. Graduation with a bachelor's degree from an accredited college or university, but not necessarily with a major in psychology.
2. 18 semester hours of undergraduate course work in psychology is the minimal but not the optimal number of hours for an applicant to be considered for admission. Included must be each of the following courses: general psychology, statistics, and experimental psychology. Exceptionally well-qualified applicants with less than a major in psychology, or applicants whose undergraduate work is considered outdated by the admissions committee, may be advised to complete some additional undergraduate courses at the beginning of their graduate study program.
3. An undergraduate record indicating superior academic potential.
4. Satisfactory performance on the Graduate Record Examination, including the advanced psychology examination.
5. Three letters of recommendation from previous instructors.
6. A personal interview may be required at the discretion of the department.

The number of students who can be admitted is limited by the facilities and staff available. All applicants will be notified of the decision made. The screening process may begin as early as January 1. First offers of admission are made by April 1. By June 1, after other offers to alternates have been made and final acceptances by students have been received, admissions may be closed. For full consideration, applications should be completed by February 15. Applicants to the General Psychology Program should specify to which of the three divisions they are applying (i.e., biopsychology, developmental or social.)

Transfer credits for graduate work at other institutions will be evaluated after the completion of nine semester hours in the department.
DEGREE REQUIREMENTS

The following requirements are in addition to those described for the graduate programs in the School of Graduate Studies (Part I of this bulletin) and College of Humanities and Sciences (beginning of Part III of this bulletin).

All students are required to complete a core curriculum of 15 credits, (or to have completed its equivalent for students entering with a master’s degree).

Students who receive grades of “B” or better in each of the department core courses are considered to have fulfilled the University requirements of a master’s level Comprehensive Examination and will then officially be considered candidates for the M.S. degree. Students who receive grades of “C” or lower in two or more department core courses will have failed the Comprehensive Examination and will be dismissed automatically from the program. Students who receive a grade of “C” or lower in one of the department core courses must either (a) satisfactorily complete a re-examination of the material covered in the course within one semester following the receipt of the grade (this re-examination is to be arranged and evaluated by the course instructor); or (b) repeat the course for credit the next time it is offered and receive a grade of “B” or better. Regardless of which of these approaches is chosen, the students will be given only one opportunity to demonstrate that they have mastered the course material. Students who either fail the re-examination or repeat the course and receive a grade of “C” or lower will have failed the Comprehensive Examination and will be dismissed from the program.

Additional courses and training experiences will be determined in consultation with and subject to the approval of the student’s faculty advisor and graduate program committee.

Receipt of a grade of “C” or lower in two courses, or grades of “C” or lower in more than six credits of psychology courses, constitutes automatic dismissal of a student from the program.

All students are required to complete a master’s thesis and to defend it successfully in an oral examination. Ideally the thesis should be publishable as a piece of research and make a contribution to the field of psychology. Students who have previously completed a master’s thesis in psychology at another university may have the thesis requirement waived if the thesis is accepted by their graduate program committee.

The residence requirement for the master’s degree is 18 hours, nine in each of two consecutive semesters. Completion of the degree usually requires four semesters. At least six semester credits in Master’s Thesis (PSY 798) must be completed, and no more than six can be counted toward the M.S. degree.

Students are obligated to request, in writing, from their program committees, continuation of study beyond the master’s degree and approval of their doctoral plan of study. Application for a student for continuation beyond the master’s level will be evaluated by the appropriate program committee after completion of all requirements for the master’s degree. The program committee reviews the student’s request and approves or disapproves the request.

The student must pass a written preliminary examination to become a doctoral candidate. Students are required to complete this requirement prior to defense of their dissertations and prior to leaving on internship for students in the clinical and counseling psychology programs.

The residence requirement for the doctoral degree is an additional 18 hours, nine in each of two consecutive semesters.

With the consent of the program committee, doctoral students may design a minor consisting of courses in departments other than psychology or courses in an area of psychology other than major.

Both the clinical and counseling psychology programs require completion of applied practica and a one-year predoctoral internship approved by the program committee. Research practica are required by all programs. Practicum credit will vary depending on the program. Internship will be without credit.

A dissertation requiring the planning, completion, and oral defense of an original research project is an integral part of the doctoral program. At least 12 semester credits in Doctoral Dissertation (PSY 898) must be completed, and no more than 12 can be counted toward the Ph.D. degree.

Completion of the entire program usually requires four to six years (including the internship year for students in the clinical and counseling programs). Candidates must complete all requirements for the Ph.D. degree within a seven-year period from the date of admission to the graduate program. In some cases, specific programs and divisions may have requirements in addition to those stated here.

A more detailed description of the requirements for each of the graduate programs is included in the Department of Psychology’s Graduate Student Handbook which is provided to each incoming graduate student.
CURRICULUM

Department Core
PSY 619 Learning and Cognition
PSY 620 Design and Analysis of Psychological Research
PSY 621 Statistics in Psychological Research
PSY 617 Sensation and Perception
or
PSY 629 Biological Basis of Behavior
PSY 675 Ethical Principles of Psychology

Clinical Psychology Program Curriculum Requirements
2. Successful completion of 16 credit hours of clinical practicum (PSY 694) and one credit hour of research practicum (PSY 690).
3. Successful completion of one 3-credit assessment elective (e.g., PSY 626, 641, 646, 647, 648, or 649).
4. Successful completion of two 3-credit therapy/intervention electives (e.g., 623, 624, 652, 653, 654, 656, 660, 666, 668, 669, 670).
5. Successful completion of PSY 638, and 630 or 633.
6. Successful completion of PSY 677 during the first three years in the program.
7. A minimum of 92 semester hours of approved courses beyond the baccalaureate degree.

Counseling Psychology Program Curriculum Requirements
2. Successful completion of 12 credit hours of counseling practicum (PSY 693) and four credit hours of research practicum (PSY 690).
3. Successful completion of other required courses, including PSY 638, 630, or 633 and 603 or other approved developmental course.
4. Successful completion of an approved predoctoral internship.
5. A minimum of 79 semester hours of approved courses beyond the baccalaureate degree.

General Psychology Program Curriculum Requirements
1. General Program doctoral courses completed (PSY 630 or 638; three hours of 671 and/or 690; and 602 or 603 or 605).
2. Successful completion of one of the following specialized division curricula.
   a. Biopsychology Division Curriculum PSY 629, PSY 617, PSY 639, and three courses from the following list: PSY 612, PSY 622, ANA 510, PMC 632, PIO 501, PMC 633, PAT 515, and approved special topics courses (PSY 691).
   b. Developmental Division Curriculum PSY 603, PSY 636, and three courses from the following list: PSY 605, PSY 613, PSY 614, PSY 615, PSY 631, and approved special topics courses (PSY 691).
   c. Social Division Curriculum PSY 632, and three courses from the following list: PSY 604, PSY 610, PSY 633, and PSY 634.
3. A minimum of 72 semester hours of approved courses beyond the baccalaureate degree.

GRADUATE COURSES IN PSYCHOLOGY (PSY)

602 Gerontology. Psychology of Aging. Semester course; 3 seminar hours. 3 credits. Prerequisite: permission of instructor. Psychological adjustment in old age; special emphasis on personality, cognitive, and emotional development; life crises associated with the aging process.

603 Developmental Processes. Semester course; 3 lecture hours. 3 credits. Cognitive, social, personality, and behavioral development across the life span is considered, with special attention to theories of development.

604 Social Psychology of Business and Industry. Semester course; 3 lecture hours. 3 credits. The theme is the influence of organizational structure on behavior. Topics will include motivation, attitudes, job satisfaction, morale, leadership, and supervision.

605 Social Development. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisite: PSY 603 or permission of instructor. The development of social relations, focusing primarily on infancy and childhood, but also considering adulthood and aging. Attachment, parent-child interaction, peers, siblings, aggression, sex-roles, cultural determinants, deprivation and remediation, social cognition, adulthood changes, parenthood. Critical evaluation of theory and current research.

607 Education. Advanced Educational Psychology. Semester course; 3 lecture hours. 3 credits. Application of the principles of psychology to the teaching-learning process. Discussion will focus on the comprehensive development of individual learning experiences and educational programs from the point of view of the educator and the administrator.
609 Contemporary Issues in Clinical Psychology. Fall semester course; 3 lecture-seminar hours. 3 credits. Prerequisite: First-year graduate standing in Clinical Psychology or permission of the instructor. Informative and experimental contributions to the field of psychopathology, the medical vs. the behavioral model of psychopathology, relations with other mental health professions, professional issues such as licensure and credentialing, and malpractice.

610 Attitude Theory and Research. Semester course; 3 lecture hours. 3 credits. Theory and research in attitudes. Attitude formation and change, including cognitive consistency, learning and reinforcement, social judgment, and functional theories.

611 Contemporary Developments in Counseling Psychology. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Contemporary issues, problems, and research related to the practice of counseling psychology; their importance in developing a professional identity and sensitivity to major developments in the field; history, present status, and future directions in the field of counseling psychology.

612 Seminar in Motivation. Semester course; 3 lecture hours. 3 credits. A survey of some theoretical views of motivation. Biological, cultural personality, and learning theories of motivation will be covered. Theoretical positions will be related to current empirical findings.

613 Cognitive Development. Semester course; 3 lecture-discussion hours. 3 credits. Prerequisite: graduate standing in psychology or permission of instructor. The development of the intellectual processes, including reasoning, memory, imagery, and knowledge. Special attention will be given to theories of cognitive growth. Although the focus will be on child cognitive developments, consideration of life-span issues will be included.

614 Infant Growth and Development. Semester course; 3 seminar hours. 3 credits. Prerequisite: PSY 603 or permission of instructor. Sensory and behavioral capacities of the infant; cognitive, social, and emotional development in the first two years of life, with emphasis on the effects of early experience on function later in life. Consideration of the special problems associated with infant research and intervention programs.

615/615 Aging and Mental Disorders. Semester course; 3 lecture hours. 3 credits. Review of theoretical and empirical research on the psychological disorders and problems of late life. Topics include the etiology of disorders, mental health services, methods of evaluating psychological status, drugs and health issues, and successful intervention approaches with the elderly.

616 Psychopathology. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Clinical and experimental contributions to the field of psychopathology, with particular attention to the roles of learning and motivation in the development of behavior disorders.

617 Sensation and Perception. Semester course; 3 lecture hours. 3 credits. The major phenomena of vision, audition, olfaction, gustation, and the skin senses. Psychophysics and the effects of sensory deficits. The relationship of variations in environmental energy to the psychological reactions of sensing and perceiving.

618 Seminar in Personality. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. A detailed exploration of various approaches in personality. Contemporary issues in personality theory.

619 Learning and Cognition. Semester course; 3 lecture hours. 3 credits. Graduate standing in psychology or permission of instructor. Covers principles and theories of learning and cognitive psychology from simple associative learning through memory, comprehension, thinking, and social behavior.

620 Design and Analysis of Psychological Research. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: undergraduate course in basic statistics or permission of instructor. An introduction to research design in psychology (e.g., logic behind various research designs, typical research problems). Review of principles of hypothesis testing, general linear model, analysis of variance including factorial designs with special emphasis on a priori and post hoc comparisons, repeated-measures designs and mixed designs.

621 Statistics in Psychological Research. Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisite: PSY 620. Extensive coverage of multiple regression/correlation analysis with applications in psychology. Survey of applications of multivariate statistical analyses in psychology.

622 Physiological Correlates of Emotion. Semester course; 3 lecture-seminar hours. 3 credits. Research and theories of emotion emphasizing physiological bases, with special attention to neurological and endocrine systems. Applications to psychological functioning.

623 Counseling and Psychotherapy. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Exploration of major trends in psychotherapeutic techniques and current research. Principles of therapy applied to personal, social, vocational, and educational problems.

624 Group Counseling and Psychotherapy. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisite: permission of instructor. Historical perspective. Basic dynamics and processes of therapeutic groups. Role and technique of the group facilitator. Examination of different theoretical approaches.

625 Career Counseling: Theory and Practice. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisite: permission of instructor. Review of major theories and current research in career development. Techniques of career counseling for individuals and groups. Emphasis on late adolescent, adult, and pre-retirement populations.

626 Single-Case Experimental Design for the Clinical Research Practitioner. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisite: permission of instructor. Review of single-case design models that have utility for clinicians in evaluating their practice. Emphasis will be placed on the historical development of the field and on the main experimental design issues that are relevant to the conduct of single-case research.
627 Research Methods in Clinical Psychology. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisites: PSY 621 and graduate standing in clinical or counseling psychology, or permission of instructor. Examines the role of research in clinical psychology and experimental design issues in psychotherapy research.

629 Biological Basis of Behavior. Semester course; 3 lecture hours. 3 credits. Prerequisite: an undergraduate course in physiological psychology or permission of instructor. Theory and current experimental research on the physiological and neurological concomitants of behavioral variables.

630 Social Psychology. Semester course 3 lecture-seminar hours. 3 credits. Topics include attitudes, social influence processes, person perception, affiliation and attraction, group processes, cultural influences on behavior, and conformity.

632 Research Methods in Social Psychology. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisites: PSY 621 and 630. Epistemological, methodological, technical, and ethical problems encountered during the scientific study of social psychological phenomena. Emphasizes practical experience in theory development, hypothesis derivation, research planning, data collection, reduction and analysis, and dissemination strategies.

633 Group Dynamics. Semester course; 3 lecture-seminar hours. 3 credits. Theoretical explanations and empirical research related to group formation, development, performance, and dissolution. Topics include obedience, conformity, group productivity, and leadership.

634 Attribution and Social Cognition. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisite: PSY 630. Analysis of the perceptual and inferential processes that influence the perceiver's understanding of others' traits and characteristics. Examines theoretical perspectives and current empirical studies of the intuitive use of behavioral data in making inferences concerning the causes of actions and events and the cognitive mechanisms that structure inferences about others' qualities.

635/Gerontology 635 Psychology of Health and Health Care in the Elderly. Semester course; 3 lecture hours. 3 credits. Presents health psychology models, theories, and issues relating to the etiology, course, and treatment of illness in the elderly. Covers older patient-practitioner interaction, compliance, late-life stress and illness, psycho-social issues in terminal care.

636 Research Methods in Developmental Psychology. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisite: PSY 621. Research designs, methods, ethical issues, and problems specific to developmental psychology. Cross-sectional, longitudinal, and sequential strategies. Statistical issues, multivariate statistics, and choice of statistical designs appropriate for developmental research questions. Computer skills in organizing and analyzing data. Grant writing and scientific reporting.

638 The Evolution of Psychological Systems. Semester course; 3 lecture hours. 3 credits. Prerequisite: core course in student's area of specialization or permission of instructor. A survey of the development and present state of various psychological systems. Current meta-theoretical and systematic issues in psychology.

639 Research Methods in Biopsychology. Semester course; 1 lecture and 4 laboratory hours. 3 credits. Prerequisite: permission of instructor. Methodological, technical, and ethical problems in biopsychology. Examples are design and use of circuits in behavioral sciences, stereotaxic surgery, histology, drug procedures, research design, data collection procedures, and data analysis.

641/Gerontology 641 Survey of Psychological Assessment and Treatment of the Older Adult. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisite: permission of instructor. Review of major treatment strategies and techniques for work with the older adult client. Emphasis on individual, group and paraprofessional delivery systems. Crisis intervention, consultation, and program evaluation approaches will also be presented.

642/Gerontology 642 Practicum in Geropsychology. Semester course; one-half day per credit. 1-3 credits. Prerequisites: PSY 615/GTY 615, PSY 641/GTY 641, and permission of instructor. (PSY 641/GTY 641 may be taken as co-requisite.) A series of training experiences designed to facilitate progressively greater degrees of skills in working with the older adult. Practicum sites will rotate among several community agencies which serve the older adult. Careful supervision and evaluation of the student is provided. May not be counted in minimal total credits for Ph.D. in clinical or counseling psychology.

643 Principles of Psychological Measurement. Semester course; 2 lecture hours. 2 credits. Prerequisite: graduate standing in psychology or permission of instructor. Basic psychometric concepts to prepare the student for subsequent evaluation instruments. Origins and logic of testing, criteria for judging tests, standardization and reliability, and validity and principles of test development and construction.

644 Individual Tests of Intelligence. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: graduate standing in clinical or counseling psychology or permission of counseling or clinical psychology program. Examines the administration, scoring, interpretation, and research foundations of the major individual tests of intelligence. Emphasizes the Wechsler scales and the Measurement of Adult Intelligence. Develops psychological report writing skills.

645 Assessment of Personality. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: graduate standing in clinical or counseling psychology, or permission of clinical or counseling psychology program and instructor. Examines use of objective and projective tests in assessment of personality. Emphasizes clinical interpretation of the Minnesota Multiphasic Personality Inventory (MMPI), and the administration and clinical interpretation of the Rorschach and Thematic Apperception Test (TAT). Stresses integrative report writing.

646 Projective Techniques. Semester course; 3 lecture hours. 3 credits. Prerequisite: graduate standing in clinical or counseling psychology or permission of counseling and clinical program committee. Projective devices for the assessment of personality. Supervised administration, scoring, interpretation, and written reports of individually administered projective personality tests.

647 Neuropsychological Assessment. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: gradu-
ate standing in psychology and permission of instructor. Psychological assessment of brain-behavior relation ships in the context of neurological or neuropsychological problems. Emphasis is on current modifications of Halstead’s tests and on the Reitan-Indiana Neuropsychological Battery for younger children. Laboratory requires supervised administration, scoring, and interpretations of neuropsychological text batteries.

648 Behavioral Assessment of Clinical Problems. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisite: graduate standing in psychology and permission of instructor. Development, evaluation, use, and interpretation of behavioral approaches to the assessment of clinical problems, including self-monitoring, behavioral ratings, and direct observational assessment procedures. Both existing instruments and procedures for designing new instruments will be discussed.

649 Clinical Assessment of Child Disorders. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: PSY 643 and graduate standing in clinical psychology or permission of clinical program committee and instructor. Administration and interpretation of intellectual and personality assessment instruments for children. Laboratory requires supervised administration, scoring, interpretation, and written reports of these assessment instruments.

650 Advanced Child Psychopathology. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Principal childhood behavioral abnormalities: mental retardation, psychosis, learning disabilities, speech and language problems, school-related behavioral problems, neurosis, psychosomatic disorders, and juvenile delinquency. Genetic, prenatal, perinatal, postnatal, and social-psychological factors related to etiology. Integration of assessment and treatment methods.

651 Introduction to Psychological Interviewing. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: graduate standing in counseling or clinical psychology and permission of instructor. Introduces basic principles of interviewing as they apply to psychotherapy/counseling. Laboratory requires video-taping of simulated counseling/psychotherapy session, modeled and role-played interviewing situation, skill development and demonstration, and evaluative interpersonal feedback.

652 Child and Adolescent Psychotherapy. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisite: Graduate standing in psychology and permission of the instructor. Presents the major approaches to psychological interventions for children’s and adolescents’ behavioral and emotional disorders. Includes a review of empirical research evaluating the effectiveness of contemporary psychological interventions for specific disorders.

653 Family Counseling and Therapy. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisites: PSY 616, 693 or 694, 645; or permission of instructor. Emphasizes an applied approach to family assessment and therapy. Presents theories and concepts of major approaches to family therapy and general systems issues. Emphasizes techniques of family therapy. Involves participants in role-playing, demonstration, films, and case discussion.

654 Marriage Counseling and Therapy: Theory, Practice, and Research. Semester course; 3 lecture hours. 3 credits. Prerequisite: graduate standing in clinical or counseling psychology, or permission of instructor. Surveys major theories of marital interaction and counseling (as distinct from family counseling). Students perform assessment batteries and interviews and practice selected techniques of marital counseling. Participation in a research project—either library, field, or experimental research—is required.

656 Structured Training Groups. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: permission of instructor. This course presents an introduction to the historical roots and basic assumptions of group training methods. The specific focus is on those structured, behavioral interventions which are designed to be time limited and emphasize staff development or training needs of clients. Needs assessment, screening, program development and evaluation, consultation methods, and ethics are included as topics. Leadership styles and the composition of training grant proposals are developed and critiqued in the laboratory/experiential component of this course.

659 Seminar in Consultation Psychology. Semester course; 3 credits. Prerequisite: graduate standing in psychology or permission of instructor. Explores theory and practice of psychological consultation using case materials, readings, and individualized projects. Covers conceptual models and role choices available to the consulting psychologist, common phases, principles, and practices found in the consultation process and program evaluation and consultation research methods and issues.

660 Health Psychology. Semester course; 3 lecture hours. 3 credits. Prerequisites: PSY 629 and graduate standing in psychology, or permission of instructor. Provides an overview of research in and applications of the principles of behavioral psychology with respect to the fields of medicine, health maintenance, and illness. Emphasizes the integration of theoretical research and applied issues in these areas. Surveys major topics in behavioral medicine, including psychophysiological disorders, compliance and adherence with health care regimens, psychological adjustment to illness and pain, behavioral dentistry, pediatric psychology, cardiovascular risk reduction, eating and sleeping disorders, behavioral pharmacology, biofeedback. Explores roles for psychologists.

665 Psychodynamic Approaches to Psychological Treatment. Semester course; 3 credits. Prerequisite: permission of instructor. Examines basic principles in conceptualizing and treating clients from a psychodynamic perspective. Theoretical and clinical readings and case materials are used as a basis for an in-depth analysis of psychodynamic theories and practices within a seminar format.

666 Crisis Intervention: Theory, Research, and Practice. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisite: graduate standing in psychology or permission of instructor. Review of the development of the concept of psychological crisis and of intervention programs in a range of areas such as sexual assault, natural disasters, telephone hotlines, and medical emergencies. Relevant theory and data from community psychology, laboratory and applied research, sociology, and psychiatry will be considered.

667 Behavior Therapy. Semester course; 3 lecture hours. 3 credits. Prerequisites: graduate standing in psychology and permission of instructor. Emphasizes group and individual approaches to the following general areas: observational
668 Interpersonal Psychotherapy: Social Psychological Analysis. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisite: permission of instructor. Analysis of counseling and psychotherapy as interpersonal influence processes. Applications of social psychological theories and research to the process of therapeutic change; identification of key aspects of the change process and of how these aspects are embodied in current approaches and techniques of counseling and psychotherapy. Emphasis on experimental methods of studying change processes.

669 Interpersonal Psychotherapy: Communication Analysis. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisite: permission of instructor. Theory and research in nonverbal communication. Communication theories of psychotherapy and a communication analysis of key concepts in psychotherapy.

670 Seminar in Gestalt Therapy. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Philosophical basis, historical background, theoretical formulation, techniques, and application of Gestalt therapy. Students will have the opportunity to practice and observe the techniques.

671 Readings and Research. Semester course; 1-3 credits. Prerequisite: written permission of instructor. Individual study leading to the investigation of a particular problem in a systematic fashion under the supervision of a member of the faculty. May be repeated for a maximum of nine credits.

675 Ethical Principles of Psychology. Semester course; 2 lecture hours. 2 credits. A discussion of some of the current problems of interest to psychologists. Particular emphasis on the Ethical Principles of Psychology, and the dilemmas encountered in the teaching, research, and applied practice of psychology.

690 Research Practicum. Semester course; 4 hours per credit. 1-3 credits. Provides the graduate student in psychology the opportunity to design and apply research skills under close faculty supervision. Involves research projects which progressively become more sophisticated as students increase their research skills. Available to graduate students in the psychology department with approval by their program committee.

691 Special Topics. Semester course; 3 lecture-seminar hours. 3 credits. Prerequisite: permission of instructor. Theory, research, and techniques in specialized topics of current interest are presented. May be repeated for credit.

693 Counseling Practicum. Semester course; one-half day per credit. 1-3 credits. A series of training experiences designed to facilitate progressively greater degrees of skill development in counseling psychology. Available only to graduate students in counseling psychology approved by the counseling program committee. May be repeated for a maximum of 12 credits.

694 Clinical Practicum. Semester course; one-half day per credit. 1-3 credits. The graduate student in clinical psychology is given an opportunity to apply and practice interviews and diagnostic and therapeutic skills with clients requiring psychological services. Careful supervision and evaluation of the student is provided. The practicum may be located in a clinic on campus or in a hospital or other agency off campus. Available only to graduate students in clinical psychology approved by the clinical program committee. May be repeated for a maximum of 12 credits.

695 Practicum in Clinical or Counseling Supervision. Semester course; 4 supervisory hours. 2 credits. Prerequisites: permission of instructor, enrollment in graduate program in clinical or counseling psychology, completion of 12 hours of Clinical (PSY 694) or Counseling (PSY 693) Practicum. This course is an opportunity to develop, apply, and practice psychotherapy supervision skills under the direct supervision of clinical or counseling faculty members. May be repeated for a maximum of six credits. Credits earned do not count as course credits toward the degree.

696 Internship. No credit. Prerequisite: approval of the director of the program involved. The internship is a one-year, full-time assignment, under supervision, to an agency approved by the student's program committee.

795 Practicum in the Teaching of College Psychology. Fall and spring semester course; 4 hours per credit. 3 credits. Prerequisites: appointment as a graduate teaching assistant in psychology or permission of instructor. Enables students to develop skills in the design and conduct of undergraduate courses in psychology through observation and supervised experiences; acquaints students with university, college, and department policies and resources in support of instruction; familiarizes students with disciplinary resources; assists students in evaluating personal strengths and weaknesses. May be repeated for a maximum of 12 credits. Credits not applicable toward a graduate degree in psychology.

798 M.S. Thesis. 1-6 credits. May be repeated.

898 Doctoral Dissertation. 1-12 credits. May be repeated.

Department of Sociology and Anthropology

FACULTY

Bromley, David Professor Ph.D., Duke University; deviance, social movements, sociology of religion.

Creighton-Zollar, Ann Associate Professor Ph.D., University of Illinois, Chicago; minorities and ethnic relations.

Diana, Lewis Professor Emeritus Ph.D., University of Pittsburgh; sociology of the family, human sexuality.

Franks, David D. Professor Ph.D., University of Minnesota; social psychology, sociology of mental health.

Henry, Neil W. Associate Professor Ph.D., Columbia University; social statistics, mathematical models.

Honold, Julie A. Associate Professor Ph.D., University of Denver; environmental sociology, sociology of the family.

Knipe, Edward Associate Professor Ph.D., University of Kentucky; urban anthropology, anthropological film, technology and social organization.

Lyng, Stephen Associate Professor Ph.D., University of Texas; medical sociology.

Marolla, Joseph A. Associate Professor and Chair Ph.D., University of Denver; social psychology, sociology of education.
The Department of Sociology and Anthropology offers programs leading to the degree of Master of Science with specializations in several areas and to the Certificate of Applied Social Research. The goal of the graduate program in sociology is to facilitate the development of theoretical, methodological, and substantive competence appropriate for students’ interests and career goals.

ADMISSION REQUIREMENTS
In addition to the general requirements for admission to graduate programs in the School of Graduate Studies (Part I of this bulletin) and in the College of Humanities and Sciences, the following requirements represent the minimum acceptable standards for admission:

1. Applicants must submit a transcript of their undergraduate course work and the results of their Graduate Record Examination in general aptitude (quantitative, analytical, and verbal) and an advanced area.
2. Admission priority is given to students with an undergraduate grade point average of 3.0 or higher on a 4-point scale. Students with grade-point averages below 3.0 will be evaluated by the graduate coordinator and members of the graduate faculty on the basis of the GRE scores, recommendations from references, and other data submitted by applicants.
3. To be admitted as a regular graduate student, applicants should have completed 24 semester hours in the social sciences (including history), with at least 12 credits in sociology. Undergraduate work in sociology should include a survey of sociological theory, research methods, and statistics. Students who otherwise are qualified for admission but lack this background may be admitted provisionally, with the stipulation that they may be requested to make up any deficiencies specified by the graduate coordinator. Nondegree or “special” students must apply for regular student status after completing six sociology graduate credits.

Because of the diversity in different institutions of higher education, students trained abroad may be judged on an individual basis. Criteria on which this judgment is based include the reputation of the foreign university, the student’s academic record, proficiency in English, and recommendations from professors. VCU requires that foreign students demonstrate guarantees of financial support.

A limited number of assistantships are available for qualified applicants. Applicants for assistantships should have their files complete by February 15. Individuals not applying for assistantships should file their applications for graduate study as early as possible to permit adequate review and to ensure consideration. Applications that reach VCU after July 1 for the fall semester and after November 15 for the spring semester may not be processed in time for registration.

DEGREE REQUIREMENTS
Two options are available for students pursuing a master’s degree in sociology. Students must receive approval from the graduate student coordinator before choosing either option.

1. **Thesis option:** 36 hours of graduate course work must be completed including the following core courses: SOC 502 Contemporary Sociological Theory, SOC 601 Advanced Methods of Social Research, SOC 602 Applications of Advanced Research Methods, and SOC 608 Advanced Statistical Methods. A master’s thesis will be developed under the guidance of the thesis committee (three faculty members including a thesis advisor) and must be defended publicly. The student may present up to six thesis credits for graduation. Up to six credits of independent study may be presented, as well as six credits outside the department.

2. **Concentration option:** Requirements are identical to the thesis option except for the following: (a) Students must complete 36 semester hours of course work; (b) Students must declare a concentration option prior to completing their 28th hour of course work; (c) Students, in consultation with their advisors, will select an advisory committee (three faculty members including the advisor) which will develop an area of concentration consisting of 15 credits. Six of these credits may be taken prior to committee approval of the concentration area. Of the 15 hours, students may take up to nine credits outside the department, or six credits of indepen-
dent study, provided the advisory committee approves. At no time should the combination of independent study hours and courses taken outside the department exceed nine hours. Students will receive certification of the concentration area by having it listed on their transcripts; (d) Students will submit to their advisory committee a “concentration area paper” which must demonstrate competence in the subject matter by reviewing literature and discussing prominent issues. Students must enroll for one credit of independent study while working on the concentration area paper. (A maximum of one credit of independent study for the purpose of writing the paper may be applied to the degree.)

For all candidates, an overall grade point average of at least 3.0 (“B”) must be maintained in order to receive a degree. A student who does not maintain a 3.0 average may be dropped from the master’s program at any time by the graduate program director. A review of all first year graduate students will be conducted at the end of their second semester by the graduate program director and three appointed faculty. The purpose of this review will be to assess all first year students of their satisfactory/unsatisfactory progress toward the master’s degree.

PH.D. PROGRAM IN SOCIAL POLICY AND SOCIAL WORK

The doctoral program in social policy and social work is designed to prepare persons in the development, implementation, and evaluation of programs and policies concerned with various social problems and to prepare clinical social work educators well grounded in research, theory, and teaching methods.

A complete description of this program is found in the School of Social Work section of this bulletin.

For application forms and additional information, write to the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051.

GRADUATE CERTIFICATE PROGRAM IN APPLIED SOCIAL RESEARCH

The Certificate Program is designed (1) to enable practitioners to acquire additional knowledge and skills in applied social research without necessarily pursuing a graduate degree and (2) provide marketable job/career skills for graduate degree-seeking students in sociology as well as other graduate programs. Because the proposed certificate program involves a limited number of credit hours and coordinates with the type of statistics and methods courses offered in a number of graduate degree programs, it may be pursued simultaneously with such programs as sociology, social work, public administration, social policy, and urban services. At the same time, individuals seeking more limited, specialized training may pursue the certificate independently.

Program Admission and Matriculation Requirements

Students possessing a B.A. or B.S. degree and beginning level skills in statistics/research methods are eligible for admission into the certificate program. Relevant course or research experience will be considered in evaluating admission and substitution of courses. Equivalency tests are available for required courses in statistics and methods. No more than 6 hours of substitution or equivalency credit will be granted. An overall grade-point average of 3.0 is required for award of the certificate, and no more than one grade of C may be earned in the certificate program curriculum.

Applied Social Research Certificate Curriculum

A total of 19 hours are required to earn the Applied Social Research Certificate. Four courses (12 credits) in statistics and research methods are required. In addition, two internship courses (4 credits), which offer the opportunity for involvement in all phases of ongoing research projects, are required. One course (3 credits) may be elected to develop more specialized types of research skills.

Required Courses (16 Credits)
SOC 601 Advanced Methods of Social Research
(Prerequisite: SOC 320 or equivalent)
SOC 602 Applications of Advanced Research Methods
(Prerequisite: SOC 601)
SOC 608 Advanced Statistical Methods
(Prerequisite: STA 213 or SOC 508)
SOC 605 Survey Research Methods
(Prerequisites: SOC 601, 602, 608)
SOC 693 Applied Research Internship I
SOC 693 Applied Research Internship II

Elective Courses (3 Credits)
SOC 603 Seminar in Population Studies
SOC 623 Casual Analysis
SPW 729 Program Evaluation for Social Welfare Practice
SLW 606 Fundamentals of Social Planning
SLW 656 Social Planning II
BUS 673 Marketing Research
PSY 608 Individual Tests of Intelligence

GRADUATE COURSES IN SOCIOLOGY (SOC)

500 Advanced Principles of Sociology. Semester course; 3 lecture hours. 3 credits. A comprehensive analysis of the concepts and techniques useful for understanding society and culture as well as the social processes and structures operant within these spheres.

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 nineteenth and twentieth centuries is reviewed.

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.

508/Statistics 508 Introduction to Social Statistics. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Introduction to statistical methods applicable in a variety of settings with emphasis on non-experimental data. Data description and analysis including chi-square and t-tests, using a statistical computing package. Not applicable toward M.S. degrees in mathematical science.

524 Aging and the Minority Community. Semester course; 3 lecture hours. 3 credits. An analysis of the relationship between the aging process and American minority communities. In addition to the sociological factors, the course will examine demographic, physiological, and psychological aspects of minority aging. Attention will also focus on dominant social problems and federal policies toward the aged.

601 Advanced Methods of Social Research. Semester course; 3 lecture hours. 3 credits. Prerequisites: SOC 214 and 320 or equivalent. Research as a systematic process involving formulation of the problem, design of the research, field operation, the processing and analysis of data, and preparation of the research report. Also considered are critical analyses of current methods, administration of research projects, and the significance of research to social action.

602 Applications of Advanced Research Methods. Semester course; 3 lecture and conference hours. 3 credits. Prerequisites: SOC 501, 601, and 608. The methods of developing a research project will be analyzed from the initial problem identification, literature review, theoretical framework, through research design, and procedures.

603 Seminar in Population Studies. Semester course; 3 lecture hours. 3 credits. Analysis of fertility, mortality, and migration from a sociodemographic perspective. Special attention will be paid to sociological determinants of demographic processes and their interrelationships.

604 Sociology of Work in Industry. Semester course; 3 lecture hours. 3 credits. Analyses of work relations and the social structures and mechanisms which govern and arise out of them and examination of the social problems that are inherent in the characteristics that make a society an industrial society.

605 Survey Research Methods. Semester course; 3 lecture hours. 3 credits. Prerequisites: SOC 601, 602, and 608 or permission of instructor. Examines all major areas of survey research methodology including sampling, design, data collection methods, questionnaire design, data analysis, and data processing. Addresses problems specific to survey research, such as telephone interviewing, constructing large representative samples, and nonresponse rates.

607 Seminar in Racial and Ethnic Relations in America. Semester course; 3 lecture hours. 3 credits. A study of intergroup relations in such areas as housing and school desegregation, racism, minority and athletics, the emergence of white ethnic groups in the political systems, and the position of minorities in legal, economic, and medical institutions.

608 Statistics for Social Research. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: STA/SOC 508, SOC 214, or permission of instructor. Statistical methods applied in social research. Topics include analysis of variance, correlation and regression, including stepwise methods, and the analysis of discrete data. Study of a statistical package, emphasizing manipulation of survey data sets. Not applicable toward M.S. degree in mathematical sciences.

609 Seminar in the Family. Semester course; 3 lecture hours. 3 credits. Analysis of contemporary family life with an emphasis on the influence of social change. Consideration of current family crises and problems.

610 Complex Organizations. Semester course; 3 lecture hours. 3 credits. A study of complex organizations in society with emphasis on the determinants and effects of organizational structure and process.

611 Studies in the Community. Semester course; 3 lecture hours. 3 credits. The organization of the community with emphasis on major trends in urban development and growth. The interdependence of political, social, and economic geographic units. The need for cooperative planning and control.

612 Seminar in the Sociology of Deviant Behavior. Semester course; 3 lecture hours. 3 credits. The nature and functions of deviance. Theories and problems of social control.

613 Social Stratification. Semester course; 3 lecture hours. 3 credits. An in-depth analysis of status differentials in society (e.g., social class, prestige, and power).

614 Seminar in the Sociology of Education. Semester course; 3 lecture hours. A sociological analysis of education as a social institution with an emphasis on methodological issues and policy implications.

615 Seminar in Mass Communications. Semester course; 3 lecture hours. 3 credits. A sociological analysis of contemporary media and their interrelationships with social systems, media, and national development. Special emphasis on media as instruments of social and cultural change. (Some theoretical background in sociology is recommended.)
620/AJP 620 Seminar in Criminology. Semester course; 3 lecture hours. 3 credits. Discussion and investigation of contemporary issues in criminology. Special emphasis on research problems in and theories of crime causation.

622 Theory Construction. Semester course; 3 lecture hours. 3 credits. A consideration of recent social theorists in which emphasis is placed on the logic of theory construction.

623 Causal Analysis. Semester course; 3 lecture hours. 3 credits. Prerequisites: SOC 602 and 608 or equivalent. An examination of the utility of causal reasoning in the social sciences and an introduction to causal modeling. Topics studied will include the development of theoretical linkages, recursive and nonrecursive path estimation, causal thinking and theoretical refinement, and policy analysis and system dynamics.

624/GTY 624 Community Services and the Aged. Semester course; 3 lecture hours. 3 credits. A theoretical and conceptual overview of the community, focusing on ecological, social-organizational, and psychosocial dimensions. The course will examine communities for the aged. Various social theories of aging will be examined. An overview of various types of community services for the aged will be provided.

625 Urban Sociology. Semester course; 3 lecture hours. 3 credits. Prerequisite: graduate standing. A detailed analysis and examination of the social and ecological structures and processes of the modern city with primary emphasis on the macro-level organization of urban life.

630 Social Psychology. Semester course; 3 lecture hours. 3 credits. Discussion and investigation of selected social psychological issues in sociology, as well as traditional and innovative methodology applied to these issues.

640 Seminar in Political Sociology. Semester course; 3 lecture hours. 3 credits. Analysis of structures and processes of political organization. Examination of the creation and management of power, diffusion and regulation of conflict, and the politics of modernization and bureaucratization.

645 The Sociology of Health and Illness. Semester course; 3 lecture hours. 3 credits. An examination of sociocultural factors in health and illness and the influence of social factors on recovery and rehabilitation. Special attention will be paid to the methodology found in current studies.

646 Seminar in the Sociology of Mental Health and Disorder. Semester course; 3 lecture hours. 3 credits. Seminar in social organizational causes of clinical depression, schizophrenia, neurosis, and personality disorders. Focus is on prevention through social engineering and social policy. Impact of social change, sex roles, and socialization processes on rates of mental disorder emphasized.

650 Theories of Social and Institutional Change. Semester course; 3 lecture hours. 3 credits. A study of social change with emphasis on institutional settings. Topics examined include alternative theoretical perspectives on change, structural sources of change, approaches to planned change, and the role and function of change agents.

660 Seminar in the Sociology of Women. Semester course; 3 lecture hours. 3 credits. An analysis of the sociological basis for the roles and status of women across cultures and the social forces that create and maintain gender hierarchy.

691 Special Topics. Semester course; 3 lecture hours. 3 credits. Seminars on current specialized areas of sociological and anthropological interest.

692 Independent Study. Semester course; 1-3 credits per semester. Prerequisites: permission of an instructor and the Graduate Program Committee. A maximum of six credits may be submitted toward the master's degree.

693 Applied Research Internship. Semester course; 1 lecture and 1 laboratory hour. 2 credits. May be repeated for credit one time. Provides graduate students with direct experiences in applied social research. Requires students to attend seminars to provide an academic framework for students' participation in the research process. Utilizes laboratory work to provide a variety of experiences in the various aspects of research. Pass-fail are the grading options.

698 M.S. Thesis. 1-6 credits. May be repeated.

ADDITIONAL GRADUATE COURSES AVAILABLE IN THE COLLEGE OF HUMANITIES AND SCIENCES

ANT 551 Anthropology for the Museologist. Semester course; 3 lecture hours. 3 credits. A discussion and investigation of contemporary anthropological themes and questions and identification of how they can be depicted with museum materials. Students are expected to develop a research design for an exhibit.

FLA 591 Topics in Foreign Languages. Semester course; 1-4 lecture hours. Variable credits; 1-4 credits. A detailed study of selected topics in one or more of the foreign language or comparative courses offered by the department.

FRE 500 French for Graduate Students. Semester course; 3 lecture hours. 3 credits. This course is designed to prepare graduate students for the reading knowledge examination for higher degrees. Each graduate department will determine the nature and form of certifying examination.

FRE 501 French Communication. Semester course; 1-4 lecture hours. 1-4 credits. An intensive study of communication in French. Variable credits; primarily oral, written, and listening skills.

FRE 511 French Civilization. Semester course; 1-4 lecture hours. Variable credits; 1-4 credits. Prerequisite: functional fluency in French since the class will be taught in French. A comprehensive study of the civilization and culture of France and its global expressions.

GEO 550 Physical Geography of Virginia. Semester course; 6 field hours. 3 credits. Field course, traversing the varied physical regions of Virginia with emphasis on the climate, terrain, soils, and vegetation of each region and on the transitional zones in between. Human modification of the physical environment and its consequences are also stressed.

GEO 551 Cultural Geography of Virginia. Semester course; 6 field hours. 3 credits. Field course, traversing the various cultural regions of Virginia with emphasis on basic economic activities of each area, the cumulative effect of occupation of the regions, and past and present changes in the cultural landscape.

GEO 680 Geography Workshop. Semester course; 1 lecture hour or 2 field hours per credit. 1-6 credits. Lecture,
laboratory, and/or field course; may be repeated with different topics to maximum of nine credits. An intensive study of a particular area or topic in geography. See Schedule of Classes for specific workshops to be offered each semester.

GER 500 German for Graduate Students. Semester course; 3 lecture hours. 3 credits. This course is designed to prepare graduate students for the reading knowledge examination for higher degrees. Each graduate department will determine the nature and form of the certifying examination.

GER 502 German Communication. Semester course; 1-4 lecture hours. Variable credits; 1-4 credits. An intensive study of communication in German. The content of this course will emphasize primarily oral, written, and listening skills.

GER 512 German Civilization. Semester course; 1-4 lecture hours. Variable credits; 1-4 credits. A comprehensive study of the civilization and culture of Germany and its global expressions.

HUS 591 Special Topics. Semester course; variable credits; 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 multi-disciplinary.

PHI 521, 522 Aesthetics. Semester courses; 3 lecture hours. 3, 3 credits. A critical survey of aesthetics from antiquity to the twentieth century. First semester: antiquity to the Renaissance; Second semester: the Renaissance to the present. Topics to be considered include the nature of art, aesthetic experience, the aesthetic object, and the aesthetic judgments. Specific attention will be given to aesthetic analysis in the arts of painting, music, architecture, and the motion picture.

PHI 591 Topics in Philosophy. Semester course; variable credit; 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.

PHI 592 Independent Study. Semester course; 1-4 credits. An independent study course to allow graduate students to do research, under the direction of a professor qualified in that field, in an area of major interest.

PHI 601 Principles of Ethics. Semester course; 3 lecture hours. 3 credits. Prerequisite: standing in an in-depth study of a selected topic in political science in a seminar environment. Intended for small groups of students interested in examining issues and problems related to aspects of the political processes.

PHI 602 Biomedical Ethics. Semester course; 3 lecture hours. 3 credits. An examination of ethical theory and its application to moral problems in medicine and biotechnology.

PHI 635 Philosophy of the Social Sciences. Semester course; 3 lecture hours. 3 credits. A philosophical study of the nature of science and scientific explanation, with emphasis upon the social sciences. Topics include the philosophical analysis of objectivity in the social sciences, theories of human action, and the relation of social sciences to the physical sciences.

PHI 683/Public Administration 683 Administrative Ethics. Semester course; 2, 3 hours. 2, 3 credits. A philosophical investigation into the problems of making ethical decisions, focusing on issues likely to confront the public administrator. Examples of such issues are equity in social services delivery, affirmative action, loyalty to the bureaucracy vs. "whistle blowing," and conflicts of interest between personal and public interest.

PHI 691 Topics in Philosophy. Semester course; variable credit. 1-4 credits. Prerequisite: written permission of instructor or graduate standing. A graduate level, in-depth 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 taught each semester.

PHI 692 Independent Study. Semester course; variable credit; 1-4 credits. Open to graduate students only. An independent study course to allow graduate students to do research, under the direction of a professor qualified in that field, in an area of major interest.

POS 553 The Military in Politics. Semester course; 3 lecture hours. 3 credits. An in-depth study of the military in politics. It will include a study of the history of civil-military relations, and the changing dynamics of the relationship that occurs in response to changes in social and political contexts and as a result of technological changes in the military and warfare.

POS 591 Topics in Political Science. Semester course; 3 credits. An in-depth study of a selected topic in political science in a seminar environment. Intended for small groups of students interested in examining issues and problems related to aspects of the political processes.

POS 600/Public Administration 600 Community Power Dynamics. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of department. Examination of the location of power in the American community; operational concepts and general methodological approaches defined; empirical findings based on various methodological approaches; conclusions on community political systems and power.

RST 592 Independent Study. Semester course; 1-4 credits. Open only to graduate students. Determination of the amount of credit and permission of the instructor and department chairman must be procured prior to registration for the course. An independent study course to allow qualified graduate students to do research in an area of major interest.

SPA 503 Spanish Communication. Semester course; 1-4 lecture hours. Variable credits; 1-4 credits. An intensive study of communication in Spanish. The content of this course will emphasize primarily oral, written, and listening skills.

SPA 513 Spanish Civilization. Semester course; 1-4 lecture hours. Variable credits; 1-4 credits. Prerequisite: functional fluency in Spanish since the class will be taught in Spanish. A comprehensive study of the civilization and culture of Spain and its global expressions.
The School of Allied Health Professions was established on January 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, and radiologic technology. 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 baccalaureate programs in health care management, medical record administration, and radiation sciences with specific concentrations in education and in administration have been established. A doctoral program in health services, organization, and research, the first 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. The enlargement of selected programs and the development of future ones in health-related professions are anticipated.

The Commission of the Future of the University, in its report approved by the Board of Visitors of the University on September 9, 1993, recommended that the Department of Rehabilitation Counseling be transferred from the School of Community and Public Affairs to the School of Allied Health Professions. Anticipating that this change will take place in July 1, 1994, the activities of the Department of Rehabilitation Counseling are described in this section of the graduate bulletin.

PROGRAMS

Graduate programs currently in this school and the degrees conferred on their graduates are:

DEPARTMENT OF GERONTOLOGY:
Master of Science

DEPARTMENT OF HEALTH ADMINISTRATION:
Master of Health Administration; Master in Health Administra-
tion and Juris Doctor degrees cosponsored by the T.C. Williams School of Law at the University of Richmond; Master of Science in Health Administration (Health Administration Executive Program); Ph.D. in health services organization and research

DEPARTMENT OF CLINICAL LABORATORY SCIENCES (formerly Medical Technology): Master of Science

DEPARTMENT OF NURSE ANESTHESIA:
Master of Science in Nurse Anesthesia

DEPARTMENT OF OCCUPATIONAL THERAPY: Master of Science in Occupational Therapy; Master of Science

DEPARTMENT OF PHYSICAL THERAPY: Master of Science; Ph.D. in conjunction with the Departments of Anatomy or Physiology

DEPARTMENT OF REHABILITATION COUNSELING: Master of Science

Professional certificate programs currently are offered by the following departments:

DEPARTMENT OF GERONTOLOGY:
Certificate in Aging Studies; Certificate in Aging Studies and Master's of Social Work (jointly with the School of Social Work)

PROGRAM IN PATIENT COUNSELING:
Postgraduate Certificate in Patient Counseling

PHILOSOPHY
The faculty of the school is committed to offer, through the establishment and maintenance of rigorous standards of excellence, educational programs that will prepare students for professional careers in the allied health disciplines. Development of professional attitudes, emotional maturity, and ethical behavior of students is a vital component 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. The programs are designed to include not only the development of skills to assure excellence in quality of health care, but also factual knowledge and experiences that will provide the bases 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.

FACILITIES
Departments and programs in the School of Allied Health Professions presently are housed in the Randolph-Minor Annex, McGuire Hall, Newton House, Lyons building, VMI building, Sheltering Arms Building, MCV West Hospital, and Samuel Putney House. Plans are under way to consolidate the various components of the School of Allied Health Professions into one educational facility. This facility will permit expanded enrollments in selected departments and programs and will provide improved and enlarged educational and research areas.

LICENSE/CERTIFICATION
Graduates of most of the programs offered in the School of Allied Health Professions are required or eligible to take national/state certification or 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 information, prospective students should contact the licensure or certification agency for the specific allied health discipline.

ACCREDITATION
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.

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. Hence, the faculty cannot condone absence without good reason from any regularly scheduled educational experience. At the beginning of each course, instructors relate to their classes the policy of the department concerning the 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 and certificate program offerings in the School of Allied Health Professions are designed as basic professional or advanced-level programs. Accreditation requirements for
the individual programs preclude the establishment of general admission prerequisites, registration dates, and course and degree requirements beyond those of the School of Graduate Studies.

It is the intent that these regulations and procedures for each program ensure the selection of applicants whose motivation, ability, character, and health status qualify them to pursue graduate study successfully. Specific information may be found in the departmental presentations in this section or are available from departmental graduate coordinators.

**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 students and practitioners is an undeviating acceptance of a professional attitude and pride that will motivate them to adhere to a code of professional ethics and to develop fully their competencies for practice.

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. To assure a quality of educational and clinical preparation for its graduates, the following statement 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 any questions arise regarding the 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.

**GRADUATE COURSES IN ALLIED HEALTH PROFESSIONS (AHP)**

Nearly all course offerings in the schools are provided by departments and programs; however, selected graduate courses considered applicable to many students in these programs have been assigned to the School of Allied Health Professions.

573 **Teaching in Health Professional Schools.** Semester course; Section 01, 3 lecture hours. 3 credits. Study of the relationships between health education and higher education in general, current essentials, standards in education for the health professions, and theoretical approaches to the implementation of these standards in both academic and clinical learning. Emphasis will be placed on modes of adapting to future needs of the professions.

582 **Supervision in the Allied Health Profession.** Semester course; 2 lecture and 2 laboratory hours. 3 credits. Study of the supervisory process and staff development, training in communication and interpersonal skills, and public relations within the health facility.

591 **Special Topics.** Semester course; 1-4 credits. Prerequisite: permission of instructor. Interdisciplinary study through lectures, tutorial study, or independent research of selected topics not provided in other courses.

594 **Health Education Practicum.** Semester course; 1 lecture and 4 laboratory hours. 1-6 credits. Section 01, General; Section 02, Nurse Anesthesia; Section 03, Medical Technology. Preparation, presentation, and evaluation of selected educational experiences in the appropriate graduate program.

596 **Supervisory and Administrative Practicum in Allied Health Clinics.** Semester course; 60 clinical hours per credit. 1-9 credits. Section 01 MT, Section 02 PT. 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 program.

Courses offered by the School of Education on the Academic Campus are generally oriented to graduate students interested in teaching, administration, or supervision.

**Department of Gerontology**

**FACULTY**

Ansello, Edward F. Professor Ph.D., University of Missouri; gerontology career preparation, aging and disabilities, geropharmacy, humanities and aging, media and aging, criminal victimization.

Dougherty, Linda Associate Professor Ph.D., University of Southern California; clinical psychology, health and illness, life-span development, emotions.

Egelhoff, William F. Associate Professor Emeritus M.B.A., Harvard Business School; business administration, theology of aging, political issues in aging.

Finley, Ruth B. Assistant Professor M.S., Virginia Commonwealth University; geriatric education.

Harkins, Stephen Professor Ph.D., University of North Carolina; pain and age, memory changes with age, evoked potentials.

Mulligan, Thomas Associate Professor M.D., New York University; male sexual dysfunction and aging.

Osgood, Nancy J. Professor Ph.D., Syracuse University; leisure and aging, retirement, alcoholism, suicide.

Parham, Iris A. Professor and Chairman of the Department of Gerontology Ph.D., University of Southern California; cognitive changes with age; depression; curriculum development.
HISTORY
The Department of Gerontology was founded in 1976. The M.S. in gerontology, as well as a postgraduate Certificate in Aging Studies, is offered. The Department of Gerontology became a part of the School of Allied Health Professions in January 1985. As part of the department, the Geriatric Education Center was established October 1, 1985. This center is a multidisciplinary effort involving cooperation of all the health-related professional schools and the College of Humanities and Sciences; the major focus is to promote education in geriatrics/gerontological health care.

PHILOSOPHY
The basic philosophy of the department is to improve the overall well-being of elderly persons through the development of educational programs that are responsive to the changing psychological, physical, social, and political needs of our elderly population. Research, community service, and continuing education in gerontology and geriatrics are integral parts of this educational effort.

OBJECTIVES
The purpose of this program is threefold: (1) to train qualified professionals to work in administrative, planning, service delivery, and instructional/staff development positions in programs and services for the elderly at the national, state, and local levels; (2) to provide an opportunity for those studying in other disciplines, and whose work will encompass service to the aged, to integrate their own training with a comprehensive knowledge/understanding of the aging process; and (3) to stimulate the design and execution of gerontological research across the multiple disciplines.

FACILITIES
Offices of the Department of Gerontology are located in the Randolph Minor Annex, 301 College Street. Laboratory facilities for psychophysiological and pain research are housed in the Stephen Putney House, and facilities for health/clinical psychology-related research are located in room 401, East Hospital.

HONORS AND AWARDS
A. D. Williams Award. An annual award is made to a student who demonstrates by virtue of high scholastic attainment and professional competence unusual promise and ability in the field of gerontology.

Gerontology Student of the Year. Each year the faculty chooses a graduating student who has exhibited outstanding scholastic achievement and demonstrated service in gerontology.

Distinguished Alumni Award. Each year the Gerontology Student Association, in consultation with the departmental faculty, chooses an alumna/alumnus who best exemplifies the standards of the profession.

PROGRAMS
Four courses of study are offered:

1. A Master of Science degree with a concentration in one of the following six areas: education track, health care organization and planning track, psychogeriatrics track, public administration track, social services track, or a research track.

2. A Master of Science degree in physical therapy with a specialty in geriatric physical therapy offered jointly with the Department of Physical Therapy.


4. A Certificate Program in Aging Studies to meet the needs of persons working with the elderly but who have no academic training in gerontology.

MASTER OF SCIENCE PROGRAM IN GERONTOLOGY
The gerontology curriculum is a multidisciplinary program established in 1976 which offers the Master of Science degree. The program utilizes professional assistance from departments on both campuses.

There are six concentration areas in gerontology:

Education Track. This area of concentration is
designated for students interested in teaching/training careers in gerontology. Students electing this track will be prepared to provide instruction to university or community college students, the lay public, professional service providers, and older people.

**HEALTH CARE ORGANIZATION AND PLANNING TRACK.** (In conjunction with the Department of Health Administration) Upon completing this track, students will have a foundation of knowledge in health care organization, health planning, health policy, and a macro perspective of the financing of health care. In addition, students will have developed skills in policy analysis and the use of economic tools. Finally, students will broaden their understanding of the political, legal, and ethical issues involved in health care organization and planning.

**PSYCHOGERIATRICS TRACK.** This area of concentration, developed jointly with the Department of Psychology, is designed for students interested in working with older adults and their families who are experiencing psychological difficulty. Students electing this track will be prepared to provide assistance directly to the elderly and their families as well as to consult and train professionals and paraprofessionals to provide more effective mental health services. Training is provided through a combination of specialized didactic instruction and structured field experience in providing direct services, consultation, and education.

**PUBLIC ADMINISTRATION TRACK.** Students who elect to pursue courses in the public administration track, developed jointly with the Department of Public Administration, will after completion of course work, be able to plan, organize, report, control, and budget for public programs in aging. Grant writing and program evaluation skills will be developed as well.

**SOCIAL SERVICES TRACK.** This track concentrates on developing specialized knowledge and skills in the provision of services to the elderly, basic understanding and skills in at least one method of social work practice, commitment and ability to participate in the development of strategies and policies relevant to amelioration of social problems of the elderly, ability to integrate and use in practice knowledge of individual behavior and social structure with particular reference to the needs of the elderly.

**RESEARCH TRACK.** This track is designed for students who would ultimately like to pursue a Ph.D. in the social/behavioral sciences. (All students who elect the research track must complete a thesis.) Students will obtain a strong background in experimental psychology research design and methodology and a broad background in life-span developmental theory.

The 42-hour degree program includes 18-21 hours of courses in gerontology, 18 hours in the chosen concentration area, and six credits for thesis (or a thesis option).

**ADMISSION POLICY**

The program is open to qualified students who have earned a baccalaureate degree from an accredited college or university or the equivalent, maintained a minimum grade-point average of 3.0 and have satisfactory scores on the Graduate Record Examinations. A successful work experience may strengthen the admission credentials of applicants with marginal records.

Because of the diversity of undergraduate majors, candidates for the gerontology program must present evidence of successful completion of undergraduate courses in the following areas:
1. biological science—minimum of six semester hours
2. psychology—minimum of three semester hours
3. sociology/anthropology-social work—minimum of three semester hours
4. statistics, research methods, or equivalent—minimum of three semester hours

Topics covered in this undergraduate course should be equivalent to those outlined for Statistics 213, 214 in the Academic Campus Undergraduate Bulletin.

Candidates for admission who do not meet these requirements will be expected to complete the required undergraduate course work or to pass challenging examinations by the end of the first year. Please see Part I of this bulletin for admission requirements and procedures.

**TRANSFER AND WAIVER OF COURSE CREDITS**

Students who have completed graduate work in other graduate departments, whether at Virginia Commonwealth University or another university, may transfer no more than 12 credit hours at "B" level if such work is considered relevant by the departmental Admissions Committee. Also, a maximum of six hours of graduate credits accrued at a "B" level as a "special student" at Virginia Commonwealth University may be applied to the degree upon recommendation of the departmental Admissions Committee.

Transfer credits for graduate work at other institutions will be evaluated at the time of full
admission to the program. To have credits transferred, students are required to prepare a synopsis of each graduate course that is to be transferred for review by the faculty. Each synopsis will include the name of texts used in the course and a specific listing of topics and material covered. Students may apply also for waivers of specific requirements in a similar manner.

MASTER'S THESIS
1. The master's thesis is an option for students entering with a bachelor's degree. Students may elect either a six-credit thesis or six hours of graduate course work to meet the 42-hour requirement.
2. Each student shall arrange for a member of the gerontology program to serve as the chairman of the thesis committee. With the chairman's approval, at least two additional committee members will be selected. At least two of the members must be from the Department of Gerontology.

The thesis chairman will monitor and advise during thesis development. The student will take the major role in actual data collection. The thesis should be a publishable piece of research that makes some contribution to the field of gerontology.

WRITTEN COMPREHENSIVE EXAMINATION
A written comprehensive examination is required after completion of all required course work and before the student begins a practicum (field experience).

The comprehensive examination will be scheduled three times a year (early in the fall and spring semesters and once in the summer).

PRACTICUM (FIELD EXPERIENCES)
Field experiences, with the supervision arranged by the director and program faculty, constitute an additional requirement. These experiences are intended to develop practical understanding, skills, attitudes, and values essential for working with the aged in a variety of settings.

The practicum will involve a 600-hour placement (one semester full-time or two semesters half-time). Each student must submit a practicum proposal (prepared with the assistance of the advisor) that must be approved prior to beginning the practicum.

For those already employed in the field of gerontology, an approved special project may be substituted for the field experience placement. Those students who are working full time in a job outside the field of aging also may submit a proposal for review that may allow for their continued employment, yet fulfilling this important requirement. All students must register for GTY 607 Field Study in Gerontology.

CERTIFICATE PROGRAM IN AGING STUDIES
The certificate in aging studies program was designed primarily to meet the needs of persons who already are working with the elderly but who have no academic training in gerontology. The certificate program provides students with a comprehensive overview of gerontology and stimulates the application of gerontological research to problems in applied areas.

The certificate program is also a minor option for graduate students in other disciplines.

REQUIREMENTS FOR ADMISSION
Candidates for admission into the certificate in aging studies program would offer the following credentials:
A baccalaureate degree from an accredited college or university or its equivalent.
An acceptable grade-point average.

PROGRAM OF STUDIES
The certificate program of studies would require successful completion of 17 credit hours of work comprised of the following courses now offered in the gerontology graduate curriculum:

1. The biology of aging, psychology of aging, and social gerontology will form the basic core of the certificate program.
2. Following the completion of these three elective gerontology courses, students may choose two elective gerontology courses after consultation with their faculty advisors. Advisors counsel students as to the courses that would best suit their educational training needs. Students may choose from aging and human values; topical seminar; independent studies; problems, issues, and trends in gerontology; recreation, leisure, and aging; and other elective courses (in consultation with advisor).
3. In addition to the completion of these prescribed courses, each candidate for a Certificate in Aging Studies would be required to complete satisfactorily a project in gerontology on a subject approved by the faculty. This project may be a comprehensive literature review, a research project, and a training or demonstration project. Students
would register for a two-credit course in independent studies (GTY 692).

**AWARDING OF THE CERTIFICATE**

Upon successful completion of the total program described here, as well as maintaining a 3.0 average, students are awarded a Certificate in Aging Studies.

**RELATIONSHIP TO THE M.S. PROGRAM IN GERONTOLOGY**

The Certificate in Aging Studies program is designed to meet the needs of those individuals who desire graduate training in gerontology but who do not desire the full completion of the master's program. This program is complementary to the M.S. program. Certificate students who wish to enter the M.S. program must make formal application and abide by the admission requirements outlined in this bulletin.

**M.S.W. AND CERTIFICATE IN AGING STUDIES**

The School of Social Work in cooperation with VCU's Department of Gerontology provides students with a unique opportunity in social work and gerontology. School of Social Work M.S.W. students interested in work with the elderly or in gerontological programs may earn a Certificate in Aging Studies while completing Master of Social Work degree requirements.

Interested students must meet the admission requirements of the M.S.W. program of the School of Social Work and of the Certificate in Aging Studies of the Department of Gerontology. Admission into one program does not guarantee admission into the other. In order to meet the requirements of the M.S.W. degree and the Certificate in Aging Studies, students complete a total of 65 graduate credits. All foundation and specialization courses of the M.S.W. program are completed, and core courses (nine credits) of the Certificate of Aging Studies are completed. Other requirements are met by (1) completion of M.S.W. research credits in which students undertake a project focused on aging, (2) completion of second-year field instruction practicum requirements (six credits) in a social work setting related to aging, (3) completion of an independent study course in gerontology which integrates research and practicum courses.

Additional information may be obtained from the Department of Gerontology, Richmond, VA 23298-0228 (Attention: M.S.W.—Gerontology Certificate Advisor).

**GRADUATE COURSES IN GERONTOLOGY (GTY)**

All students must complete successfully the following 24 hours of core courses:

- **601 Biological and Physiological Aging.** 3 credits. Biological theories of aging; cellular, physical, systemic, and sensory change; health maintenance.

- **602 Psychology of Aging.** 3 credits. Psychological adjustment in old age; special emphasis on personality, cognitive, and emotional development; life-crisis associated with the aging process. (Students must complete Social Sciences Research Methods before taking this course).

- **603 Social Science Research Methods Applied to Gerontology.** 3 credits. Application of social science methods and techniques to study of the aged; data sources, types of problems encountered; data analysis; research reporting; use of research findings. Prerequisite: graduate statistics.

- **604 Problems, Issues, and Trends in Gerontology.** 3 credits. Application of knowledge in analysis of problems confronting aged persons; social issues and legislation; service delivery programs; current trends in gerontology.

- **605 Social Gerontology.** 3 credits. This course will focus on the socio-psychological and sociological aspects of aging. Various socio-psychological and social theories of aging will be discussed. The course will provide a broad overview of several general topics such as the demography of aging, politics and economics of aging, and cross-cultural aspects of aging. The course will offer an in-depth analysis of particular role changes which accompany aging (i.e., retirement, widowhood, institutionalization).

- **606 Aging and Human Values.** 3 credits. Identification and analysis of value systems of the aged, exploration of religious beliefs; death and dying; moral, ethical and legal rights; human values and dignity.

- **607 Field Study in Gerontology.** 3 credits. Systematic exploration and study in the field of an actual problem, issue, or task germane to the student's gerontology concentration. Application of specific concepts and approaches to assessment analysis. Arranged in consultation with the student’s program advisor.

**ELECTIVE COURSES**

- **410 Introduction to Gerontology.** 3 credits. A survey of the field of aging with attention to physical, psychological, social, economic, and cultural ramifications of age.

- **501 Physiological Aging.** 3 credits. This course is taught at an introductory level in contrast to the more substantive background required for GTY 601. Distinguishes between normal aging and those chronic illnesses often associated with aging in humans. This course would be valuable to those interested in the general processes of human aging.

- **612 Recreation, Leisure, and Aging.** 3 credits. An analysis of the quality and quantity of leisure in maximizing the quality of life for the older person. Focus will be on concepts of leisure; the interrelationship of leisure service delivery systems and other supportive services; the meaning of leisure to the elderly in the community and within institutional settings; and innovative programming.
615 Aging and Mental Disorders. 3 credits. The course deals with common psychological disorders and problems of late life, their etiology, methods of evaluating psychological status, and intervention strategies which have been used successfully with older persons. Topics include epidemiology of psychological disorders and mental health service utilization; late-life stressors and crises; psychology of health, illness, and disability; techniques and procedures in the evaluation of the older adult; functional and organic disorders; institutionalization; individual, group, and family therapy, behavioral techniques; peer counseling and crisis intervention; and drugs and the elderly.

616 Maintenance and Rehabilitation in Late Life. 3 credits. Considers practical approaches to maintaining function and use of daily activities, simple procedures, and techniques in counteracting common physical changes prevalent in later life.

625 Aging and the Minority Community. 3 credits. An analysis of the relationship between the aging process and American minority communities. In addition to the sociological factors, the course will examine demographic, physiological and psychological aspects of minority aging. Attention will also focus on dominant social problems and federal policies toward the aged.

SOC 624 Community and Community Services for the Elderly. 3 credits. A conceptual/theoretical overview of community focusing on the ecological, psychological, and social dimensions of community and on communities of the aged.

627 Psychology of Health and Health Care for the Elderly. Focuses on factors in the etiology, course, and treatment of illness; patient/practitioner relationship; patient compliance and psychosocial issues in terminal care.

641 Survey of Psychological Assessment and Treatment of the Older Adult. 3 credits. A combination didactic and skills training course; review of major treatment strategies and techniques for utilization with the older adult client with emphasis on group, individual, and paraprofessional delivery systems; evaluation of crisis intervention and consultation team approaches; lectures, demonstration, and classroom practice of actual treatment techniques.

642 Practicum in Clinical Geropsychology. 3 credits. An initial practicum geared as an entry to the team practicum experience; focus on familiarizing the student with mental health service delivery systems for the elderly in the Richmond community; rotation through a limited number of facilities such as nursing homes, retirement centers, nutrition sites, emergency hotline services for the elderly, and various agencies involved in de-institutionalization; possible extended placement in a particular facility.

691 Topical Seminar. 3 credits. Seminars on specialized areas of gerontological interest. Examples of special topic courses taught in previous years: • Nutrition and Aging. 3 credits. Focus on nutritional problems of the elderly, physiological and psychological effects of diet modifications. • Psychophysiology and Neurobiology of Aging. 3 credits. Focus on age differences and changes in anatomy and physiology of the autonomic and central nervous systems. • Wellness and Aging. 3 credits. Principles and concepts of wellness will be discussed with particular emphasis placed upon dealing with specific needs of the older adult. Relevant literature in the field will be reviewed. Psychological well-being and social alienation of older members of the community will be addressed from the wellness perspective. • Pre-Retirement Planning. 3 credits. Development and implementation of pre-retirement planning programs for employees. Needs assessment, policy, adult learning, training resources will be covered. • Long Term Health Care Services for the Elderly. 3 credits. Historical, social, and political foundations are the focus of this course.

692 Independent Studies. 1-3 credits. Directed independent study in depth of a particular problem or topic in gerontology about which an interest or talent has been demonstrated.

798-799 Thesis. 3-6 credits. A research study of a topic or problem approved by the thesis committee and completed in accordance with the acceptable standards for thesis writing.

Department of Health Administration

FACULTY

Barker, Thomas C. Professor, Dean, School of Allied Health Professions Ph.D., State University of Iowa; health administration.

Begun, James W. Professor Ph.D., University of North Carolina; organizational theory, health care policy, and planning.

Breindel, Charles L. Associate Professor Ph.D., Pennsylvania State University; health planning, health policy, and health administration.

Clement, Delores A. Assistant Professor Ph.D., University of California; health policy and administration

Clement, Jan P. Assistant Professor Ph.D., University of North Carolina; health policy and administration, and business finance.

Cullen, Benjamin T. Professor Emeritus Ed.D., University of Virginia; personnel/labor relations and health administration.

Dean, Larrie J. Associate Professor and Associate Dean Ph.D., Syracuse University; higher education administration, manpower planning, and health policy.

Gross, Paul A. Visiting Professor/Health Care Executive M.H.A., Virginia Commonwealth University; health administration.

Hurley, Robert E. Associate Professor Ph.D., University of North Carolina; health policy and administration.

Luke, Roice D. Professor Ph.D., University of Michigan; medical care organization, health economics, and quality assurance.

McCue, Michael J. Associate Professor D.B.A., University of Kentucky; health care finance

Norville, Jerry L. Professor Emeritus M.S., University of Colorado; M.B.A., Midwestern State University; M.A., Antioch School of Law; health administration, long-term care, and personnel labor relations.

Ozcan, Yasar A. Assistant Professor Ph.D., Virginia Commonwealth University; M.B.A., Southeastern Louisiana University; statistics, quantitative methods, and information systems.

Rossiter, Louis F. Professor Ph.D., University of North Carolina; health economics.

Shukla, Ramesh K. Professor Ph.D., University of Wisconsin; systems analysis/management, manpower planning, and health provider productivity.
Swisher, Karen W. Associate Professor J.D., University of Richmond; health law.
Wan, Thomas T. H. Professor and Chair Ph.D., University of Georgia; M.H.S., Johns Hopkins University School of Hygiene and Public Health; health systems evaluation/analysis, medical sociology, and health demography/epidemiology.
Witherspoon, John M. Professor M.D., Duke University; quality assurance.

INTRODUCTION
Education in health administration at the University began in 1949 with the establishment of a graduate curriculum in hospital administration. Early graduates received a certificate; the master’s degree was awarded beginning in 1955.

These early efforts grew and developed into the Department of Health Administration which was established in 1972. The department now includes three major programs: (1) M.H.A. in health administration; (2) Ph.D. in health services organization and research; (3) M.S., Health Administration Executive Program. The department also cooperates with the School of Nursing in its M.S. Program in Nursing Services Administration and with the T.C. Williams School of Law of the University of Richmond in offering a dual degree program in health administration and law. In addition to these educational programs, the Department of Health Administration has a major research program and is involved in a wide range of public service activities, including continuing studies for health services administrators and other health professionals.

DEPARTMENTAL PURPOSE AND FUNCTIONS
The overall purpose of the Department of Health Administration is to provide educational programs and services related to the organization and administration of health services. In achieving that purpose, the department’s principal functions are to provide high-quality education leading to careers in the administration of health care institutions, agencies, and systems and to provide advanced training and education for persons who will teach, plan, evaluate, and investigate health care policies and medical care systems. Corollary functions are to provide assistance and other services for community organizations and to conduct health services and health policy research.

FACILITIES
The Department is located in the William Grant House, formerly the Sheltering Arms Hospital, at 1008 East Clay Street in Richmond, Virginia. The chairman’s office, the MSHA program and the MHA program are located on the second floor, the Ph.D. program and the Williamson Institute are located on the third floor of the building.

The Medical College of Virginia Hospitals, one of the largest teaching hospitals in the nation, and MCV’s other clinical facilities are readily accessible to the department’s students and faculty. In addition, the department has clinical affiliations and close working relationships with a large number of health care organizations and agencies in Virginia and throughout the eastern part of the United States. The organizations and agencies are used extensively as clinical facilities in the department’s educational programs.

ENDOWED AWARDS, LECTURESHIPS, AND PROFESSORSHIPS
The Robert Hudgens Memorial Award was established and endowed by the department’s alumni association in cooperation with the American College of Healthcare Executives (ACHE). The Hudgens Award is presented annually to the person selected by a special ACHE committee as the most outstanding young hospital administrator in the United States. It is a major, nationally recognized award presented at the ACHE’s annual congress each year.

The Charles P. Cardwell Memorial Lecture Series was inaugurated and endowed by the department’s alumni. It is held in conjunction with the ACHE’s annual congress. The series is coordinated by a standing committee of the department’s alumni association.

The endowed Arthur Graham Glasgow Professorship of Hospital Administration was established in 1957 in honor of Dr. Glasgow who had demonstrated a vital interest in hospitals and hospital administration.

The Herman L. Mullins Award is presented annually for the most outstanding thesis or management study completed by a graduate student in health services administration. This award was established by the M.H.A. Class of 1976 through the Health Administration Alumni Association as a lasting recognition for the contributions of Herman L. “Moon” Mullins as a teacher, advisor, and friend of the student.

The Stuart D. Ogren Scholarship Fund was established by institutional members of the Virginia Hospital Association, and Mr. Ogren’s friends and colleagues in 1990. The fund honors Mr. Ogren who was President of the Virginia Hospital Association. During his distinguished career, Mr. Ogren made a significant contribution to the effective provision of medical care services.
in the Commonwealth and the formulation of health care policy in the Commonwealth and the Nation.

Scholarships, supported by a $175,000 endowment, are available to students who have been admitted to the Department's graduate program in health services administration (MHA degree) program. Funds are employed to attract exceptionally well-qualified students (as defined by previous academic performance and work experience). The awardees are recognized each year at the Virginia Hospital Association’s Fall meeting.

The Jerry L. Norville Award is presented annually to the faculty member who, through example, demonstrates exceptional dedication and genuine concern for the welfare of students in the M.H.A. program. This award was established by the M.H.A. Class of 1989 in honor of Professor Jerry L. Norville who has served on the faculty for 19 years as Director of the M.H.A. program for the past ten years and as Chairman for the past year.

The Cardwell Society was instituted in 1983 by department alumni to recognize those who annually make a major contribution to the Department of Health Administration and in memory of the founder and first director of the then School of Hospital Administration, Charles P. Cardwell. The society was established to help maintain the traditions and quality of the department through support of its residency program, expanded computer-assisted educational programs, capital and equipment requirements, and other educational and operational needs.

The department has an ongoing, major capital campaign called the New Ventures for Excellence in Health Administration Education. This campaign will produce major capital funding to support the Department's programs.

Officially initiated in 1987, the David G. Williamson, Jr., Institute for Health Studies was named in memory of Mr. David G. Williamson, Jr., formerly the vice-chairman of the Hospital Corporation of America and one of the department's leading alumni. Mr. Williamson played a major role in making it possible for the institute to be established. The institute serves as a bridge between the department and administrative and clinical leaders in health care by sponsoring instructional, research, and outreach programs focused on the organization and financing of health services. Such programs are designed to help resolve the often conflicting requirement that health care organizations be simultaneously cost-effective, innovative, and responsible for serving society's needs.

**GRADUATE PROGRAM IN HEALTH SERVICES ADMINISTRATION**

**PURPOSE**

The graduate program in health services administration is designed to prepare individuals for administrative roles leading ultimately to top-level executive positions in complex health services organizations. The curriculum combines emphasis in strategic and operational management, thus orienting students toward the broad spectrum of managerial problems and functions likely to be encountered by health services organizations.

The program's educational objectives and content are based upon the premise that a large number of students who select this curriculum aspire to become chief executive officers of health care organizations at some point in their careers. A comprehensive listing of these goals is set forth in a separate document, "Educational Objectives of the Graduate Program in Health Services Administration."

The graduate program in health services administration is designed primarily for full-time students. A limited number of part-time students may be accepted into the program. The part-time program is intended primarily for persons who already are employed in the health industry. The admissions standards and degree requirements for part-time degree candidates are the same as those for full-time degree candidates.

The graduate program was accredited initially in 1968, one of the first programs in the United States to achieve that status. It has maintained continuously its national accreditation status, and in 1993 the program was awarded a eight-year accreditation.

**DUAL DEGREE PROGRAM IN HEALTH ADMINISTRATION AND LAW**

Advanced study in health administration and law is available through a dual degree program cosponsored by the department and the T.C. Williams School of Law at the University of Richmond. The program leads to the awarding of the master's in health administration and Juris Doctor degrees. Participants are provided the necessary expertise either to represent clients within the health care industry or to function as legal policy makers or administrators who fully appreciate the legal environment of the health care field. Applicants for this program are required to meet the admissions requirements of each program. For information regarding the
dual degree program, contact the director of the program.

Admission Requirements - MHA and MHA/JD Programs

Applicants are encouraged from individuals who have earned undergraduate or graduate degrees in any discipline or field of study. However, to be eligible for admission to the graduate program, completed course work must include basic preparation in economics, accounting, and business statistics. In addition, a working knowledge of college-level algebra is necessary preparation for the graduate program's courses in systems analysis and evaluation.

The foundation requirements may be met by completing specified prerequisite courses with a grade of C or better within the past five years at any accredited college or university or by completing specified foundation courses within the School of Business at VCU. These requirements are

1. One college-level semester course (three credits) in financial accounting;
2. One college-level semester course (three credits) in economics;
3. One college-level semester course (three credits) in statistics.

Any or all of these three foundation courses may be taken in VCU's School of Business during the summer semester immediately prior to the fall term when the student enrolls in the graduate program in health services administration. The foundation courses provide an excellent opportunity for students without a strong background in business to fulfill the course work requirements for entrance into the graduate program. In addition, students who have met all or some of the prerequisite requirements may strengthen their preparation for the graduate program by taking other foundation courses in the business school's summer session. These include courses in marketing, business law, finance, and other areas. The foundation courses cannot be applied toward the 58 semester hours required to qualify for the M.H.A. degree. Foundation courses at the graduate level are available only to those who already have been admitted to a graduate program offered by the department.

To be considered for admission into the graduate program in full-status, the applicant must meet the following minimum qualifications: (1) present evidence of personal achievement, scholarship, intellectual ability, and professional promise; (2) hold a baccalaureate or graduate degree from a college or university that is fully accredited by the Association of American Universities or by a regional accrediting agency; (3) have an overall grade-point average of 2.75 or higher on a four-point scale in undergraduate work or provide evidence of high achievement in a substantial amount of graduate-level course work; and (4) attain a satisfactory score (at least 50th percentile in each category) on the Graduate Record Examination Admission Test or the Graduate Management Aptitude Test. Enrollment into the program is limited and competition is strong. Meeting the minimum qualification above is not generally sufficient for admission.

Applicants who have completed the prerequisite course work and meet the other requirements may be admitted into the graduate program in full status. Students in full status are candidates for the M.H.A. degree. Full status is maintained as long as the student achieves a grade-point average of 3.0 in all course work each semester.

If an applicant presents qualifications that approximate the admissions requirements and standards, that applicant may (at the discretion of the Admissions Committee) be admitted into the graduate program on provisional status. Admission to full status may be approved by the faculty when the student has satisfactorily completed one or more semesters of graduate studies. Students admitted on provisional status who do not meet GRE/GPA standards will be dismissed from the graduate program at the end of their first semester of graduate studies if they have not earned at least a 3.0 grade-point average for all courses attempted or if they have earned a grade of less than "C" in any course. Complete information regarding academic requirements and standards is set forth in Academic Policies and Regulations for the Graduate Program in Health Services Administration.

VCU is a state-aided institution, and preference is given to applicants with equal qualifications who are residents of Virginia. Persons from countries other than the United States may apply for admission to the department's graduate program. Foreign applicants must meet all the regular admission requirements, score a minimum of 600 on the Test of English as a Foreign Language, and submit evidence of financial responsibility as stated in Part I of this bulletin.

Requests for further information regarding admission requirements, standards, and procedures should be sent to School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051 or to the Department of
Health Administration, School of Allied Health Professions, Virginia Commonwealth University, Richmond, VA 23298-0205.

Transfer Credit

Students who have earned graduate credit before entering the Department of Health Administration's graduate program may be permitted, at the discretion of the faculty, to transfer a maximum of six semester hours of credit to count toward the M.H.A. degree. Transfer credit may be allowed when, in the judgment of the faculty, the applicants have completed satisfactorily course work equivalent to courses in the graduate curriculum offered in this department. Normally, transfer credit is approved at time of admission.

CURRICULUM

Students are required to complete a total of 58 semester hours (including transfer credit, if any) to qualify for the Master of Health Administration (M.H.A.) degree. This requirement includes 44 hours of core course work in combination with at least six semester hours of elective studies in health services administration and related disciplines, such as business administration, public administration, urban and regional planning, and gerontology. In addition, eight semester hours of practicum course work are required as a part of the administrative residency. At the discretion of the faculty, students with significant experience in health services administration may substitute additional elective courses for the administrative practicum courses. The graduate program is designed to provide a balanced combination of academic studies and field experience to enable students to achieve the program’s educational goals and become well-prepared to enter the field of health services administration.

The core curriculum of the graduate program in health services administration consists of 14 courses totaling 44 semester hours which must be completed by all degree candidates. These courses represent an integrated series of learning experiences designed to provide students with a common body of knowledge and skills which are considered to be essential. The core courses are

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HAD 602</td>
<td>Health Care Organization and Services</td>
<td>3</td>
</tr>
<tr>
<td>HAD 606</td>
<td>Financial Management in Health Organizations I</td>
<td>3</td>
</tr>
<tr>
<td>HAD 607</td>
<td>Advanced Financial Management in Health Organizations</td>
<td>3</td>
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<tr>
<td>HAD 608</td>
<td>Seminar in Health Care Finance</td>
<td>3</td>
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<td>HAD 609</td>
<td>Health Systems Analysis and Evaluation</td>
<td>3</td>
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<tr>
<td>HAD 610</td>
<td>Health Care Management Decision Support Systems</td>
<td>3</td>
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<tr>
<td>HAD 611</td>
<td>Hospital and Medical Law</td>
<td>4</td>
</tr>
<tr>
<td>HAD 612</td>
<td>Information and Management Systems in Health Care Institutions</td>
<td>3</td>
</tr>
<tr>
<td>HAD 614</td>
<td>Health Care and Marketing and Entrepreneurship</td>
<td>4</td>
</tr>
<tr>
<td>HAD 624</td>
<td>Health Economics</td>
<td>3</td>
</tr>
<tr>
<td>HAD 645</td>
<td>Structure and Functions of Health Organizations</td>
<td>3</td>
</tr>
<tr>
<td>HAD 646</td>
<td>Health Care Managerial Roles and Processes</td>
<td>3</td>
</tr>
<tr>
<td>HAD 647</td>
<td>Operations Management in Health Care Organizations</td>
<td>3</td>
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<tr>
<td>HAD 648</td>
<td>Strategic Management in Health Care Organizations</td>
<td>3</td>
</tr>
</tbody>
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| Total Core Requirement | 44 |

In addition to the core curriculum and elective courses, students in the M.H.A. program complete a one-year series of executive skills workshops at no cost to them. These workshops are designed to focus on individual development of personal skills essential to success in health administration.

Students in the Dual Degree Program are required to complete a total of 49 semester hours while in the Graduate Program in Health Services Administration. Students take all the regular MHA curriculum core courses except HAD 611 - Hospital and Medical Law and the 8-credit Administrative Residency. MHA/JD students are waived from HAD 611 - Hospital and Medical Law. It is not necessary to replace this course with another elective course in the MHA program.

Students must take one summer administrative residency of at least 3 credit hours. This is done between the first and second years in the MHA Program.

SPECIALIZATION

The core courses of the M.H.A. curriculum are open only to graduate students who are enrolled in the M.H.A. program or in one of the other graduate programs offered by the Department of Health Administration.

By combining advanced courses in the health services administration and related disciplines, students are able to pursue individual interests and career goals through the development of specialized knowledge and skills in a particular area of concentration. These areas of elective concentration represent major areas of specialization within the field of health services administration.

Students may select their concentrations of electives at the time they enter the graduate program or at a later point in their graduate
A broad range of courses is available within each area of concentration. In addition to course work, students ordinarily complete an administrative residency within a health care organization related to their areas of concentration.

Areas of elective concentration available within the graduate program in health services administration include:

1. Administration of hospitals and hospital systems;
2. Administration of long-term care facilities;
3. Health planning and policy with emphasis upon planning in the institutional setting.

It may be possible for other areas of concentration to be developed by students in concert with their faculty advisor and the director of the graduate program.

**ADMINISTRATIVE RESIDENCY**

**Purpose of the Residency**

The administrative residency is an integral part of VCU's graduate program in health services administration. The basic purpose of the residency is to provide students opportunities to apply and further develop their administrative knowledge and skills through a period of applied experience in an operational setting. The administrative residency is supervised directly by experienced executives who serve as the students' preceptors.

Through a carefully selected and well-organized residency experience, students strengthen the foundation of general knowledge and skills gained through the core curriculum and gain further insight and expertise in their selected concentrations. Students will serve their residency in the type of health care organization in which they wish to gain specialized knowledge, skills, and experience. Overall policies and guidance for the administrative residency are established by the Department of Health Administration and are included in *Handbook for the Administrative Residency of the Graduate Program in Health Services Administration.*

**Appointment to the Residency**

Students become eligible for entrance into the administrative residency after completing 50 semester hours of specified course work and achieving an overall G.P.A. of 3.0. Students on academic probation because of their performance during their final on-campus semester prior to their residency may, at the discretion of the faculty, be prevented from entering their residency although their overall G.P.A. is 3.0 or higher.

In addition to meeting the above academic requirements, the student must, in the judgment of the faculty, present evidence of readiness for a clinical experience by demonstrating sufficient academic proficiency in the core areas of the curriculum and by demonstrating professional maturity.

The director of the graduate program in health services administration has the responsibility to make residency assignments. In making these assignments, the director will consider the preferences of the students, the preferences of the preceptors, and the recommendations of faculty advisors. Students' preferences are not always met.

The length of the administrative residency is variable, depending upon student background and experience. For most students, the residency will be 12 months. Students who have had at least two years' experience in responsible management positions within health care organizations or agencies may petition the faculty to waive or reduce this requirement. Administrative residents are paid a stipend by the organization in which they are training.

**On-campus Commitments During the Residency**

During the residency phase of the graduate program, students must attend regularly scheduled on-campus seminars. During these seminars students will participate actively in other educational activities associated with course work HAD 693, 694, and 695 taken during the residency period.

**Residency Policies and Procedures**

A complete statement of academic policies and procedures relating to the administrative residency phase of the graduate program is set forth in "Administrative Residency Policies and Procedures," in the *Academic Policies and Regulations for the Graduate Program in Health Services Administration.*

**Length of the Program**

The curriculum is designed to provide students with some flexibility in determining the pace and length of their program of studies. Full-time students ordinarily will begin their studies during the fall semester and complete their course work requirements within 21 months. For most students, this portion of the graduate program will be followed by an administrative residency of 12 months in length.

Depending upon their educational background and experience, the pace of studies they elect, and
the length of their residency requirement (if any), some students will be able to complete all requirements and receive the M.H.A. degree within 21 months after enrolling in the graduate program.

REQUIREMENTS FOR GRADUATION
To qualify for the M.H.A. degree, students must meet the following requirements: (1) achieve an overall grade-point average of 3.0 on a four-point scale for all graduate curriculum course work; (2) satisfactorily complete all requirements of the administrative residency including required course work taken during the period; (3) pass a comprehensive examination administered near the end of the graduate program; and (4) in the judgment of the faculty, demonstrate sufficient maturity, development, and abilities in health services administration to constitute readiness to enter the profession of health administration.

Degrees are conferred at commencement exercises of the University in May.

ACADEMIC POLICIES AND REGULATIONS
Academic policies and regulations for the graduate program in health services administration are set forth in separate documents published by the Department of Health Administration. These departmental documents, as well as publications that state University-wide policies and regulations, may be obtained by applicants at the time of their interviews.

GRADUATE PROGRAM IN NURSING SERVICES ADMINISTRATION
The Department of Health Administration cooperates with the School of Nursing in offering the M.S. track in nursing services administration. This jointly-sponsored program prepares graduates to assume top-level management positions in the area of nursing services administration. Students take courses in the School of Nursing, School of Business, and in the Department of Health Administration in gaining the knowledge and skills related to the practice of administration in nursing.

The focus of the course of studies is both theoretical and experiential and seeks to promote the integration of administrative and nursing sciences. Emphasis is placed upon systematic methods of investigation, including the preparation and conduct of a research study. Practica are planned individually to capitalize upon student background and to promote individual growth.

A more complete description of the graduate program in nursing services administration is found in the School of Nursing section of this bulletin.

EXECUTIVE M.S. IN HEALTH ADMINISTRATION DEGREE PROGRAM
Purpose
The Executive Program is an innovative two-year course of study leading to the award of a Master of Science degree in health administration which can be completed while working full time. The program is designed specifically for self-motivated, mature, and experienced professionals who are seeking advanced preparation in management.

The program is designed to meet the distinctive professional development needs of
- clinicians
- mid-level managers
- executive-level managers
- specialists

Curriculum
Completing the Executive Program's curriculum requires 24 months. Students enroll in four 6-month semesters of course work. Each semester is composed both of on-campus and off-campus sessions. During the five on-campus sessions (ranging in length from six to 13 days each), students attend executive program classes on the MCV Campus. During the off-campus session of each semester, students continue studies at their home/work site, employing a carefully planned array of innovative learning technologies.

A new class begins each July. The schedule of courses is as follows:

First Semester (11 credits)
- HAE 602 Health Systems Organization and Financing ........................................... 3
- HAE 624 Health Economics ...................................................... 3
- HAE 645 Health Care Organization and Management Theory .................................. 3
- HAE 690 Health Care Executive Collegium I .................. 2

Second Semester (11 credits)
- HAE 646 Health Care Management Roles and Processes ........................................ 3
- HAE 614 Health Care Marketing ...................................................... 3
- HAE 606 Health Care Managerial Accounting ....... 3
- HAE 615 Managerial Epidemiology .................................................. 2

Third Semester (10 credits)
- HAE 610 Health Care Management Decision Support Systems ................................. 3
- HAE 607 Advanced Financial Management in Health Organizations ......................... 3
- HAE 611 Health Care Organization and Management Law
  Selective or Directed
  Independent Study ...................................................... 2
Executive Program courses are designed to meet the distinctive needs and preferred learning styles of the experienced health care professional. These courses prepare students to meet the challenges of the new health care marketplace while providing a solid foundation for life-long professional development.

**On-Campus Study**
During the two-year curriculum, students spend five sessions on the MCV Campus. On-campus sessions are held during June/July and January and range from six to 13 days each.

On-campus sessions are designed specifically for Executive Program students. Students attend lectures, participate in seminars, and make use of the department’s learning laboratory, computer facilities, and library. Ample opportunity is provided to interact with other students, faculty, and visiting scholars/practitioners.

Each three-credit course entails approximately 32 contact hours of in-class participation split between the initial and concluding on-campus sessions of the semester. Each course meets for approximately four hours in either the morning or afternoon. Evenings are reserved for study, group project work, informal interaction with fellow students, relaxation, and planned social events.

All courses are designed carefully to facilitate effective and efficient learning. Students are provided with detailed outlines of lectures, a complete handout set, and comprehensive learning/study guides for the material covered.

While in residence at the University, students are housed at a hotel located less than a ten-minute walk from the MCV Campus. Meals can be obtained for reasonable prices in the hotel or at a wide variety of restaurants in the immediate area. Students are encouraged to take advantage of the University’s recreational facilities and the cultural/entertainment opportunities of Richmond and the surrounding area.

**Off-Campus Study**
Each semester is composed also of a five-month session when students continue course work at their places of residence/employment. During the off-campus session, students complete reading assignments and projects. They employ the following innovative learning technologies in their studies:

- **Computer Conferencing.** This new technology is a multi-purpose and unique communication tool. Conferencing allows individuals to communicate with one another through PCs (equipped with a modem) via a telephone connection to a central computer. The Executive Program’s computer conferencing system, Execunet, is employed as the primary mode of communication among the students and faculty during off-campus periods. Each course has its own electronic classroom. Execunet is used to conduct seminars, distribute announcements, make and submit assignments, and hold meetings. No previous experience with personal computers is necessary to use Execunet.

- **Computer-assisted instruction (CAI).** CAI makes it possible to offer individual lessons on a “floppy-disk.” By using a personal computer, students are guided through a series of instruction modules and problem sets. They proceed at their own pace and receive constant feedback regarding their level of knowledge and skill acquisition. No previous computer experience is required to use CAI packages.

- **Independent-study modules.** These modules contain selected readings, problem sets, discussion questions, and exercises. Each module is designed to help students attain a specifically defined learning objective.

- **Videotaped lecture presentations.** A great deal of time in traditional classroom education is spent in lectures. In selected instances, it is far more effective to offer some of these lectures on videotape so students can view them during off-campus periods.

Students are expected to devote a minimum of 15 hours per week to executive program study during the off-campus period of each semester.

**Equipment Requirements**
All students admitted to the executive program must have access to an IBM (or IBM compatible) personal computer equipped with a printer and 2400 baud modem. Once admitted to the program, students will be instructed in the use of the IBM personal computer and all necessary software.

Those students who are very experienced in the use of personal computers and software may use equipment other than IBM. Non-IBM users should be skilled in the use of word processing, spreadsheet, and communication software compatible with their equipment.
Additionally, students are expected to have access to a VHS format videotape player.

Accreditation
Programs in health administration are accredited by the Accrediting Commission for Education in Health Services Administration (ACEHSA). The Executive Program is fully accredited by ACEHSA.

Admission Requirements
As application procedures and admission requirements for the Executive Program are different than other courses of study offered by the University, interested students should contact the department for a prospectus. The material can be obtained by writing Executive Program, Virginia Commonwealth University, Richmond, VA 23298-0203 or calling (804) 786-0719. Applications are accepted beginning in September for admission to the program in July the following year.

The Executive Program admits students with diverse educational, work, and life experiences who have the demonstrated capacity to pursue a rigorous course of professional graduate study and assume positions of leadership in the health care financing and delivery industry.

To be considered for admission to the Executive Program applicants must, at a minimum

- possess a baccalaureate degree from an institution of higher learning recognized by VCU and have a 2.75 grade-point average for all undergraduate work completed;
- have five years of increasingly responsible work experience;
- submit scores on a standardized aptitude test for graduate studies; and
- forward all required application and supporting materials to the VCU School of Graduate Studies.

Previous educational experience. No exceptions will be made to the requirement that applicants must possess an earned baccalaureate degree from a recognized college or university. Applicants with less than a 2.75 undergraduate GPA who have exceptional professional experience will be considered for admission on provisional status. Provisional status will be removed after satisfactory completion of the first semester of the program. If an applicant has completed any graduate studies (whether or not a degree was awarded), performance in such course work will be considered in the admission decision.

Work experience. Applicants are expected to have at least five years of increasingly responsible professional work experience as documented in a professional resume. The specific experience profile deemed appropriate for admission to the Executive Program depends upon one's particular profession or occupation. The resume is a very important element of the application materials. Applicants are encouraged to prepare the resume in such a way that it accurately and completely describes their accomplishments.

Graduate studies aptitude tests. VCU requires that all applicants for graduate study submit standardized aptitude test scores. The Executive Program will accept scores on either the Graduate Management Admissions Test (GMAT) or the Graduate Records Examination (GRE). Applicants who have taken the GMAT or GRE in the last five years may submit previous scores. Those applicants holding professional doctoral degrees (for example, M.D., D.D.S., J.D., Pharm.D.) may have GMAT or GRE requirements waived upon petition to the graduate dean. The GMAT or GRE are administered on a variety of dates in many locations throughout the country. Applicants should make arrangements to take the examination of their choice at the earliest possible date.

Prerequisites. No specific previous course work is required for application to the program. Upon formal acceptance, students will be provided independent-study modules in three areas: microeconomics, accounting, and quantitative analysis. These modules include books, articles, programmed instruction handbooks, and computer-aided instructional material. Completing these independent-study modules precludes the need for taking prerequisite course work prior to instruction. Applicants having acceptable previous course work in accounting, economics, and/or statistics will not be required to complete these independent-study modules.

Financial Considerations
Due to the extraordinary cost associated with designing and conducting this program, tuition and fees for the Executive Program are higher than the rates for full-time graduate study at the University. Interested students should contact the department for current tuition and fee information.

Tuition and fees include all direct program costs, learning materials distributed during a course, use of the Execunet computer conferencing system (including long-distance toll charges), and personal computer communication software.
In addition to tuition and fees, students will need to budget for the following expenses:

- purchase or lease of an IBM personal computer, printer, and 2400 baud modem (or compatible equipment) if not available for use through student's place of employment
- textbooks and computer software (word processing and "spreadsheet") software
- travel, meals, lodging, and personal expenses associated with attending the five on-campus sessions in Richmond.

All expenditures associated with expanding competency in one's profession (e.g., tuition/fees, learning materials, computer equipment, software, travel, and lodging/food while in Richmond) are tax deductible, subject to certain constraints and exclusions. Applicants are encouraged to consult a tax advisor regarding the rules and procedures governing educational deductions.

Staff will work with prospective students interested in applying for loans to support their graduate education. Several loan funds have been designed specifically to assist students enrolled in health administration programs.

If accepted to the Executive Program, students will be required to forward a nonrefundable payment of $500 to hold a place in the class. This payment is applicable to first semester tuition and fees. Full payment for tuition and fees is due approximately 30 days prior to the beginning of each semester.

DOCTORAL PROGRAM IN HEALTH SERVICES ORGANIZATION AND RESEARCH

The Ph.D. program in health services organization and research prepares individuals for positions as faculty in a variety of health-related graduate and undergraduate programs: researchers, policy analysts, and top-level staff in complex health organizations. Its purpose is to provide students with the conceptual and analytical foundations essential for the study of health organization design, behavior, and management systems. Students in the Ph.D. program take courses in four main areas: (1) the theoretical core content in health administrative sciences, (2) health services research methods, (3) organizational theory core, and (4) a major field of study.

Students are required to declare a major field of study. The major field builds upon the administrative sciences core by providing students with depth in both theoretical and methodological subject areas. The program offers major field training in the following three areas: (1) organizational strategy, (2) organizational performance, and (3) health services evaluation. (Choice of the fourth field is available only to those students with training at either the baccalaureate or master's level in a quantitative area, such as operations research, computer science, statistics, or industrial engineering.)

The training program offers students the opportunity to apply their research to either a health specialty area (e.g., nursing, medicine, gerontology, or occupational therapy) or an administrative problem area (e.g., multi-institutional systems, manpower planning, cost containment, or quality assurance).

The Ph.D. degree is awarded after a student completes a minimum of 57 semester hours of course work, passes comprehensive examinations covering organization theory and research methods, writes a conceptual paper on a major field of study, writes and defends a dissertation proposal, and writes and defends a doctoral dissertation. Full-time students can complete all required course work in four semesters and two summers. Full-time study beginning in the fall is preferred.

Admission Procedures and Requirements

Admission to the program, which is open to students with clear career goals in health services administration and research, is limited and competitive. Basic admission requirements include the following: (1) graduate-level degree in an academic or professional field with a grade-point average of "B" or higher, (2) completion of advanced-level courses in statistics and economics or equivalent course work, (3) a minimum score of 550 on verbal and 600 on quantitative tests of the Graduate Record Examination, (4) submission of transcripts and application forms, (5) three letters of recommendation, (6) a personal interview with members of the Admission Committee, and (7) a working knowledge of matrix algebra. One to two years of experience in the health care industry is recommended prior to admission to the program. Foreign students should submit scores from the Test of English as a Foreign Language.

Financial Aid

Graduate assistantships with stipends of at least $8,500 plus all tuition are available on the basis of merit to full-time students. Financial aid through the work-study program is available also.

Further information concerning the doctoral program in health services organization and re-
search may be obtained by writing the Doctoral Program Director, Department of Health Administration, School of Allied Health Professions, Virginia Commonwealth University, Box 206, Richmond, VA 23298-0206.

GRADUATE COURSES IN HEALTH ADMINISTRATION (HAD)

602 Health Care Organization and Services. Semester course; 3 lecture hours. 3 credits. Examines the structure and functions of the American health care industry, the concepts and processes of health and illness, the institutional and individual providers of health services and related concepts.

606 Financial Management in Health Organizations I. Semester course; 3 lecture hours. 3 credits. Prerequisite: Financial Accounting. A theoretical and practical study of organization and functions of health care financial administration. Emphasizes on institutional fiscal policies, accounting concepts and practices, internal and external controls, financial statistical reporting, and the use of financial data as management tools.

607 Financial Management in Health Organizations II. Semester course; 3 lecture hours. 3 credits. Prerequisite: HAD 606. Advanced practices of health care financial management. Emphasis on techniques to aid in financial decision making. Areas of investigation and study include analysis of financial statements, cost allocations, reimbursements, rate setting, budgeting, and capital financing.

608 Seminar in Health Care Finance. Semester course; 3 lecture hours. 3 credits. Prerequisites: HAD 606 and HAD 607. Advanced studies of financial issues and the application of analytic tools in case studies and exercises. Designed to enhance and strengthen the knowledge and skills provided in the graduate program's foundation and required courses in accounting and finance.

609 Health Systems Analysis and Evaluation I. Semester course; 3 lecture hours. 3 credits. Prerequisite: upper-division course in statistics. Introduction to principles and methods employed in evaluation research and program evaluation as these relate to health services. Focus will be on conceptualization, design, and operational procedures used in program evaluation.

610 Health Care Management Decision Support Systems. Semester course; 3 lecture hours. 3 credits. Prerequisite: HAD 609. Applications of traditional industrial engineering techniques in health care institutions. Applications of operations research techniques to health care planning, control and decision-making including deterministic, and stochastic decision analysis models and their use in health service administration.

611 Hospital and Medical Law. Semester course; 4 lecture hours. 4 credits. Examines basic principles and practices of law affecting hospitals and medical practice: the legal aspects of patient care and treatment, medical services, and other hospital-patient related functions and employment law.

612 Health Information and Management Systems. Semester course; 3 lecture hours. 3 credits. Prerequisites: HAD 609 and HAD 610. Analysis of current information and management systems including manpower planning and productivity, financial planning and monitoring, quality assurance, staffing and scheduling, administrative information systems and patient care systems. Evaluation of alternative uses of computer technology in health care. Uses of national and organizational data bases.

614 Health Care Marketing and Entrepreneurship. Semester course; 4 lecture hours. 4 credits. Prerequisite: HAD 624. Examines the planning process in the context of both the community and the institution. Considers the essential components of marketing planning and the development of a sound structure for marketing. Addresses principles and practices of health care marketing, with emphasis on marketing plans.

615 Health Care Politics and Policy. Semester course; 3 lecture hours. 3 credits. Examines the political process with particular emphasis on the impact of politics on health care. Focuses on current political issues in the health field, examining conflicts and anticipating effects on the health system.

623/Gerontology 623 Psychological Aspects of Illness and Disability. Semester course; 3 lecture hours. 3 credits. An introduction to the theories and research of the field of health psychology. Topics include the application of psychological principles to the promotion and maintenance of health, prevention and treatment of illness, relationship of stress and illness, patient/physician communication, stress and the health care provider, treatment compliance, changing self-destructive health behaviors, institutions and health care, and care for the terminally ill.

624 Health Economics. Semester course; 3 lecture hours. 3 credits. Develops an understanding of (1) economics as a managerial tool in making choices or decisions that will provide for an optimum allocation of limited health care resources, and (2) economics as a way of thinking about and approaching issues of public policy in financing and organizing health and medical services. Individual research on crucial or controversial issues in the health field.

626 Comparative Health Systems. Semester course; 3 lecture hours. 3 credits. Examines the structure and functions of health care systems in nations other than the United States.

631 Managed Care. Seminar Course; 3 lecture hours. 3 credits. Prerequisites: Two semesters of graduate work and permission of the instructor. A seminar that examines the relationships between purchasers and providers of health care services and the development of new systems of financing and delivery that seek to improve performance and accountability.

638 Administration of Long-Term Care Facilities and Programs. Semester course; 3 lecture hours. 3 credits. Focuses on unique knowledge and skills considered essential to effective long-term care administration. Emphasis is on the professional role of the long-term care administrator in providing for the health and social needs of the chronically ill and elderly. Applied skills in addressing the technical, human, and conceptual problems unique to LTC are addressed through cases and field exercises.

645 Structure and Functions of Health Organizations. Semester course; 3 lecture hours. 3 credits. Surveys concepts from organizational and management theories applicable to health organizations. Considers issues in organizational structure, strategy, and processes for health care organizations.
646 Health Care Managerial Roles and Processes. Semester course; 3 lecture hours. 3 credits. Prerequisite: HAD 602 or permission of instructor. Focuses on the major concepts, principles, and theories of management and behavioral sciences as they relate to human behavior in health care institutions and agencies.

647 Operations Management in Health Care Organizations. Semester course; 3 lecture hours. 3 credits. Prerequisites: HAD 603 and 646. Analysis of the current state of management study and practice with the objective of achieving a balanced development of both knowledge and skills in solving the human problems of administration in health institutions. The managerial process is critically examined with emphasis on individual behavior and development, intergroup behavior, and behavior in the total organization.

648 Strategic Management in Health Care Organizations. Semester course; 3 lecture hours. 3 credits. Prerequisites: HAD 614 and 647. Integrative seminar on strategic decision making in health care organizations. Considers the concepts and alternative models of strategic management, the strategic management process and the evaluation of strategic decisions.

650 Departmental Research Seminar. Semester course; variable credit. Research seminar that focuses on research design and methods organized under a single topic or a series of related topics in health services research. Applied research training for master's-level students.

690 Independent Study in Health Services Administration. Variable credit. Offered in all semesters for students to investigate and study topics of major interests.

693, 694, 695 Practicum in Health Services Administration I, II, III. 2-3 credits each. Prerequisite: admission to the administrative residency. Examination of contemporary problems and issues in the organization, administration, and evaluation of health services. A principal focus is the application of alternative approaches to administrative problem solving. Special emphasis is placed on understanding and analysis of the internal and external factors that influence decision making in health care organizations.

697 Directed Research. Semester course; variable credit. Special course offered on demand for one or more students who will design and implement an applied research project in the field setting under the guidance of a faculty sponsor. Focus of the course will be on the application of research methods to policy or operational problems of health care institutions.

701 Health Organization Design and Assessment. Semester course; 3 lecture hours. 3 credits. Prerequisite: HAD 602. Analysis of medical care organizations at both micro and macro levels. Critical review of empirical research in organizational analysis and design. Identifies measurement issues related to quality of care and to formulation of evaluative research on health service programs.

702 Health Care Financing and Delivery Systems. Semester course; 3 lecture hours. 3 credits. Prerequisite: HAD 701. Critical review and evaluation of major innovations in organization, delivery, and financing of health care services. Selected topics may include risk assessment analysis of alternative health care delivery systems and consideration of alternative public financing of health care.

703 Strategies for Planned Change in the Health Field. Semester course; 3 lecture hours. 3 credits. Reviews theories and concepts of change and their application to health organizations. Emphasizes internal organizational processes involved in planned change.

704 Foundations of Health Service Organization Theory. Semester course; 3 lecture hours. 3 credits. Examines the roots of foundational theories and concepts in organization theory and their application to research on health care organizations and systems. Emphasizes the environment and structure of health care organizations and systems.

705 Advanced Health Service Organization Theory. Semester course; 3 lecture hours. 3 credits. Prerequisites: HAD 645 and 704 or permission of instructor. Examines in depth selected organization theories, emphasizing their application in current health services research. Also investigates the process of growth of theory on health services organizations.

711 Long-Term Care Research. Semester course; 3 lecture hours. 3 credits. Prerequisites: HAD 609 or permission of instructor. Analysis of factors contributing to problems in the delivery of services including ambulatory care and long-term care for the chronically ill and the aged. Emphasis is placed on the application of analytic designs and evaluation research to identify alternatives for institutionalization and examine the health care outcomes.

731 Advanced Health Economic Analysis. Semester course; 3 lecture hours. 3 credits. Prerequisites: HAD 624, 609, 610, or permission of instructor. Study of analytical methods and their applications to health economic problems. Topics include cost benefit and cost effectiveness analysis, linear, integer and dynamic programming, input-output analysis, and other advanced techniques for economic analysis.

732 Econometric Modeling in the Health Care Industry. Semester course; 3 lecture hours. 3 credits. Prerequisite: HAD 731 or permission of instructor. Application of statistical modeling techniques including utility models, Bayesian analyses, multiple regression analyses, time-series and cross-sectional analyses, and forecasting models and problems of the health industry. Techniques will be applied to such areas as demand for health services, supply of medical care, allocation of health care resources, hospital economics, and equity/efficiency of health manpower.

741 Health Industry Information Systems: Design and Evaluation. Semester course; 3 lecture hours. 3 credits. Prerequisites: HAD 609 and 610. Principles and methods of health service information systems design and evaluation. Considers characteristics, requirements, and development of information networks for planning, administration, operation, and health services research. Cost/benefit evaluation of management information systems in the health care industry is stressed.

742 Simulation Modeling in the Health Field. Semester course; 3 lecture hours. 3 credits. Prerequisites: HAD 741 and
one computer course. Analysis of complex deterministic and stochastic models and their applicability to health services research. Focus is on formulation of simulation models for planning and policy analysis of macro health delivery systems.

743 Health Manpower Planning and Productivity and Analysis. Semester course; 3 lecture hours. 3 credits. Prerequisites: HAD 701, 702, and 761. Examination of various health manpower planning models and assessment of the alternative approaches for improving the productivity of medical and allied health care manpower. Emphasis is on health manpower study design, planning methods, productivity analysis and utilization of manpower, and projection of manpower needs.

760 Quantitative Analysis of Health Care Data. Semester course; 3 lecture hours. 3 credits. Prerequisites: BUS 624 and HAD 609 or permission of instructor. Research course emphasizing computer application and statistical analyses of health care data generated from secondary sources.

761 Health Services Research Methods I. Semester course; 3 lecture hours. 3 credits. Prerequisite: upper division course in statistics. Research as a systematic method for examining questions derived from related theory and/or health service practice. Major focus is on the logic of casual inference, including the formulation of testable hypotheses relating to health services organization and management, the design of methods and measures to facilitate study, and the concepts, principles, and methods of epidemiology.

762 Health Services Research Methods II. Semester course; 3 lecture hours. 3 credits. Prerequisites: HAD 609, 761, and BUS 656 or equivalent. Application of multivariate statistical analysis and evaluation research methods to health services research. Emphasis is placed on the use of advanced statistical methods and designs to analyze panel data in the health field.

763 Health Program Evaluation. Semester course; 3 lecture hours. 3 credits. Prerequisite: HAD 760, 761, or permission of instructor. Analysis of current evaluation research on personal health services and programs in a variety of social and health contexts. Emphasis is placed on the measurement of health care outcomes and the design of experimental and quasi-experimental studies in the health field.

791 Special Topics in Health Administrative Sciences. Semester course; 1-3 credits. Prerequisite: permission of instructor. Investigates a specialized content area in health administrative sciences in seminar format. Topics may change from semester to semester.

792 Independent Study in Health Services Organization and Research. Semester course; 1-3 credits. Special study or research leading to a publication. Conducted under the guidance of a faculty sponsor.

793, 794, 795, and 796 Research Practicum. Semester course; 1-3 credits. Supervised investigation of selected problems in health services research. Includes conducting and analyzing field research.

798 Thesis I. 3 credits. Provides the opportunity for the student to select, organize, and report the results of an independent investigation in a field of major interest.

799 Thesis II. 2 credits. Prerequisite: HAD 798. Continues research study begun in HAD 798.

898, 899 Doctoral Dissertation in Health Services Organization and Research. Semester course; variable credit. Prerequisite: completion of required course work and comprehensive examination. Dissertation research under direction of faculty advisor. A minimum of nine semester hours required for Ph.D. degree.

COURSES, EXECUTIVE M.S. DEGREE PROGRAM IN HEALTH ADMINISTRATION (HAE)

602 Health Systems Organization and Financing. 3 credits. Examines the structure and functioning of the U.S. health services financing/delivery system. Emphasizes foundational concepts useful for better understanding and analyzing patterns of health and illness; health care cost, quality, access, and utilization; professional behavior; competition in health care markets; and delivery/financing effectiveness and efficiency.

606 Health Care Managerial Accounting. 3 credits. Examines the functions of managerial accounting in the contemporary health service organization. Emphasis is placed on the formulation of institutional fiscal policies; managerial accounting concepts and practices; analysis and interpretation of basic financial statements; the design of financial systems; and the use of financial data as a tool for management planning and control.

607 Financial Management in Health Organizations. 3 credits. Advanced theory and techniques of managerial finance as applied to health service financing/delivery organizations. Emphasizes financial analysis/diagnosis of health service organizations and managerial decision making employing financial information.

610 Health Care Management Decision Support Systems. 3 credits. Application of operations research and industrial engineering techniques to increasing health service organization production efficiency. Managerial applications of production planning/control and decision models in health service organizations are emphasized.

611 Health Care Organization and Management Law. 3 credits. Elements of law and legal principles as they apply to the provision and financing of personal health care services. Emphasis is placed on a corporate law, contracts, medical malpractice, tort liability, medical-legal issues, and employment/labor law. Provides a legal foundation for the practice of health administration.

614 Health Care Marketing. 3 credits. Foundational theories, concepts, and techniques of marketing applied to the distinctive properties of health care services. Emphasis placed on the role of marketing and aligning organizational capacity and health care needs; market analysis and planning; strategic marketing management; tactical marketing mix design; designing and managing service delivery systems, and developing new offerings.

615 Managerial Epidemiology. 2 credits. The acquisition of analytical techniques to study and measure the health of populations is the focus of this course. Topics covered in-
include: community health appraisal, health status measurement, health services utilized, managerial applications of epidemiology.

624 Health Economics. 3 credits. Foundational concepts of microeconomic theory and their application in analyzing health care policy; understanding the structure and dynamics of health care markets; and monitoring and controlling the allocation of resources within health organizations.

645 Health Care Organization and Management Theory. 3 credits. A survey of contemporary organization and management theory focusing on concepts and techniques particularly relevant to health service financing and delivery organizations. Emphasizes the health care organization's environment, goals, strategy, structure, and management processes.

646 Health Care Management Roles and Processes. 3 credits. Major theories and concepts of social and behavioral sciences as they apply to the design and execution of managerial functions in health services organizations. Emphasizes skills and techniques critical to executing the interpersonal, informational, and decisional roles of the manager.

647 Health Care Operations Analysis and Management. 4 credits. Operations management of health organizations with emphasis on current management and information systems. Focuses on performance evaluation, productivity, patient care systems and evaluation of alternative uses of computer technology.

648 Strategic Management in Health Care Organizations. 3 credits. Focuses on the formulation, implementation, and evaluation of strategy in health care financing/delivery organizations. Emphasizes concepts dealing with industry structure; the strategic management process; achieving and sustaining competitive advantage; and the social responsibility of health care organizations.

690 Health Care Executive Collegium I - Leadership in Health Care Organizations. 2 credits. Analyzes the current management/leadership role of the health care executive. Focuses on the requisite knowledge, skills, and values essential to success. Involves students in assessing their own leadership styles and skills and discussing among each other key concepts of leadership in health care.

691 Health Care Executive Collegium II - Health Care Organization Diagnosis and Planning. 3 credits. Provides an opportunity for students to integrate as well as apply knowledge gleaned from prior course work and to share individual experiences in assessment of and correction of organizational problems that are either operational or strategic.

692 Independent Study in Health Administration. 2 credits per offering. Offered during the second and fourth semesters to students who wish to explore areas of special interest under faculty supervision.

For descriptions of courses in other schools and departments, see the current Virginia Commonwealth University Graduate Bulletin and/or Virginia Commonwealth University Undergraduate Bulletin.

Department of Clinical Laboratory Sciences
(formerly Medical Technology)

FACULTY

Karselis, Terence C. Associate Professor and Assistant Chairman M.S., State University of New York at Buffalo; instrumentation, computers.

Lindsey, Barbara J. Associate Professor and Chairman M.S., Medical College of Virginia of Virginia Commonwealth University; chemistry.

Nadder, Teresa S. Assistant Professor M.S., Medical College of Virginia of Virginia Commonwealth University; immunology, immunohematology.

Prentice, Katherine A. Assistant Professor M.A., Central Michigan University; management, clinical coordinator.

Sauer, Ronald L. Associate Professor M.A., University of California; microbiology.

Sommer, Sandra R. Associate Professor Ph.D., Medical College of Virginia of Virginia Commonwealth University; hematology, microscopy.

HISTORY

The graduate program in clinical laboratory sciences was started in 1967 to provide advanced education for certified medical technologists. Graduates have demonstrated expertise in a variety of health care settings, assuming roles as laboratory supervisors, university educators, researchers, and industrial sales representatives.

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 medical technology.

PHILOSOPHY

The department supports the philosophy and mission of the MCV Campus and the entire University. The purpose is to provide a stimulating environment for learning and to disseminate professional skills. The program is directed toward providing graduates capable of meeting the state's health needs. It is dedicated to maintaining and updating competency of health professionals as well as preparing graduates to enter the medical laboratory profession.

OBJECTIVES

The primary objective of the Department of Clinical Laboratory Sciences graduate program is to provide students with a graduate education that meets their professional goals and, at the same time, provides them with advanced knowledge in their areas of specialization. To this end, the program is highly flexible, allowing the candidates to choose those courses that meet their needs after the basic program requirements have been met.
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 a student classroom, general teaching laboratory, and a student lounge/reading room. An auxiliary instrumentation laboratory is located in McGuire Hall, approximately four blocks from the primary facility.

HONORS AND AWARDS
A. D. Williams Award. An annual award may be made, on nomination of the faculty, to a student in each class who demonstrates 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 are considered.

FINANCIAL AID—GENERAL
Limited financial aid is available for some students meeting the criteria for financial assistance. Students should refer to the general section of financial aid in this bulletin for details of the programs available.

ADMISSION REQUIREMENTS
In order to meet the needs of all individuals interested in continuing their education in the field, the Department of Clinical Laboratory Sciences has modified its graduate curriculum to accommodate a diversified group of candidates including full- and part-time students. The program is highly flexible, allowing students to select course work that meets their specific requirements once the basic program requirements have been met.

The general entrance requirements are
1. A bachelor’s degree in medical technology or related science from an accredited school.
2. Completion of the Graduate Record Examination.
3. Three letters of recommendation from employers or recent instructors.
4. Not required but recommended is at least one year of full-time clinical experience. Part-time experience will be considered.
Program participants have learned previous clinical experience is a significant benefit.

PROGRAM OPTIONS
The department offers two master’s level program in clinical laboratory sciences.

Advanced Master’s Program in Clinical Laboratory Sciences. Students holding a baccalaureate in medical technology and generalist certification by the National Certification Agency for Clinical Laboratory Personnel or the American Society for Clinical Pathologists are eligible for the Advanced Master’s Program. Candidates may specialize and complete a thesis in clinical chemistry, hematology, microbiology, immunohematology, immunology or instrumentation/computer applications. In addition to the basic science requirement, each student will choose an area of secondary emphasis in biomedical research, education or management.

Categorical Master’s Program in Clinical Laboratory Sciences. The Categorical Master’s option is designed for students with a baccalaureate degree in biology or chemistry. This program 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.

Ideally, candidates for this track should have some specialization or emphasis within their undergraduate curricula that prepares them for advanced study in one of the areas noted here. For example, a B.S. in biology and an emphasis in microbiology would prepare a candidate for the categorical master’s in clinical microbiology, while a B.S. in chemistry with an emphasis in biochemistry would prepare the candidate for the clinical chemistry category.

Application materials may be obtained from the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051.

CURRICULUM
Students are required to complete a minimum of 34 semester hours to include:
• Discipline specific science - 15 semester hours
  Seminar - 4 semester hours
  Education or Management - 3 semester hours
  Computer Application - 3 semester hours
  Scientific Inquiry - 3 semester hours
Specific courses will depend on the individual candidate’s choice of specialty. The basic science requirement may be distributed among approved courses listed in the Graduate Bulletin.
• Instead of 15 hours of discipline-specific science requirements, students with a sec-
ondary emphasis in education or management may elect to focus on education/administrative courses. No more than 14 credit hours may be taken in the area of secondary emphasis.

Categorical Master's candidates are required to complete a seven-week clinical practicum in their specialty area.

Full-time candidates require two academic years to complete the program. There are no full-time residence requirements. Part-time students must complete all work requirements within five years. An interruption in registration in excess of one semester requires prior approval of the department. Candidates seeking a categorical master's may require seven semesters (two years plus one semester) to complete the requirements.

A research study conducted under the guidance of an advisor is required of all candidates. The research will be in the form of a thesis for those candidates already holding a medical technology degree, or a project in the case of categorical M.S. candidates. Each student will submit first a proposal to the faculty, after the acceptance of which the research will be completed under the supervision of a Thesis (or Project) Committee. In the case of a thesis, the committee shall consist of the student's major advisor plus two other faculty, of whom at least one shall be from outside the Department of Medical Technology. In the case of a project, the committee shall consist of at least two faculty members, one of whom will be from within the department. Upon completion of the research, the thesis (or project) will be presented in both written and oral form to the student's committee.

GRADUATE COURSES IN CLINICAL LABORATORY SCIENCES (MET)

495 Categorical Clinical Practicum. Semester course; 280 clock hours. 7 credits. Prerequisites: One or more of the following: MET 301-302, MET 306, MET 307-308, MET 310, MET 311-312. Individual participation in area of specialty in a hospital laboratory. Students gain practical experience in the performance of procedures and use of instruments by working with the clinical staff. After gaining competence, the students are expected to properly perform and sign out routine laboratory work. Restricted to candidates in the Categorical Master's Program.

501 Instrumental Methods of Analysis I. Semester course; 2 lecture and 4 laboratory hours. 2-4 credits. Prerequisite: permission of instructor. A study of modern research and clinical laboratory instrumentation and procedures. Principles, theory, and comparison of laboratory instruments will be discussed in detail along with the factors affecting their operation. Two credit hours will be given students upon successful completion of the lecture portion of the course.

Laboratory exercises have been designed to demonstrate the practical applications of the instruments studied in the research and clinical laboratory. Two additional credit hours will be given to students who elect and satisfactorily complete this option. Areas to be covered include basic electronics, principles of photometry, spectrophotometry, fluorometry, flame emission photometry, atomic absorption spectrophotometry, and computerized instrumentation.

502 Instrumental Methods of Analysis II. Semester course; 2 lecture and 4 laboratory hours. 2-4 credits. Prerequisite: permission of instructor. A study of modern research and clinical laboratory instrumentation and procedures. Principles, theory, and comparison of laboratory instruments will be discussed in detail along with the factors affecting their operation. Two credit hours will be given students upon successful completion of the lecture portion of the course. Laboratory exercises have been designed to demonstrate the practical applications of the instruments studied in the research and clinical laboratory. Two additional credit hours will be given to students who elect and satisfactorily complete this option. Areas to be covered include electrophoresis, chromatography, particle counters, radioisotope counters, and clinical laboratory automation.

580 Principles of Education and Management. Semester course; 3 lecture hours. 3 credits. Introduces principles of educational theories and practice, management and employee relations. Emphasizes application of these in the clinical laboratory. Requires a practicum in education and in management following the completion of the didactic portion.

601 Theoretical Blood Banking. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of the instructor. A comprehensive study of the blood groups in man, including biochemistry, genetics, and clinical significance. Some topics relating to problems with antibodies to the blood groups will also be discussed.

605 Advanced Hematology. Semester course. 4 lecture hours. 4 credits. To enable the students to understand the basis for special procedures used in hematology and their application in differentiating blood dyscrasias.

610 Interpretative Clinical Hematology. Semester course; 2 lecture hours. 2 credits. Prerequisite: permission of instructor. The aim of this course is to present the principles of hematopoiesis and to study related pathological and pathophysiological correlation of hematological disorders.

690 Medical Technology Seminar. Semester course; 1 lecture hour. 1 credit. Presentation and discussion of current research and topics of interest by the departmental faculty, graduate students, and visiting lecturers.

691 Special Topics in Medical Technology. Semester course; 1-4 credits. This course provides for lectures, tutorial studies, and/or library assignments in specialized areas not available in formal courses or research training.

696 Advanced Blood Bank Practicum. 6 laboratory hours; 2 credits. Prerequisite: MET 601. A laboratory course with practical experiences in resolving complex blood group serological problems and discussion of these problems. Donor phlebotomy, processing of donor units, component preparation, and instruction of undergraduate medical technology students will also be performed.
790 Research in Medical Technology. Semester course; 1-15 credits. Research leading to the M.S. degree.

See other sections of this bulletin for descriptions of the following courses:
- Biostatistics 521
- Allied Health Professions, 573, 574, 581, 582, 583
- Pathology 509, 510, 513, 521, 522, 602, 606, 610, 614
- Anatomy 514
- Biochemistry 501, 503, 505
- Microbiology and Immunology 504, 507
- Human Genetics 504, 516
- Physiology and Biophysics 501, 502

Department of Nurse Anesthesia

FACULTY
- Drain, Cecil Professor and Chairman Ph.D., Texas A & M University; nurse anesthesia.
- Embrey, James Associate Professor Ph.D., Virginia Commonwealth University; nurse anesthesia.
- Hartland, William Assistant Professor M.S., Ph.D., Virginia Commonwealth University; nurse anesthesia.
- Hotchkiss, Melissa Assistant Professor M.S., Virginia Commonwealth University; nurse anesthesia.
- Pontiflet, Addie Assistant Professor M.S., University of Southern Maine; nurse anesthesia.
- Reese, Charles Assistant Professor Ph.D., California Pacific University; nurse anesthesia.

BASIC PROFESSIONAL PROGRAM

HISTORY
The Department of Nurse Anesthesia was organized in 1969 and moved from a certificate program to a Master of Science degree in 1979. This graduate degree in nurse anesthesia was the first offering through a School of Allied Health Professions in the United States and represented a milestone for the profession of nurse anesthesia. Equally significant has been the subsequent 1980 approval of the postgraduate Certified Registered Nurse Anesthetist (CRNA) Master of Science in Nurse Anesthesia program.

PHILOSOPHY
The Master of Science degree is basic to entry-level specialization in Nurse Anesthesia. The master's degree is fundamental to preparing diversified clinical practitioners, future educators, coordinators, and directors of nurse anesthesia educational programs. Nurse Anesthesia is viewed as an expanded role of nursing in which the Nurse Anesthetist, as a clinical specialist, provides nursing and medically prescriptive services, instruction, evaluation, direction of nurse anesthesia services, and teaching of educational processes. Professional competence is based on self-awareness, an appropriate value system, and the possession of cognitive process capabilities. Clinical teaching, acquisition of clinical skills, competence, and safe practice can be promoted best when the curriculum design supports the philosophy of practice. The ability to use and retain theoretical knowledge is facilitated through reinforcement from a variety of sources. Anesthesia services can be provided through a team concept composed of nursing and medical components.

OBJECTIVES
The overall objective of the Department of Nurse Anesthesia is to prepare registered professional nurses for practice in the specialty art and science of anesthesiology.

This rather broad objective is accomplished by:
1. Receiving an in-depth presentation of the basic sciences associated with anesthesia practice, with emphasis on understanding the practical application of concepts.
2. Focusing attention on the ultimate role of the nurse anesthetist as a member of the health team.
3. Providing integration of the clinical and didactic teaching programs so that the two are correlated closely throughout the course of study.
4. Placing emphasis on the great need for educators in the field and encouraging students with the prerequisite talents to pursue this goal.
5. Encouraging continued professional education by self-study and discipline, recognizing that these are the only keys to total professional maturity.
6. Providing students with a challenging and diverse selection of surgical and resuscitative experiences with opportunity for constant consultation and evaluation.

ACCREDITATION
The nurse anesthesia program is fully accredited by the Council on Accreditation for Nurse Anesthesia Educational Programs. Graduates are eligible to take the examination for certification conducted by the Council on Certification of Nurse Anesthetists.

ADMISSION REQUIREMENTS
In addition to the general University requirements, the requirements for admission to the Master of Science in nurse anesthesia are
1. Baccalaureate degree in nursing.
2. Current licensure as a registered professional nurse in Virginia (after acceptance).
3. Cumulative undergraduate grade point average of 3.0 on a 4.0 scale.
4. Upper division undergraduate organic chemistry course (for science majors) with a grade of "B" or better within the past 3 years.
5. Three semester hours of college statistics—preferably biostatistics.
6. Completion of the Graduate Record Examination (GRE) verbal, quantitative, and analytical; prefer a cumulative score in the 1500 range.
7. A minimum of one year’s experience in an area of acute/critical care nursing within 3 years of matriculation into this program (Step-Down Units, OR, PACU, ER do not meet this requirement).
8. Personal interview with members of the Admission Committee.
9. Three references: e.g., ICU head nurse, ICU nursing supervisor, Physician director of ICU.

Further inquiries should be made to the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051. (804) 828-6916.

CURRICULUM
First Year, Fall Semester
NUA 501 Principles and Practice of Nurse Anesthesia I ........................................ 4
PHC 531 Medicinal Chemistry for Nurse Anesthetists I ........................................ 4
PMC 515 Pharmacology for Nurse Anesthetists I ........................................ 3
PIO 501 Advanced Mammalian Physiology ........................................ 5
16

First Year, Spring Semester
PHC 532 Medicinal Chemistry for Nurse Anesthetists II ........................................ 3
PMC 516 Pharmacology for Nurse Anesthetists II ........................................ 3
NUA 533 Pathophysiology: Anesthetic Considerations ........................................ 3
NUA 590 Research Methods in Nurse Anesthesia Practice ........................................ 3
NUA 551 Principles and Practice of Nurse Anesthesia II ........................................ 3
15

First Year, Summer Semester
NUA 555 Professional Aspects of Anesthesia Practice ........................................ 3
NUA 573 Curriculum and Instruction in Nurse Anesthesia Programs ................................ 4
NUA 553 Biomedical Instrumentation for Nurse Anesthetists ........................................ 2
NUA 552 Principles and Practice of Nurse Anesthesia III ........................................ 3
12

Second Year, Fall Semester
NUA 696 Research I ........................................ 2
NUA 593 Clinical Practicum I ........................................ 6
NUA 631 Advanced Anesthesia Clinical Seminar I ........................................ 1
9

Second Year, Spring Semester
NUA 697 Research II ........................................ 2
NUA 594 Clinical Practicum II ........................................ 6
NUA 632 Advanced Anesthesia Clinical Seminar II ........................................ 1
9

Second Year, Summer Semester
NUA 698 Research III ........................................ 2
NUA 692 Clinical Practicum III ........................................ 6
NUA 633 Advanced Anesthesia Clinical Seminar III ........................................ 1
9

Third Year, Fall Semester
NUA 699 Research IV ........................................ 2
NUA 693 Clinical Practicum IV ........................................ 6
NUA 634 Advanced Anesthesia Clinical Seminar IV ........................................ 1
9

POSTGRADUATE—CERTIFIED REGISTERED NURSE ANESTHETIST (CRNA PROGRAM)
The Department of Nurse Anesthesia offers, based on advanced standing, a Master of Science in Nurse Anesthesia for the Certified Registered Nurse Anesthetist (CRNA).

PHILOSOPHY
The Master of Science degree is basic to entry-level specialization in nurse anesthesia. This practice of nursing is viewed as an expanded role in which the nurse anesthetist, as a clinical specialist, provides nursing and medically prescriptive services for the patient presenting for anesthesia. Anesthesia services can be provided best through a team concept composed of nursing and medical components.

The postgraduate CRNA Master of Science in Nurse Anesthesia curriculum is a single track design with a clinical or teaching option. This approach best reflects the achievement of the programs’ stated objectives. This curriculum parallels the basic Master of Science in Nurse Anesthesia degree which ensures an expanded theoretical knowledge base and increased clinical competence. The similarities between the postgraduate and generic CRNA programs provide uniform credibility in the degree awarded.

CURRICULUM—POST GRADUATE CRNA
Four Semesters (16 months)
Fall Semester
Credits
PHC 531 Medicinal Chemistry for Nurse Anesthetists I ........................................ 4
PMC 515 Pharmacology for Nurse Anesthetists I ........................................ 3
PIO 501 Advanced Mammalian Physiology ........................................ 5
12
Spring Semester
PHC 532 Medicinal Chemistry for Nurse Anesthetists II .......................... 3
PMC 532 Pharmacology for Nurse Anesthetists II ................................. 3
NUA 533 Pathophysiology: Anesthetic Considerations ................................ 3
NUA 590 Research Methods in Nurse Anesthesia Practice .......................... 3

Summer Semester
NUA 553 Biomedical Instrumentation for Nurse Anesthetists ...................... 2
NUA 573 Curriculum and Instruction in Nurse Anesthesia Programs ............... 4
NUA 697 Research I ...................................................................................... 2
AHP 591 Special Topics .................................................................................. 2

Fall Semester
NUA 698 Research II .................................................................................... 2
NUA 574 Teaching in Nurse Anesthesia Programs ........................................ 2
NUA 693 Clinical Practicum IV ...................................................................... 6

Admission Requirements
Requirements for admission to the Master of Science in Nurse Anesthesia for the Postgraduate Certified Registered Nurse Anesthetist (CRNA) are:

1. A baccalaureate degree in nursing.
2. Graduation from a nationally accredited educational program in nurse anesthesia.
3. Certification by a national examination as CRNA.
5. Current licensure as a registered professional nurse in Virginia.
6. Preferably a 3.0 grade point average, although other factors could be considered if this has not been achieved.
7. Completion of the Graduate Record Examination (GRE) Aptitude Test.
8. A college statistic course (four quarter hours or three semester hours), preferably biostatistics.
9. Prerequisite: four quarter hours or three semester hours in organic chemistry.
10. A minimum of one year’s experience as a CRNA.
11. References from current supervising nurse anesthetist (CRNA), chairman/chief anesthesiologist, and one other.
12. Personal interview with members of the Admissions Committee.
13. Proficiency Examination (Advanced Standing).

ADVANCED STANDING
Advanced standing is based on the following criteria:
1. Graduation from a nationally accredited educational program in nurse anesthesia.
2. Certification by national examination as a Certified Registered Nurse Anesthetist CRNA.
3. Current recertification as a CRNA by the National Council on Recertification for certified registered nurse anesthetists.
4. Proficiency examination. Part A—Written: 100 multiple choice objective questions; Part B—Oral: two anesthesiologists and two CRNA graduate faculty.

Advanced standing of one-third (31 SH) of the generic Master of Science degree in nurse anesthesia curriculum (79 SH) will be awarded for the following courses (nontransferable to the VCU transcript):

NUA 501 Principles and Practice of Nurse Anesthesia I ................................ 4
NUA 551 Principles and Practice of Nurse Anesthesia II ............................. 3
NUA 552 Principles and Practice of Nurse Anesthesia III ........................... 3
NUA 555 Professional Aspects of Anesthesia Practice ................................. 3
NUA 593 Clinical Practicum I .................................................................... 6
NUA 594 Clinical Practicum II ................................................................... 6
NUA 692 Clinical Practicum III .................................................................. 6

31

GRADUATE COURSES IN NURSE ANESTHESIA (NUA)

501 Principles and Practice of Nurse Anesthesia I. Semester course; 4 lecture hours. 4 credits. Introduces the beginning nurse anesthesia practitioner to those concepts necessary to plan and execute safe individualized anesthetic. Covers pre- and post-patient evaluation, formulation of the anesthesia care plan, anesthetic techniques, prevention of complications, fluid management, anesthesia procedures, monitoring, and application/maintenance of equipment.

533 Pathophysiology. Semester course; 3 lecture hours. 3 credits. Pathophysiology of the neuromuscular, cardiovascular, respiratory, excretory, and endocrine systems; infectious diseases, gastrointestinal disorders; nutritional disorders; connective tissue diseases; muscle, skin, bone disorders, and environmental and behavioral disorders. The pathophysiology will be studied in relationship to anesthetic considerations.

551 Principles and Practice of Nurse Anesthesia II. Semester course; 3 lecture hours. 3 credits. A study of the theoretical and practical considerations involved in the administration and management of regional anesthesia.

552 Principles and Practice of Nurse Anesthesia III. Semester course; 3 lecture hours. 3 credits. Delineates those practices and techniques of anesthesia management that are considered as
situation-specific for specialized procedures, diagnostic, or therapeutic procedures.

553 Biomedical Instrumentation for Nurse Anesthetists. Semester course; 2 lecture hours. 2 credits. A course surveying the basic essentials of biomedical instrumentation as utilized in those electronic devices most often encountered by nurse anesthetists; to include a brief descriptive review of the basic laws of electrical circuits and the physical principles of biophysical measurement.

555 Professional Aspects of Anesthesia Practice. Semester course; 3 lecture hours. 3 credits. Provides the student an opportunity to focus on a variety of nurse anesthesia practice settings. Studies the history of anesthesia, nurse anesthesia practice and the relationship of that practice in the development and growth of the American Association of Nurse Anesthetists.

573 Curriculum Development and Instruction in Nurse Anesthesia Programs. Semester course; 4 lecture hours. 4 credits. Covers curriculum development and instructional design, principles of teacher-learner communication and evaluation of learner growth and development pertinent to nurse anesthesia education. Explores relevant learning theories and implications for nurse anesthesia education.

574 Teaching in Nurse Anesthesia Programs. Semester course; 2 lecture hours. 2 credits. Prerequisite: NUA 573. Integrates theory with practical application. Requires that students select a clinical anesthesia topic, prepare a comprehensive manuscript and present a detailed lecture with appropriate behavioral objectives supported with audiovisual techniques focused for a specific audience.

590 Research Methods in Nurse Anesthesia Practice. Semester course. 3 credits. Required of all nurse anesthesia students. Understands and applies the steps involved in the research process. Emphasizes concepts, procedures, and processes appropriate for use in research. Develops a research proposal by exploring a topic in the area of anesthesiology. Applies Inferential and Advanced Statistical tests to hypothetical data. Critically analyzes and evaluates anesthesia research studies.

593 Clinical Practicum I. 562 clock hours. 5 credits. Introduces clinical care with supervised participation in actual administration of anesthesia. Demonstrates internalization of theoretical concepts and techniques and application in anesthetic management. Emphasizes assuming greater responsibility for total anesthetic regime.

594 Clinical Practicum II. 675 clock hours. 6 credits. Provides intensive clinical experience in all clinical anesthesia areas. Emphasizes development of independent decision making. Includes clinical rotations to various affiliate sites to gain experience in management of specialized anesthetic consideration, and functioning in a variety of clinical settings.

631-634 Advanced Clinical Anesthesia Seminar I, II, III, and IV. 4 semesters; 8 semester hours. 4 credits. Intensively covers the advanced concepts and principles of anesthetic management. Includes individual and group presentations on specific assigned anesthesia topics from the current anesthesia literature.

692 Clinical Practicum III. 675 clock hours. 6 credits. Continuation of NUA 594. Continues intensive clinical experience in each of the clinical anesthesia areas along with rotations to various specialized affiliate sites. Allows students to function with increased autonomy. Includes independent research and collection of clinical data to support anesthesia projects.

693 Clinical Practicum IV. 675 clock hours. 6 credits. Continuation of NUA 692. Intensively applies all previous clinical experiences to demonstrate development of independent thought and judgement and ability to function with minimum supervision. Reviews all clinical experiences in preparation for writing the certification examination conducted by the Council on Certification. Concludes all clinical requirements.

696-699 Research I, I, III, and IV. 4 semesters. 8 credits. Required of all students. Thesis and Non-thesis options available. The thesis option provides the student an opportunity to select, organize, and report the results of an investigation into a specific area of anesthesiology. Non-thesis option affords the student an opportunity to gain experiences through guided library and practicum research.

Department of Occupational Therapy

FACULTY

Broiller, Chésthine l. Associate Professor Ph.D., Virginia Commonwealth University; health care planning, management, mental health practice.

Cash, Sandra H. Assistant Professor M.S., Virginia Commonwealth University; physical disabilities, orthotics, clinical learning.

Madigan, M. Jeanne Professor and Chairman Ed.D., Loyola University; pediatric occupational therapy, student characteristics, curriculum development.

Mauer, Patti A. Professor Ph.D., Purdue University; instrument development, instructional methods.

Maynard, Marianne Professor Ph.D., University of Wisconsin-Madison; work-leisure lifestyle, gerontic occupational therapy, health promotion, and disease prevention.

Nelson, Craig E. Associate Professor M.S., Syracuse University; physical disabilities occupational therapy, adaptive equipment, and environments for the disabled.

Shepherd, Jayne T. Assistant Professor M.S., Virginia Commonwealth University; developmental disabilities, physical disabilities, environmental adaptations.

Watts, Janet H. Associate Professor M.S., Virginia Commonwealth University; psychiatric occupational therapy.

Wolfe, Eleanor V. Associate Professor Emerita M.S., Texas Women's University; pediatrics, physical dysfunction.

HISTORY

The program in occupational therapy was initiated at Richmond Professional Institute in 1942. In 1965 the graduate program leading to a Master of Science degree in basic professional education in occupational therapy was initiated. The School of Occupational Therapy became a department in the School of Allied Health Professions in 1970.

PHILOSOPHY

"Occupational therapy provides service to those individuals whose abilities to cope with tasks of
living are threatened or impaired by development deficits—the aging process, poverty, and cultural differences, physical injury or illness, or psychologic and social disability.

Humans, as complex biopsychosocial beings who possess an internal need to explore and master their surroundings, exist in an environment that requires them to maintain themselves and contribute to society and culture. These activities and tasks associated with people’s roles and societal experiences comprise occupational performance.

When physical or mental illness, developmental deficits, or societal conditions alter individuals’ abilities to adapt to and to control their environment, occupational therapists evaluate and intervene, using purposeful activity. Thus, occupational therapy serves as both a goal and a means of therapy which is carried out within the context of the larger physical, social, and cultural environment.

Preparation of students to assume their future roles in assisting their patients to develop, restore, or maintain occupational functioning must include understanding of theory and concepts underlying human behavior and development, mastery of technical skills, and knowledge of the larger health care system. They also must be prepared to plan and manage their services, validate their practice, and educate others. This is accomplished by using a wide variety of teaching modalities and learning experiences, critical examination of accepted practices, and active involvement in their own learning.

GOALS
The goals of the Department of Occupational Therapy, in consonance with the mission of the University and the School of Allied Health Professions, are to

1. provide an atmosphere which fosters the development of student attitudes of commitment to personal and professional competence; which stresses student acquisition of professional skills along with the desire and means for lifelong learning; and in which faculty both guide and model these processes.
2. recognize humanities as an important base for professional practice and utilize a liberal approach to education for the profession.
3. provide an environment in which faculty strive for excellence in teaching and in which diversity is valued in both education and professional theory and practice.
4. foster research and scholarship of faculty in order to develop occupational therapy theory and improve professional practice; provide educational experiences which enable students to be intelligent research consumers and use methods of scientific inquiry in evaluating their practice.
5. provide expertise to identify professional needs and assist in their resolution.
6. participate in occupational therapy and other relevant community services to meet educational needs of others and to maintain faculty professional competence.
7. provide educational opportunities for therapists in the community.

These goals contribute to the primary purpose of the department, the education of well-qualified entry-level occupational therapists, and professional leaders for the state and nation.

ACCREDITATION
The professional master’s degree program to become an occupational therapist is accredited by the American Occupational Therapy Association and the Committee on Allied Health Education and Accreditation of the American Medical Association.

FACILITIES
The educational facilities of the Department of Occupational Therapy are located in the Virginia Mechanics Institute Building at the northeast corner of Tenth and Marshall Streets.

During the professional master’s degree program, fieldwork assignments are made for students in a wide range of clinics and agencies in the Richmond metropolitan area. A 24-week extended fieldwork requirement will be arranged in approved clinical education facilities throughout the United States.

HONORS AND AWARDS
A.D. Williams Award. An annual award presented to the student who has achieved the highest academic average in each year in the professional master’s degree program.

PROGRAMS
Two courses of study are offered:
1. A Master of Science in occupational therapy, a professional degree program designed for college graduates who wish to become occupational therapists. This program may be completed in two calendar years or may be designed individually for students who need
A slower pace. The professional master's degree program includes academic courses, a research project, and a minimum of 24 weeks of full-time fieldwork.

2. A Master of Science degree program for those who are registered occupational therapists. This postprofessional master's degree program is designed individually in special areas of concentration. A minimum of 33 semester hours including a thesis is required.

ACADEMIC REGULATIONS

Students are admitted to the occupational therapy programs with the expectation that they will direct maximum time and effort to the learning process. Outside activities must be scheduled by students for such dates and hours that permit full compliance with the time requirements for course work. Students must not expect that allowances will be made, except in very unusual situations, for tardiness, lack of regular attendance, and meeting deadlines for course assignments because of employment or other outside activities.

To continue in the graduate curriculum, students are expected to maintain a cumulative GPA of 3.0 based on course work following matriculation.

1. Graduate students who fail to maintain a 3.0 cumulative GPA OR receive a grade of "D" (regardless of the cumulative GPA) will be placed automatically on probation and will be notified of probationary status.

2. Conditions of Probation: students must earn a quality point average the semester of probation sufficient to result in a cumulative GPA of 3.0 in order to be removed from probationary status.

Students who are on probation due to receiving a "D" grade must retake that course, achieving a grade of "C" or better while also meeting all other academic standards.

Conditions of probation also may include recommendations for academic counseling, assignments by individual instructors, and other requirements identified by the Committee on Academic Standing and Student Progress. Conditions of probation will be detailed in a letter of notification of probation prepared by this committee.

Only one semester of academic probation is permitted in the program. If probationary students fail to meet academic standards (GPA of 3.0) a second semester or do not complete successfully deficient courses, they will be considered for dismissal.

As courses usually are offered once a year only and because early courses serve as prerequisites for later courses, these students will have to continue under an adjusted curriculum plan. This will result in extending the student's time in the program.

3. Students who receive an "F" grade in any required course will be considered for dismissal by the committee.

4. University standards require that a graduate student must not have more than six semester hours or 20 percent of semester hours attempted—whichever is greater—with a grade of "C." Students who receive a grade of "C" on more than the allowable number of semester hours will be reviewed for possible academic termination by the Committee on Academic Standing and Student Progress. Students who are not terminated for this criterion will be placed on automatic probation.

5. If a student withdraws or is terminated by the clinical faculty before the completion of the fieldwork level II course because of poor performance or because of unsafe practices with patients, the student will receive an "F" grade for the course.

If the student withdraws, is terminated, or fails a fieldwork experience, the course may be repeated only upon approval by the committee in consultation with the department chairman and the fieldwork coordinator. Students may be dismissed from the program or be allowed to continue contingent upon fulfilling remedial activities based on a plan prepared by the fieldwork coordinator and ratified by the committee. No more than one additional fieldwork experience will be rescheduled. Opportunity to re-register and repeat the fieldwork course is contingent upon the fieldwork coordinator's ability to locate another facility willing to offer a fieldwork experience to the student and the affirmative support of the committee.

6. To continue in good standing, students are also expected to
a. pay all fees;
b. maintain ethical behavior consistent with professional practice as defined in the Occupational Therapy Department Student Handbook.
c. complete fieldwork requirements to the satisfaction of clinical and academic faculty.

7. Although arrangements are made in advance, each student is reviewed prior to
placement in the fieldwork II education. Students must have completed satisfactorily courses prerequisite to that fieldwork experience and be recommended by the faculty. They must demonstrate professional behavior as specified in the ethical behaviors listed in the Occupational Therapy Department Student Handbook. Medical problems or emotional instability may delay or prevent fieldwork placement.

GRADUATE PROGRAM
PROFESSIONAL MASTER'S DEGREE PROGRAM

The Department of Occupational Therapy offers a program leading to a Master of Science in occupational therapy degree for qualified students who have earned a bachelor’s degree in a related field.

ADMISSION REQUIREMENTS

Applicants for the professional master’s degree program must complete the following prerequisites with a grade of “C” or better:

- **English** ........................................ 6 semester hours
- **Biological Sciences** ................................ 6 semester hours
- **Human Anatomy with laboratory** — 1 course and
  **Human Physiology with laboratory** — 1 course
- **Psychology** ................................................. 6 semester hours
- **Sociology, Social Psychology, Anthropology** ................................................. 3 semester hours
- **Other Psychology, Sociology, or equivalent course** ................................................. 6 semester hours
- **Statistics** .................................................. 2 semester hours

These are considered minimal prerequisites, and applicants are encouraged to pursue additional study in liberal arts and science courses that develop intellectual competence, enrich interest areas, and promote an awareness of a breadth of social and cultural values. To fulfill the psychology prerequisite, courses in developmental psychology, theories of personality, and abnormal psychology are recommended highly. Experience in occupational therapy or human service agencies is required. Criteria for admission include grade-point average, scores on the Graduate Record Examination Aptitude Test, and professional criteria, including experience, references, professional attributes, and statement of professional goals. Admission is selective, as the number of applicants exceeds the number of students who can be enrolled.

Graduates of occupational therapy programs are required to take national/state certification or licensure examinations. Requirements of licensing and certifying agencies vary. Some licensure or 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 occupational therapy.

For further information and application materials, contact School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051. (804) 828-6916

Curriculum Plan

The total program is planned for completion in two calendar years of full-time study and encompasses academic and fieldwork education as well as a research project.

First Year, Summer

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>OCT 501 Basic Treatment Concepts and Skills</td>
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<tr>
<td>OCT 508 Activity Theory and Skills I</td>
<td>3</td>
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<tr>
<td>OCT 503 Occupational Therapy Intervention I</td>
<td>5</td>
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<tr>
<td>OCT 504 Occupational Life Roles and Tasks II</td>
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<tr>
<td>OCT 602 Research Methods in Occupational Therapy</td>
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<td>OCT 603 Administration and Supervision of Occupational Therapy Services</td>
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First Year, Fall Semester

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<td>ANA 429 Neuroanatomy and Neuropsychology</td>
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<td>OCT 508 Psychosocial Dysfunction and</td>
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<tr>
<td>Occupational Therapy Intervention II</td>
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First Year, Spring Semester

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<td>OCT 506 Physical Dysfunction and Occupational Therapy Intervention II</td>
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<td>OCT 510 Activity Theory and Skills II</td>
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<td>OCT 605 Influences on Health and Health Care</td>
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Second Year, Summer

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<td>OCT 693 Fieldwork - Psychosocial Dysfunction</td>
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Second Year, Fall Semester

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<th>Course</th>
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<td>OCT 503 Occupational Life Roles and Tasks I</td>
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<td>OCT 505 Physical Dysfunction and Occupational Therapy Intervention I</td>
<td>5</td>
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<td>OCT 507 Psychosocial Dysfunction and</td>
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<tr>
<td>Occupational Therapy Intervention I</td>
<td></td>
</tr>
<tr>
<td>OCT 698 Research in Occupational Therapy</td>
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<tr>
<td>STA 591 Statistical Analysis in Occupational Therapy</td>
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Upon successful completion of the program, students are eligible to take the national certifica-
tion examination. Certification is required by most employers as proof of professional competence.

GRADUATE PROGRAM FOR OCCUPATIONAL THERAPISTS

The Department of Occupational Therapy offers a Master of Science degree program for registered occupational therapists.

Admission Requirements

Applicants must have earned a bachelor's degree from an accredited college or university and have graduated from an accredited occupational therapy program approved by the American Occupational Therapy Association. An official report of scores on the aptitude test of the Graduate Record Examination is required.

For information and application materials, contact the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051. (804) 828-6916.

Curriculum

The Master of Science postprofessional degree includes a minimum of 27 credits of approved course work and six credits for the thesis. Students may plan for full-time study or may plan to enroll on a part-time basis. Full-time students must plan at least 12 months to complete all degree requirements.

Each occupational therapist accepted for the master's degree program will develop an individualized plan of study with the help of a faculty advisor. This study plan must be approved by the Committee of Academic Standing and Student Progress of the Department of Occupational Therapy.

PROGRAM OF STUDY

Students select an area of concentration and related electives from one or more of the following:

- administration
- education
- gerontology
- pediatrics
- physical disabilities
- psychosocial dysfunction

Courses are chosen by the student with an advisor. Nine credits must be taken in at least one area of concentration. The remaining courses may reflect either single or varied interests and goals. These credits may be taken inside and outside the department.

In preparation for thesis research, students must take Research Methods in Occupational Therapy (three credits). A statistics course is required also. A previous undergraduate course may meet this requirement, or students may take a graduate statistics course as part of degree requirements. A thesis (six credits) is completed under the guidance of a committee. The thesis provides an opportunity to examine a problem of special interest.

Of the total course and thesis credits, a minimum of 18 credits is to be selected from course offerings in the Department of Occupational Therapy.

GRADUATE COURSES IN OCCUPATIONAL THERAPY (OCT)

501 Basic Treatment Concepts and Skills. Semester course; 1 lecture and 2-4 laboratory hours. 2 credits. Introduces important occupational therapy concepts: the influence of activity on health, the basic occupational therapy process, evaluation, motivation, and learning. Develops skill in observation and interviewing as data gathering methods.

503 Occupational Life Roles and Tasks I. Semester course; 1 lecture and 3 laboratory hours. 2 credits. Covers the principles and theories of growth and development of occupational performance from infancy through adolescence. Emphasizes sequential developmental knowledge and assessment of sensori-motor, cognitive, and psychosocial skills. Discusses the performance of self-care, play/leisure, and school/work tasks, and roles which are influenced by sociocultural and caretaking expectations.

504 Occupational Life Roles and Tasks II. Semester course; 2 laboratory hours. 1 credit. This course will examine the development of occupational behavior in the adult portion of the life span. It draws upon concepts of time, role, habits, interest, and values to examine how the normal adult proceeds through occupational choice, worker roles, and retirement. The course also examines the balance of work and play and its change in normal development. Finally the course will examine the effects and interrelationships of disability with normal occupational development in adulthood.

505 Physical Dysfunction and Occupational Therapy Intervention I. Semester course; 3 lecture and 6 laboratory hours. 5 credits. Focuses on physical and occupational performance problems which occur within the age range of infancy through adolescence. Explores a variety of frames of reference and evaluative and intervention approaches for children and their families in medical, education, home, and community settings. Uses a holistic approach which considers the child's development of sensor-motor, cognitive, and psychosocial skills and the expectations of his/her family and sociocultural environment. Includes level-one fieldwork.

506 Physical Dysfunction and Occupational Therapy Intervention II. Semester course; 3 lecture and 6 laboratory hours. 5 credits. Beginning with the early adults years and continuing through the rest of the life span, the emphasis of this course will be twofold: (1) to identify and describe physically disabling conditions (acute and chronic) which interrupt occupational development and function during this age range; (2) to apply the theories and principles of occupational therapy to the evaluation and treatment of physically
disability (acute and chronic) during this age range. Assigned level-one fieldwork will be a part of this course.

507 Psychosocial Dysfunction and Occupational Therapy Intervention I. Semester course; 3 lecture and 6 laboratory hours. 5 credits. This course will focus on psychosocial pathologies which occur within the infancy through adolescence age span (including specific learning disabilities, mental retardation, and other diagnostic classifications). Theories and principles of occupational therapy intervention, useful in medical, educational, and community settings will be explored. Assigned level-one fieldwork will be part of the course.

508 Psychological Dysfunction and Occupational Therapy Intervention II. Semester course; 3 lecture and 6 laboratory hours. 5 credits. This course will introduce common psychiatric disorders of young, middle, and older adults followed by review of theoretical frames of reference and related occupational therapy evaluation and intervention methods. Assigned level-one fieldwork will be included.

509-510 Activity Theory and Skills I and II. Semester course; 1 lecture and 2 laboratory hours. 2 credits. Analysis of student's activity skills in areas of play/leisure, self-care, and its disruption in illness.

601 Advanced Theoretical Concepts in Occupational Therapy. Semester course; 3 lecture hours. 3 credits. Prerequisites: OCT 312, OCT 501, or student must be a registered occupational therapist. This course offers an advanced conceptualization of a generic theory base for occupational therapy. The course includes examination of the nature and organization of scientific knowledge, the medical model and other models of health care, sociological features of occupational therapy practice, and the study of human occupation and its disruption in illness.

602 Research Methods in Occupational Therapy II. Semester course; 3 lecture hours. 3 credits. Covers the steps in the research process: problem definition, literature review, research design and data collection appropriate to occupational therapy, data analysis and interpretation, and research reporting. Includes projects applying these processes to occupational therapy research problems.

603 Administration and Supervision of Occupational Therapy Services. Semester course; 2 lecture and 2 laboratory hours. 3 credits. The management of human and nonhuman resources in the provision of efficient and effective occupational therapy services; the nature of formal and informal organizations, the administrative process, and administrative tasks. Includes supervision, consultation, and the planning of occupational therapy fieldwork education.

604 Theoretical and Therapeutic Application of Play in Occupational Therapy. Semester course; 3 lecture hours. 3 credits. This course begins with a broad coverage of theory related to the motivation for play, the form and content of play, its developmental nature, and its relationship to health and adaptation. Following this theoretical introduction, the course focuses on practical application of play in occupational therapy (i.e., evaluating play behavior and remediating play dysfunction).

605 Influences on Health and Health Care. Semester course; 3 lecture hours. 3 credits. The nature of health, illness, and disability; the sick role; relationship between occupational therapy and the health care system; current professional issues in occupational therapy.

612 Occupational Therapy Assessment. Semester course; 1-3 credits. Introduction to the theory of measurement. Selection, administration, and reporting of formal and informal assessments useful in occupational therapy. Processes of standardizing occupational therapy assessments.

654 Occupational Therapy and Upper Extremity Dysfunction. Fall Semester, 3 credits. Prerequisites: Hand Management or Post-Professional Master's Degree Matriculant or permission of instructor. Examines the occupational therapist's role in serving those with upper extremity dysfunction in the areas of work, leisure, and activities of daily living.

690 Occupational Therapy Seminar. Variable credits 1-3, may be requested for a maximum of 4 credits. Investigation, presentation, and discussion of current problems and issues in the field of occupational therapy.

691 Special Topics in Occupational Therapy. Semester course; 1-3 credits. Designed around the interests of students, faculty expertise, and availability and expertise of Richmond area occupational therapists or visiting lecturers. Format may include intensive minicourses or workshops, an advanced course with some opportunity for election and development of knowledge and skills in a specialized area of occupational therapy.

693 Fieldwork—Psychosocial Dysfunction. 1-9 credits.

694 Fieldwork—Physical Dysfunction. 1-9 credits.

695 Fieldwork—Specialty (Optional). 1-9 credits. Twelve week full-time experience in programs providing occupational therapy services. Minimum total required for all field work courses, 18 semester hours. Determination of the amount of credit and permission of the instructor and department chairman must be secured prior to registration for the course. Supervised fieldwork experiences are arranged in various settings for the application of academically acquired knowledge. Placements include experiences in prevention, health maintenance, remediation, daily life tasks, and vocational adjustment. Fieldwork settings may include hospitals, rehabilitation centers, school systems, community agencies, camping programs, penal systems, and the like. Fieldwork experiences are arranged individually, but placement in a specified location cannot be guaranteed.

In the event of failure, the course may be repeated only upon recommendation by the academic and clinical faculty. Fieldwork must be completed no later than 24 months following completion of the academic phase.

697 Independent Study. 1-3 credits. The student will submit a proposal for investigating some area or problem in occupational therapy not ordinarily included in the regular curriculum. The student's desired study must be described in a contact written by the student and approved by the faculty member. The results of the study will be presented in written or oral report.

698 Research in Occupational Therapy. 3 credits. Completion of a departmental proposal for a research project relevant to occupational therapy.
699 Research in Occupational Therapy. 3 credits. Completion of research project relevant to occupational therapy.

793 Clinical Specialty Practicum. 2-4 credits. 3-9 hours of concentrated clinical experience in the student’s chosen area of specialization under the supervision of an experienced clinician (minimum three hours per week for each credit), and one credit hour for guided library research related to topic of practice with preparation of a paper examining the theoretical and empirical basis of practice in specialty area. A contract is prepared by the student and approved by a faculty advisor and clinical supervisor.

798 Thesis. 3-6 credits. Completion of a departmental proposal for a master’s degree thesis relevant to occupational therapy.

799 Thesis. 3-6 credits. Completion of a master’s degree thesis relevant to occupational therapy.

Graduate Certificate Program in Patient Counseling

FACULTY
Cain, Marlyne G. Assistant Professor Th.M., Princeton Theological Seminary.
Mauney, Jacob L., Jr. Associate Professor and Chairman D.Min., Lutheran Theological Southern Seminary.
Williams, Cecelia M. Assistant Professor M.Div., New Orleans Baptist Theological Seminary.
Young, Robert A., Jr. Associate Professor D.Min., Union Theological Seminary.

HISTORY
Patient Counseling is the practice of communicating emphatic concern, support, and sensitive counsel to the physically or emotionally troubled person and assistance through the traumas of life. There is a long history of a concerted effort toward this end at the MCV Hospitals of VCU. With the appointment of Dr. George D. Ossman as chaplain in 1943, the administration gave clear evidence of its awareness of the need for a specialized caring ministry to hospitalized patients and their families.

The chaplaincy program was significantly expanded in 1958 and was accredited to begin the education and clinical training of persons in patient counseling of troubled persons. Since then a continuous program has been in existence and has evolved into the present program in patient counseling. Patient Counseling, as it exists today, became an integrated program in the School of Allied Health Professions in 1970.

PHILOSOPHY
With the rapid growth of health care and the increasingly complex problems of medical ethics and viable delivery systems, it is very important to educate qualified persons to deal with the human dimensions of illness and the personal and family stress related to it. Through this program, VCU has an opportunity to make a needed impact upon health education in terms of emphasizing the human spiritual dimension of needs related to crises of living. By so doing, this University has a significant role to play in the important task of keeping health care holistic and utilizing technical and scientific methodology in the context of a deep respect for the total life of persons.

OBJECTIVES
The Program of Patient Counseling is designed to assist an individual to work in the health field as one skilled in dealing with the whole person in the context of life’s crises and in a cooperative interprofessional team approach. 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.

FUTURE PLANS
A master’s degree in patient counseling, emphasizing the practical and clinical competence of such counseling, is in the planning stages.

FACILITIES
Newton House is the base for the educational program, and limited space is available in clinical areas to work with persons and families in crisis. The Main Hospital, mezzanine level, contains the chapel, family consultation room and administrative offices.

ACCREDITATION
The program is accredited by the Association for Clinical Pastoral Education, Incorporated, through the Virginia Cluster for Pastoral Education. Advanced residents, upon vote of the faculty, may present themselves to the Association for Clinical Pastoral Education (Standards 1987) for certification as supervisor.

CODE OF ETHICS
The professional behavior of the student is expected to be in accordance with the Code of Professional Ethics, as adopted by the Association for Clinical Pastoral Education (Standards, 1993) and the Code of Ethics of The College of Chaplains, 1990. This code may be found in the offices of the faculty.

PROGRAMS
Students and residents serve in the dual capacity of providing service while learning. Night duty and
weekend duty in rotation are required of all students in the program. Each student receives individual supervision by a member of the faculty. Several courses are offered for persons at different levels of experience and training:

1. Part-time programs are available for local persons who wish to commute. This requires two days per week for 16 weeks (some overnights may be required). These programs are offered twice per semester year, in the fall and spring semesters.

2. A course for 11 weeks in the summer session is full-time and is available to post-graduate students (some overnights required).

3. A Residency I-level year is available to five mature, experienced persons who have completed the semester and/or summer program.

4. A Residency II-level year is available to two selected persons in advanced training who have completed the Residency I program. Residents receive stipends for services rendered. Information about stipends may be secured by contacting the admissions chairman.

### Admission Requirements

1. Fall and spring semester programs: B.A. or its equivalent, or a B.D., M.Div., M.A., Ph.D., or equivalent; professional standing in the community; personal interview with a member of the supervisory staff.

2. Summer session (11 weeks): B.A. or its equivalent; enrollment in an accredited graduate school or its equivalent, or demonstration of professional competence; personal interview with representative of the program.

3. Residency I: M.Div., M.A., Ph.D., or equivalent; recognition in the professional community; demonstration of personal maturity; personal interview with supervisory staff.

4. Residency II: M.Div., M.A., Ph.D., or equivalent, professional standing in the community; two to five years' experience in chosen profession. An expressed interest in pursuing the supervisory training process. Demonstration of personal psychotherapeutic or counseling experience. Intern year in an accredited center. Personal interview with supervisory staff.

5. Residency III: All of Residency II requirements, plus at least one year of training in the MCV/VCU Patient Counseling Program.

### CURRICULUM

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<thead>
<tr>
<th>Course</th>
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<tr>
<td><strong>Residency I</strong></td>
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<td>PAC 551-552</td>
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<td>Selected Issues in Health Care I and II</td>
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<td>PAC 553-554</td>
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<td>PAC 555-556</td>
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<td>PAC 593-594</td>
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<td>Supervised Clinical Practicum I and II</td>
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<td>Group Process I and II</td>
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<td>Clinical Research</td>
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<td>PAC 592</td>
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<td>Independent Study</td>
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| **Residency II**   |         |
| PAC 551-552        | 1       |
| Selected Issues in Health Care I and II | 1       |
| PAC 607-608        | 2       |
| Advanced Group Process: I and II | 2       |
| PAC 611-612        | 4       |
| Clinical Pastoral Supervision: I and II | 4       |
| PAC 697            | 3       |
| Clinical Practicum in Research | 3       |
| PAC 691            | 5       |
| Pastoral Counseling Practicum | 5       |
| PAC 693            | 2       |
| Group Process Practicum | 2       |
| PAC 592            | 2       |
| Independent Study | 2       |

| **Elective**       |         |
| PAC 603-604        | 5       |
| Patient Counseling Evaluation I and II | 5       |
| PAC 605-606        | 12      |
| Pastoral Counseling Theory and Practice: I and II | 12      |

| **Residency III**  |         |
| PAC 551-552        | 1       |
| Selected Issues in Health Care I and II | 1       |
| PAC 607-608        | 1       |
| Advanced Group Process | 1       |
| PAC 694-695        | 7       |
| Advanced Clinical Pastoral Supervision I and II | 7       |
| PAC 685-686        | 3       |
| Supervised Pastoral Counseling Practicum I and II | 3       |
| PAC 696            | 9       |
| Supervision Practicum | 9       |
| PAC 592            | 3       |
| Independent Study | 3       |

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Summer Intern Basic Program

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<td>PAC 591 Selected Topics in Health Care</td>
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<tr>
<td>PAC 515 Basic Clinical Patient Counseling</td>
<td>7</td>
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<tr>
<td>PAC 520 Use of Religious Resources in Patient Care</td>
<td>2</td>
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<tr>
<td>PAC 530 Introduction to Group Process</td>
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Total Credits: 12

COURSES IN PATIENT COUNSELING (PAC)

The Program of Patient Counseling has an integrated curriculum in which the summer basic intern and residency-level students experience their core courses as groups. Exceptions to this rule are by faculty invitation only. Admission to any of the courses below is upon approval of the instructor. Students may be able to demonstrate competence in patient counseling.

510 Introduction to Patient Counseling. Semester course; Variable credits. 2-5 hours. Provides an opportunity to practice and develop relational skills with patients and their families as they adjust to the hospital situation, and to present this work for supervision and peer feedback in seminars and individual supervision. Offered fall and spring semesters. Special sections are offered to specialized professional groups.

511 The Professional As Helper. Semester course; 2 lecture hours, 2 credits. Utilizes the student’s professional identity as a helping person to identify areas of growth and to develop a model for learning in these areas. Explores current literature in the field and application to the learning areas. Offered fall and spring semesters.

515 Basic Clinical Patient Counseling. 7 credits. Assigns the student to selected areas of the hospital to practice and develop relational skills with patients and their families as they adjust to the hospital situation; presents this work for peer and individual supervision.

520 Use of Religious Resources in Patient Care. Semester course; 2 credits. Covers religious rituals, methodology of usage, and philosophical and theological issues. Focuses on clinical material presented by students.

521 Caregivers of the Dying and the Survivors. Semester course; 3 lecture hours. 3 credits. Provides exposure to the phenomenon of death through literature, lectures, films and discussions in the context of small group experience.

530 Introduction to Group Process. Semester course; 2 credits. Explores in a small group techniques, procedures and relational skills common to group behavior.

540 Foundation of the Person. Semester course; 2 lecture hours. 1 credit. Provides a comparative look at theological and behavioral understandings of the person, with particular emphasis given to implications for health and illness.

551-552 Selected Issues in Health Care. Semester course; 1 lecture hour. 1 credit. Presents theory, research and technique in specialized topics of current interest. Offered fall and spring semesters. Undergraduate credit is given to those persons who do not hold baccalaureate degrees.

553 Professional Identity, Function and Ethics. Semester course; 2 lecture hours. 2 credits. Examines religious rituals appropriate for life’s crisis points such as illness, loss, guilt, birth, death, and marriage from the perspective of professional identity and functioning.

554 Professional Identity, Function and Ethics II. Semester course; 2 lecture hours. 2 credits. Examines professional identity developmentally and conceptually. Presents and critiques key professional ethical issues, such as confidentiality, abortion, euthanasia, and patient rights.

555 Theory and Practice of Patient Counseling. Semester course; 3 lecture hours. 3 credits. Emphasizes the role of the patient counselor, theoretical foundations, death and dying, and ministry to the poor and aging.

556 Theory and Practice of Patient Counseling II. Semester course; 3 lecture hours. 3 credits. Emphasizes psychological foundations of pastoral care and counseling, crisis intervention, human sexuality, marriage and family counseling, and pastoral counseling with addicts.

561-562 Group Process I and II. Continuous course; 2 lecture hours. 2 credits. Explores in small group settings techniques and procedures common to group behavior and encourages relational skills and techniques.

591 Selected Topics in Health Care. Semester course; 1 credit. Presents to beginning students a variety of selected topics designed to help them understand the various forces at work in health care and the resources that are available.

592 Independent Study in Patient Counseling. Variable credits. 2-3 hours. Provides opportunity to increase clinical and interpersonal skills in specialty areas through patient care, parallel reading, and individual supervision.

593-594 Supervised Clinical Practicum I and II. Continuous course; 4 lecture and 14 clinical hours. 4 credits. Provides the opportunity to apply and practice interview and therapeutic skills with patients and their families under faculty supervision in selected areas of the hospital. Provides individual faculty supervision and critical review in seminars.

595 Supervised Clinical Practicum III. Semester course; 3 lecture and 7 clinical hours. 5 credits. Emphasizes the clinical aspect of the students research projects.

596 Practicum in Group Process. Semester courses; 2 lecture hours. 2 credits. Continues PAC 561-562.

597 Clinical Research. Semester course; 1 lecture and 8 clinical hours. 3 credits. Completes an original project using the clinical areas of the hospital and presents this to the department.

603-604 Patient Counseling Evaluation I and II. Continuous courses; 4 lecture and 20 clinical hours. 5 credits. Evaluates the developing counseling ability in various patient care situations and enhances the competence level. Evaluates patient counseling techniques and skills in patient care situations through case studies.

605-606 Pastoral Counseling Theory and Practice I and II. Continuous course; 8 lecture and 6 clinical hours. 5 credits. Explores issues and dynamics developed in the counseling
relationship and involves critiques of two ongoing counseling relationships.

607-608 Advanced Group Process I and II. Continuous course; 2 lecture hours. 2 credits. Utilizes small group interaction as a vehicle for learning relational skills and techniques.

611-612 Clinical Pastoral Supervision I and II. Continuous course; 4 lecture hours. 4 credits. Utilizes experiences of supervision, and the literature in clinical supervision for those whose goal is to become certified as supervisors in Clinical Pastoral Education.

685-686 Supervised Pastoral Counseling Practicum I and II. Continuous course; 4 lecture hours and 6 clinical hours. 3 credits. Prerequisite: PAC 605-606. Emphasizes the growing identity and competence as a counselor.

691 Pastoral Counseling Practicum. Semester course; 2 lecture and 4 clinical hours. 5 credits. Prerequisite: PAC 605-606. Emphasizes increased competency in counseling through the use of audio and video tapes.

693 Group Process Practicum. Semester course; 2 clinical hours. 2 credits. Prerequisite: PAC 607-608. Utilizes a small, interactive group to experience group dynamics.

694-695 Advanced Clinical Pastoral Supervision I and II. Continuous course; 2 lecture and 15 clinical hours. 7 credits. Critiques the supervision of beginning students. Emphasizes gaining skill in the theory and practice of supervision, developing and administering an educational program, integrating an understanding of the person as seen from the various helping disciplines, and developing skill in group functioning and leadership.

696 Supervision Practicum. Semester course; 30 clinical hours. 9 credits. Provides opportunity under supervision for designing and conducting a clinical educational curriculum for basic students in patient counseling. Provides careful supervision and evaluation.

697 Clinical Practicum in Research. Semester course; 1 lecture hour and 8 clinical hours. 3 credits. Studies an area of specialty within the hospital and develops a competency in that specialty through original research and supervision.

**Department of Physical Therapy**

**FACULTY**

Edwards, Donna Instructor and Director of Physical Therapy at Medical College of Virginia Hospitals M.S., P.T., Medical College of Virginia of Virginia Commonwealth University; clinical sciences.

Finucane, Sheryl Assistant Professor Ph.D., P.T., Medical College of Virginia of Virginia Commonwealth University; neuroanatomy/histology.

Ford-Smith, Cheryl Assistant Professor M.S., P.T., Medical College of Virginia of Virginia Commonwealth University; clinical sciences.

Hirt, Susanne Professor Emerita M.Ed., P.T., University of Wisconsin; neuroanatomy/gross anatomy.

Humphrey, Reed Assistant Professor Ph.D., P.T., University of Pittsburgh; exercise physiology.

Kues, Jane Assistant Professor M.S., P.T., Medical College of Virginia at Virginia Commonwealth University; clinical sciences/clinical education.

Lamb, Robert Professor and Chairman Ph.D., P.T., University of Maryland; biomechanics.

Lewis, Annabel Assistant Professor M.S., P.T., Medical College of Virginia of Virginia Commonwealth University; clinical sciences.

Mayhew, Thomas Assistant Professor Ph.D. P.T., Medical College of Virginia of Virginia Commonwealth University; anatomy.

Payton, Otto Professor Ph.D., P.T., University of Maryland; education.

Riddle, Daniel Associate Professor M.S., P.T., Medical College of Virginia of Virginia Commonwealth University; orthopedic physical therapy.

Snyder-Shall, Mary Assistant Professor Ph.D., P.T., Medical College of Virginia of Virginia Commonwealth University; neurophysiology.

Sullivan, Scott Assistant Professor M.S., P.T., State University of New York at Stony Brook.

**HISTORY OF THE DEPARTMENT OF PHYSICAL THERAPY**

The Department of Physical Therapy was established in 1945 to provide basic preparation for the practice of physical therapy. Between 1945 and 1954 the program consisted of a 12-month professional course designed to train students for entry into the profession. This program was based upon at least three years of college work or the possession of an R.N. certificate. A two-year professional program after two years of preparatory college work was initiated in 1954. This program led to the degree of Bachelor of Science in physical therapy. In 1968 the Department of Physical Therapy became part of the School of Allied Health Professions. The two-year profession program leading to the Bachelor of Science degree continued through the 1988-89 academic year.

In August 1989, the Department of Physical Therapy, School of Allied Health Professions, began a three-year professional program based on three years of previous college work. This program prepares individuals to enter the physical therapy profession and leads to a Master of Science degree.

In 1946 an advanced graduate program offering the Master of Science degree to physical therapists was established and continued to function until 1952 when it was discontinued. The program was reinstated in 1968 and expanded when a full-time director of graduate studies was appointed in 1971. The current advanced master's degree program offers the opportunity for practicing physical therapists to expand their knowledge and skills in the basic and clinical sciences. In the early 1980s the Departments of Anatomy
and Physical Therapy began offering a Ph.D. program for the purpose of developing physical therapy faculty.

MISSION AND PHILOSOPHY OF THE DEPARTMENT OF PHYSICAL THERAPY

Mission
The Department of Physical Therapy serves the people of the Commonwealth of Virginia and the nation by providing educational programs related to physical therapy. The department’s primary function is to prepare the most qualified individuals for general physical therapy practice in an environment that encourages free inquiry and scholarship. Additional functions are to provide quality education leading to careers in teaching and research. Corollary functions are to provide assistance and services to the community and to engage in research and scholarly activities related to the practice of physical therapy.

Philosophy of the Department
Physical therapy is an integral part of the health care system. Expanding knowledge in the basic and clinical sciences, and changes in the needs and mandates of society, continually place new demands on the physical therapy profession. The faculty of the Department of Physical Therapy is committed to providing educational programs responsive to expanding knowledge and the needs of society.

The primary principle directing the activities of the department is the faculty’s commitment to optimal patient care through physical therapy education, research and practice. The faculty strongly believes that physical therapists must have a thorough understanding of the theoretical bases for treatment and skills in problem solving, evaluation, and communication. The faculty also believes that physical therapists have a responsibility to develop skills for life long learning, e.g., the ability to find information and to critically analyze that information.

The faculty is also committed to the development and sharing of new knowledge in the field of physical therapy through scholarship and research.

OBJECTIVES OF THE DEPARTMENT
The objectives of the Department of Physical Therapy, in concert with the mission of the University and the School of Allied Health Professions, are to

1. provide an entry level post-baccalaureate educational program for full-time students with diverse backgrounds and experiences;

2. provide an advanced master of science degree program with tracks in geriatric physical therapy, musculoskeletal physical therapy, and neurologic physical therapy to full and part-time community, state, national and international students;

3. contribute to a doctoral program which prepares physical therapists to contribute to the understanding and application of therapeutic procedures through basic and applied research and to teach both clinical and didactic physical therapy on all academic levels;

4. provide an atmosphere which fosters critical thinking, intellectual curiosity and integrity, freedom of expression, personal growth and professional competence, and a commitment to learning for faculty and students;

5. provide an environment which facilitates research and scholarship directed toward optimizing patient care; and,

6. provide services to the public and professional communities.

FACILITIES
The educational facilities for the Department of Physical Therapy are located on the second floor of McGuire Hall and McGuire Hall Annex. These buildings, located on the northwest corner of 12th and Clay Streets, house administrative and faculty offices, classrooms, physical therapy instructional and research laboratories, and student locker rooms and lounge. Classrooms and laboratories in other buildings on the MCV Campus are used as needed.

Clinical education experiences for professional students are offered in physical therapy clinics throughout Virginia and the country.

PROFESSIONAL PHYSICAL THERAPY PROGRAM
The goal of this program is to provide a quality educational program that prepares students for entry into the profession of physical therapy. The program prepares students to evaluate and manage patients with physical therapy problems effectively and in accordance with ethical principles. The program also provides students with strategies to continually define and meet their own educational needs in order to keep skills and knowledge current throughout their professional careers. Upon completion of the program, students are awarded a Master of Science degree.
OBJECTIVES
Satisfactory performance in the experiences provided in the Professional Physical Therapy Program prepares the graduate to:

1. apply the knowledge of the scientific basis of physical therapy evaluation, prevention, and treatment procedures to practice physical therapy in an effective manner;
2. evaluate and manage physical therapy problems in an ethical, legal, safe, and caring manner;
3. select and implement appropriate assessment procedures and, based on those procedures, formulate hypotheses about the physical therapy problems of patients;
4. select and implement physical therapy treatment procedures, and assess the effectiveness of those treatment procedures;
5. recognize when a patient requires: physical therapy treatment, treatment by another physical therapist, treatment other than physical therapy, and referral to a professional other than a physical therapist;
6. consider cost effectiveness when designing and implementing physical therapy services;
7. apply basic concepts and principles of management to effectively utilize and supervise supportive personnel, and to obtain appropriate resources to manage patient care;
8. apply basic educational principles to teach patients and their care givers, and to teach colleagues and other health care professionals;
9. apply basic principles of the scientific method to read and interpret professional literature, to participate in clinical research activities, and to critically analyze new concepts and findings;
10. demonstrate effective verbal and non-verbal communication with patients and their care givers, health care personnel, and members of the community;
11. demonstrate effective professional writing skills to present patient information to colleagues and to document physical therapy services in an organized, logical and concise manner;
12. demonstrate professional competence and a sense of responsibility to the patients, the community, and the profession;
13. demonstrate awareness that learning for and within a profession is a lifelong process;
14. demonstrate an awareness of the influence of social, economic, legislative and demographic factors on the delivery of health care.

ACCREDITATION
The Professional Physical Therapy Program is accredited by the Commission on Accreditation in Physical Therapy Education, American Physical Therapy Association.

Academic Admission Requirements
Prerequisites for admission to the Professional Physical Therapy Program include a minimum of 90 semester hours (or 120 quarter hours) in an accredited college or university. A grade of "D" in any required course is not acceptable. A minimum grade point average of 2.7 (in a 4.0 system) is required to be considered for admission. The Graduate Record Examination is required. The program of study necessary to be considered for admission to the Professional Physical Therapy Program must include a minimum of

1. English—6 semester hours. Advanced placement or CLEP credits may be substituted for up to 3 semester hour credits. Courses in composition or scientific writing are strongly recommended.
2. Biological Sciences—12 semester hours including laboratory experience. Must include one course in exercise physiology. May include general biology or general zoology. No more than 4 credits in botany may be applied to meet this requirement. Advanced placement or CLEP credits may not be used to meet these prerequisites.
3. Chemistry—8 semester hours of general chemistry with laboratory. Advanced placement or CLEP credits may be used to meet these prerequisites.
4. Physics—8 semester hours of general physics with laboratory experiences. Courses that emphasize mechanics, electricity, heat, and light are highly recommended. Advanced placement or CLEP credits may be used to meet these prerequisites.
5. Mathematics—3 semester hours. These credits must be in college algebra, trigonometry, calculus or equivalent. Advanced placement or CLEP credits may be used to meet these prerequisites.
6. Statistics—3 semester hours.
7. Psychology—6 semester hours. Advanced placement or CLEP credits may be used to meet these prerequisites.
8. Social Science—6 semester hours in social sciences such as sociology, economics, anthropology, history, etc. Advanced placement or CLEP credits may be used to meet these prerequisites.
9. Humanities—3 semester hours in fine arts, foreign language, religion, speech, philosophy, etc.

Approximately 60 of the 90 hours required are specified. At least eight hours of electives must be upper-level courses. In order to complete the social science, psychology, and humanities requirements, students are encouraged to choose courses from the following categories: child, adolescent or abnormal psychology, personality development, psychology of adjustment, sociology, anthropology, economics, history, philosophy or logic, counseling, human relations, and public speaking.

In order to complete the total requirements, students are encouraged to elect courses from the following categories: computer science, embryology, histology, comparative anatomy, kinesiology, physiology, foreign languages, and courses in physical education dealing with an analytical approach to human movement or motor learning.

Students are required to have current CPR certification. A minimum of 150 hours of clinical exposure in two or more physical therapy settings also is required.

CURRICULUM PLAN FOR PROFESSIONAL PHYSICAL THERAPY PROGRAM
MASTER OF SCIENCE DEGREE

Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Semester Credits</th>
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</thead>
<tbody>
<tr>
<td>PHT 505</td>
<td>Applied Microscopic Anatomy for Physical Therapy</td>
<td>4</td>
</tr>
<tr>
<td>PHT 506</td>
<td>Functional Neuroanatomy</td>
<td>5</td>
</tr>
<tr>
<td>PHT 510</td>
<td>Rehabilitation I</td>
<td>3</td>
</tr>
<tr>
<td>PIO 461</td>
<td>Mammalian Physiology</td>
<td>3</td>
</tr>
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Spring Semester

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<tr>
<td>PHT 501</td>
<td>Gross Anatomy</td>
<td>9</td>
</tr>
<tr>
<td>PHT 502</td>
<td>Kinesiology</td>
<td>4</td>
</tr>
<tr>
<td>PHT 537</td>
<td>Rehabilitation II</td>
<td>2</td>
</tr>
<tr>
<td>PHT 512</td>
<td>Clinical Problem Solving I</td>
<td>2</td>
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Summer Semester

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<tbody>
<tr>
<td>PHT 520</td>
<td>Clinical Education I</td>
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Second Professional Year

Fall Semester

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<th>Course</th>
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<tr>
<td>PHT 508</td>
<td>Measurement and Assessment</td>
<td>6</td>
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<tr>
<td>PHT 507</td>
<td>Clinical Biomechanics</td>
<td>3</td>
</tr>
<tr>
<td>PHT 531</td>
<td>Scientific Inquiry</td>
<td>2</td>
</tr>
<tr>
<td>PHT 539</td>
<td>Foundations for Neurophysiologic</td>
<td>3</td>
</tr>
<tr>
<td>PAT 540</td>
<td>Pathology</td>
<td>2</td>
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<tr>
<td>PHT 690</td>
<td>Physical Therapy Seminar</td>
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</tr>
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<td></td>
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Spring Semester

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<tr>
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<th>Semester Credits</th>
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<tr>
<td>PHT 540</td>
<td>Neurologic Physical Therapy</td>
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<tr>
<td>PHT 544</td>
<td>Orthotics and Prosthetics</td>
<td>2</td>
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<td>PHT 546</td>
<td>Clinical Medicine</td>
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<tr>
<td>PHT 548</td>
<td>Orthopedic Physical Therapy</td>
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</tbody>
</table>

The preceding curriculum plan is under continuous review by the faculty. Courses titles, content, sequencing and time commitments are subject to change.

GENERAL ACADEMIC POLICIES AND REGULATIONS

All professional courses must be completed with a passing grade of “C” or better for the student to be eligible for promotion or graduation. Promotion is based on recommendation of the faculty. The student is expected to:

1. maintain a grade-point average of 3.0 or better;
2. complete satisfactorily all noncredit activities;
3. obtain a passing grade in all courses;
4. complete clinical education requirements to the satisfaction of the clinical and academic faculty;
5. demonstrate personal characteristics that indicate commitment to the expectations of the profession of physical therapy and the educational program; and
6. pay all fees.

Additional policies and regulations are provided to entering students.

FINANCIAL ASSISTANCE

A limited amount of financial assistance is available for physical therapy students. The amount of assistance awarded the individual student is based on the availability of funds and the need demonstrated by the student. VCU provides three types of student assistance: scholarships, loans, and campus employment.

For information on financial assistance, write to the Financial Aid Office, Virginia Common-
wealth University, Medical College of Virginia, Richmond, VA 23298-0244.

ADVANCED GRADUATE (POST-PROFESSIONAL) PROGRAMS

The Department of Physical Therapy is committed to improving physical therapy services through advanced education. The department offers a Master of Science degree program for persons who have completed their physical therapy training. A doctoral program is offered in cooperation with the Department of Anatomy.

ADMISSION REQUIREMENTS

Applications are encouraged from individuals who are practicing physical therapists. Applicants must have graduated from a physical therapy educational program approved by the American Physical Therapy Association. International students must have an equivalent level of education as determined by the Physical Therapy Advanced Graduate Studies Committee. Individuals who are not physical therapists are not accepted into the advanced degree programs.

Additional admissions requirements for graduate study in the Department of Physical Therapy are as follows: (1) a minimum GPA of 2.7 on a four point scale for entry-level professional education; (2) satisfactory score on the general test of the Graduate Record Examination (taken no more than 5 years prior to admission); (3) three satisfactory letters of recommendation; (4) applicant's written statement of intent for pursuing graduate studies in a particular specialty track; and (5) such additional requirements as may be established for individual specialty tracks.

International students must also score a 600 or above on the Test of English as a Foreign Language (TOEFL).

FINANCIAL ASSISTANCE

Some teaching and research assistantships are available from the Department of Physical Therapy. These assistantships are competitive with doctoral students given first priority. Part-time employment as a physical therapy clinician is available in Richmond and surrounding areas. Doctoral students receiving stipends must receive approval of outside employment.

VCU provides three types of student assistance: scholarships, loans, and work study. For information on these types of financial assistance, write to the Financial Aid Office, Medical College of Virginia Campus, Richmond, VA 23298-0244.

ADVANCED (POST PROFESSIONAL) MASTER OF SCIENCE PROGRAM

The objective of the program is to train physical therapists in research, education and clinical problem solving skills so that they will be the clinical and academic researchers and teachers of the future.

PROGRAM GOALS

At the completion of the program the student will:

1. demonstrate an advanced ability to analyze the theoretical basis of measurement and treatment procedures;
2. demonstrate skills in clinical or basic science research;
3. demonstrate skills in teaching clinical examination and clinical therapeutic procedures;
4. demonstrate advanced clinical problem solving skills.

Specialization tracks allow the student to focus on a specific interest area. Currently specialization tracks are in the areas of neurological and musculoskeletal rehabilitation. Both tracks are designed to improve the knowledge base of the students in their chosen area of interest, as well as to help the student develop skills in critical thinking and problem solving.

Each student enrolls in core courses within the specialty area and elective courses that complement the core courses. In order to optimize the educational experience the faculty have developed recommended sequences of courses in each of the specialty tracks. Students may elect graduate courses offered by any University department, in addition to courses offered by the physical therapy department. Independent study with a faculty member is encouraged. Students may elect to participate in an optional clinical specialty practicum under the guidance of a clinician who possesses advanced skills in the student's area of interest. The completion of a thesis under the direction of a faculty advisor is also a requirement of each of the tracks. Students may study on either a part-time or full-time basis.

GENERAL ACADEMIC POLICIES AND REGULATIONS

To qualify for the Master of Science degree, students must meet the following requirements: (1) achieve an overall grade-point average of 3.0 on a four point scale for all graduate course work; (2) complete a minimum of 25 course credit hours exclusive of thesis credits; and (3) satisfactorily complete the thesis and oral defense of the thesis.
SPECIALIZATION TRACKS

One of the following specialty tracks is selected before admission to the program.

1. Neurologic Track. The curriculum provides the opportunity for physical therapists to critically analyze movement dysfunctions seen as a result of neurological pathologies using current theories of normal motor control and motor development. A framework is provided for the student to scrutinize commonly used neurologic physical therapy evaluation and treatment routines. Each student is required to assist in teaching one of the clinical courses in the professional program curriculum. The student may focus on neuro-pathokinesiology, motor development, or ageing. The student plans and conducts a research study in the area of motor control or motor development.

2. Musculoskeletal Track. The curriculum provides the physical therapist an opportunity to integrate facts and principles related to the musculoskeletal system. Issued related to the biological, biomechanical, and clinical sciences are explored. Following completion of the program the student will be able to apply this knowledge to the examination and rehabilitation of individuals with musculoskeletal problems. The curriculum emphasizes the integration of didactic, research and clinical knowledge. In addition the student must assist in teaching material related to the musculoskeletal system in the professional program curriculum. The student plans and conducts a research study relevant to the evaluation or treatment of patients with musculoskeletal problems.

Specific objectives and sequences of courses for each specialty track can be obtained by writing the Coordinator of Advanced Graduate Studies, Department of Physical Therapy, Virginia Commonwealth University, Richmond, VA 23298-0224.

DOCTOR OF PHILOSOPHY DEGREE PROGRAM

The Department of Anatomy of the School of Medicine together with the Department of Physical Therapy of the School of Allied Health Professions offer a Ph.D. program in anatomy-physical therapy. The goal of the doctoral program is to train students in research and educational skills in preparation for the student to function as a physical therapy faculty member. Application is made to the Department of Anatomy. Acceptance into the program requires approval by the admissions committees of both departments.

Students in the Anatomy/Physical Therapy doctoral program take required courses (approximately 26-30 course credit hours) within the Department of Anatomy and at least eight course credit hours in the Department of Physical Therapy. Additional course work may be required by the student’s dissertation committee. The student plans and conducts a research study under the direction of a faculty member of the Department of Physical Therapy. In addition the student is required to assist in teaching three courses (split between the two departments).

For additional information regarding the doctoral program write the Coordinator, Advanced Graduate Studies, Department of Physical Therapy, Virginia Commonwealth University, Richmond, VA 23298-0224.

GRADUATE COURSES IN PHYSICAL THERAPY (PHT)

501 Gross Anatomy (Physical Therapy). 3 lecture and 6 laboratory hours. 9 credits. Examines the structural and functional anatomy of the human musculoskeletal system through lecture and cadaver dissection. A thorough understanding of fundamental facts and principles that apply to professional practice is developed through lecture, dissection, radiographic examination, and clinical correlation.

502 Kinesiology. 3 lecture and 1 laboratory hours. 4 credits. Introduces the student to the kinematics and kinetics of human movement. Emphasis is placed on osteokinematics, arthrokinematics and the structures that limit and/or guide movement.

505 Applied Microscopic Anatomy for Physical Therapy. Semester course; 3 lecture hours. 4 credits. Examines the basic components of cells in terms of their structure and function. Cells and tissues of greatest importance to physical therapists are studied in detail, and their response to injury is explored. Reviews methods of studying cells.

506 Functional Neuroanatomy. Semester course; 5 lecture hours. 5 credits. Examines the basic structure and function of the nervous system with special emphasis on topics of greatest concern to physical therapists. Uses neurobiological approach to integrate the basic health sciences of neuroanatomy, neurophysiology, and clinical neuroscience.

507 Clinical Biomechanics. Semester course; 3 lecture hours. 3 credits. Provides an opportunity to develop knowledge in sufficient depth to understand how selected biomechanical factors influence normal and pathologic human form and movement. Stresses validity and reliability of methods of evaluating musculoskeletal form and function.

508 Measurement and Assessment. Semester course; 3 lecture and 3 laboratory hours. 6 credits. Teaches some of the basic evaluation methods and measurements procedures used by physical therapists in history taking and physical examina-
510 Rehabilitation I. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Introduces basic clinical skills and procedures, including measurement of vital signs, patient lifting and moving techniques, progressive mobilization, medical asepsis, and principles of bandaging. Introduces record keeping and professional communication.

512 Clinical Problem Solving I. Semester course; 1 lecture and 2 laboratory hours. 2 credits. Presents and provides practice with models of clinical reasoning, communications, and ethical decision making; discusses psychosocial aspects of patient care.

520 Clinical Education I. Semester course; 240 clock hours. 3 credits. Provides full-time clinical experience in health care facilities in Virginia and neighboring states. Introduces students to the professional practice of physical therapy. Includes supervised clinical work with patients, the role of physical therapy in health care systems, and documentation procedures.

531 Scientific Inquiry. Semester course; 2 lecture hours. Provides guidelines for critical analysis of professional literature, for the utilization of research by the physical therapy professional, and for the development of a clinical research project.

533 Physical Agents. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Examines the theory and therapeutic application of massage, hydrotherapy, thermotherapy, ultraviolet, compression, and traction. Emphasizes clinical application and problem solving.

535 Growth and Motor Development. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Presents age-related differences and changes in physical structure and motor function across the human lifespan and current issues and trends in motor development theory and research.

537 Rehabilitation II. Semester course; 1 lecture and 2 laboratory hours. 2 credits. Presents principles of evaluation, goal setting, and program planning for spinal cord injured patients and cancer patients. Provides practice of rehabilitation techniques for severely and chronically disabled patients.

539 Foundations for Neuropsychiologic Physical Therapy. Semester course; 3 lecture hours. 3 credits. Covers models of motor control related to the understanding of neurologic dysfunction and neurophysiologic principles for physical therapy.

540 Neurologic Physical Therapy. Semester course; 4 lecture and 4 laboratory hours. 6 credits. Prerequisites: PHT 535 and 539. Applies principles of motor development, control, and learning to the evaluation and remediation of motor disorders. Critically surveys current theory and practice of neuromotor therapeutics.

544 Orthotics and Prosthetics. Semester course; 2 lecture hours. 2 credits. Prepares the student to participate as a member of the professional prosthetic or orthotic clinic team, integrates material from other courses, and teaches basic skills in orthotic and prosthetic assessment, prescription, and training and performing initial and final prosthetic and orthotic checkouts.

546 Clinical Medicine. Semester course; 2 lecture hours. 2 credits. Comprehensive course in clinical medicine and sciences relevant to the practice of physical therapy. Medical practitioners from the MCV Campus and surrounding areas participate. Topics include psychiatry, pharmacology, hematology, oncology, dermatology, dentistry, rheumatology, neurology, and burn therapy.

548 Orthopedic Physical Therapy. Semester course; 3 lecture and 2 laboratory hours. 4 credits. Presents principles of evaluation and treatment of patients with musculoskeletal disorders.

550 Clinical Education II. Semester course; 400 clock hours. 5 credits. Provides full-time clinical experience in health care facilities throughout the country. Applies previous clinical and academic learning and provides increased responsibility for patient care in a supervised setting. Requires case study.

601 Advanced Measurement Concepts. Semester course; 3 lecture hours. 3 credits. Investigates the principles of measurement theory as applied to clinical practice. Reviews basic principles guiding electronic instrumentation and electromyography. Examines the theoretical bases for the examination and treatment approaches used in Orthopedic Physical Therapy or Neurologic Physical Therapy.

602 Biomechanics. Semester course; 3 lecture hours. 3 credits. This course covers selected material related to the effects of forces upon normal and pathologic human form and movement. Students have the opportunity to develop an understanding of the basic principals of biomechanics and methods of measurement used in biomechanics so they can better understand the clinical, academic, and research activities of their specific field of interest.

605 Foundations for Pathokinesiology. Semester course; 3-4 lecture hours. 3-4 credits. A study of the principles that form a foundation for understanding pathokinesiology and therapeutic kinesiology. Integration of principles of motor development, control, and learning with emphasis on abnormal motor behavior and its remediation.

606 Therapeutic Kinesiology. Semester course; 1-3 lecture and 3 clinical hours. 2-4 credits. A study of motor behavior in both normal and pathological conditions. Reading and discussion of the basic literature of current neurologic approaches to therapeutic exercises and an integration of these concepts into a comprehensive model of human movement.

607 Principles of Clinical Examination in Orthopedic Physical Therapy. 2 laboratory hours. 1 credit. May be repeated for a maximum of two credits. Principles and techniques for evaluation of joint and soft tissue injuries and disabilities with an emphasis on history taking and accessory motion testing.

608 Advanced Musculoskeletal Sciences. Semester course; 3 lecture hours. 3 credits. Investigates advanced principles related to musculoskeletal anatomy and histology as they relate to physical therapy clinical practice. Examines the
scientific basis for the assessment of muscle performance in patients. Examines recent literature related to the use of thermal and electrical modalities used on patients with problems of the musculoskeletal system.

611 Research Process. Semester course; 2 lecture hours. 2 credits. Readings, discussions, and reports on the current status of professional literature and validation of clinical practice, clinical administration, and professional education. A model for professional development, the role of research in the validation process, and the basis of research design are presented nonmathematically. Required of all advanced Master of Science degree students unless excused by the faculty.

621 Electrotherapy. Semester course; 3 lecture and 2 laboratory hours. 3 credits. Reviews basic physical principles related to electricity and electronics. Studies physical and physiological effects of electrical currents and their therapeutic indications and contraindications. Laboratory practice emphasizes the use of electrical currents for physical therapy evaluation and treatment.

623 Cardiopulmonary Physical Therapy. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Applies principles of pathophysiology of the cardiovascular and respiratory systems; includes physical therapy assessment and treatment of patients with cardiac and respiratory disorders.

625 Clinical Problem Solving II. Semester course; 18 clock hours. 1 credit. Students review, integrate, and develop strategies for using previously presented material and present case studies in oral and written form. Provides a summative learning experience.

627 Geriatric Physical Therapy. Semester course; 2 lecture hours. 2 credits. Discusses the physiological, cognitive, physical, and functional changes due to aging, necessary modifications of physical therapy procedures for geriatric patients, general principles of geriatric rehabilitation, and unique problems associated with physical therapy practice in nursing homes and extended care facilities.

629 Special Topics in Physical Therapy. Semester course; 1 lecture hour. 1 credit. Provides an opportunity to pursue and present a topic of interest that is related to physical therapy evaluation and treatment.

631 Professional Issues in Physical Therapy. Semester course; 3 lecture hours. 3 credits. Discusses professional issues facing the modern physical therapy practitioner, including ethical principles, practice options, supervision, socioeconomic aspects of physical therapy service, departmental planning, third-party reimbursement, specialization, medical legal aspects of practice, and physical therapy education.

632 Clinical Education III. Semester course; 640 clock hours. 8 credits. Provides full-time work in a minimum of two clinical facilities located throughout the country. Students apply previous course work and demonstrate entry-level competencies by assuming increasing responsibilities for patient care. Students may request assignment to practice settings which meet personal interest and future professional goals.

690 Physical Therapy Seminar. Semester course; 1 lecture hour. 1 credit. Reports on current problems and issues in the field of physical therapy. May be repeated for a maximum of four credits, required for advanced Master of Science degree students for two semesters.

691 Special Topics in Physical Therapy. 1-4 credits. Guided independent study of specific topics not discussed in courses or discussed in less detail in courses. Student's desired topic of study must be identified and approved prior to enrollment.

692 Clinical Specialty Seminar. Semester course; 0.5-3 credits. Individual reports dealing in depth with the history, current status, and problems in a given area of clinical specialization.

693 Clinical Specialty Practicum. 60 clock hours per credit. 1-9 credits. Concentrated clinical experience under the guidance of an approved preceptor.


Department of Rehabilitation Counseling

The Commission of the Future of the University, in its report approved by the Board of Visitors of the University on September 9, 1993, recommended that the Department of Rehabilitation Counseling be transferred from the School of Community and Public Affairs to the School of Allied Health Professions. Anticipating that this change will take place on July 1, 1994, the activities of the Department of Rehabilitation Counseling are described in this section of the graduate bulletin.

FACULTY

Chandler, Anne L. Associate Professor Ph.D., Michigan State University; vocational evaluation and work adjustment, assessment, and placement.

Gandy, Gerald L. Professor and Director, Undergraduate Program in Rehabilitation Services Ph.D., University of South Carolina; individual counseling approaches, group rational emotive techniques.

Hardy, Richard E. Professor and Chairman Ed.D., University of Maryland; Diplomate in Counseling Psychology (ABPP); counseling (both individual and group), gestalt counseling, substance abuse.

Jarrell, George R. Professor Emeritus Ph.D., University of South Carolina; forensic rehabilitation, medical aspects of disability and clinical practice.

Lawton, Marcia J. Associate Professor and Director, Alcohol and Drug Educational/Rehabilitation Program Ph.D., Northwestern University; alcohol and drug rehabilitation, child psychology.

Luck, Richard S. Associate Professor Ed.D., University of Virginia; counseling (individual and group); psychiatric rehabilitation; measurement and evaluation.

Martin, E. Davis, Jr. Professor Ed.D., University of Virginia; forensic rehabilitation, advocacy, and philosophy of rehabilitation.

Rule, Warren R. Professor Ph.D., University of South Carolina; individual counseling approaches, Adlerian lifestyle counseling.
The rehabilitation counseling program at VCU was established in 1955 to provide graduate education in rehabilitation counseling.

This program prepares prospective rehabilitation counselors for employment in state and federal vocational rehabilitation programs and public and private rehabilitation agencies. Graduates work in rehabilitation units in mental hospitals, correctional institutions, public schools, rehabilitation centers, sheltered work shops, adjustment centers, social service agencies, and other organizations serving persons who have mental, emotional, social, or physical disabilities. It also provides advanced training for persons presently employed in agencies and facilities offering services to individuals with disabilities.

Emphasis is placed upon professional education for developing the skills and knowledge necessary for effective rehabilitation counseling of persons with disabilities. The variety of activities performed by rehabilitation counselors necessitates a program highly diversified in character. In addition to the development of a broad understanding of human behavior, the techniques of individual and group counseling, interprofessional relations, vocational appraisal and adjustment, and use of community resources in facilitating the rehabilitation of individuals with mental, emotional, social, and physical disabilities are stressed.

**INSTITUTES AND WORKSHOPS**

The Department of Rehabilitation Counseling conducts institutes and workshops as part of an ongoing in-service training program for employed personnel. The department will continue to conduct such institutes and workshops as long as there is a demonstrated need and funds are available.

**AWARDS**

The Stalnaker-Wright Award for Outstanding Achievement is presented annually to a full-time graduate student in the Department of Rehabilitation Counseling. Initiated by the graduating class of 1963, this award is named in honor of the founder of the department, Dr. Wade O. Stalnaker and Professor Emeritus, Keith C. Wright.

The recipient is selected on the basis of meritorious academic scholarship, dedication to the philosophy and concepts of rehabilitation, and extracurricular accomplishments in community services.

**ALCOHOL AND DRUG EDUCATION/REHABILITATION PROGRAM**

Established in 1975 as the Alcohol Education Program, the program changed its name to the Alcohol and Drug Education/Rehabilitation Program (ADERP) in the fall of 1979. This reflects the enlarged scope of the program which has come to include all types of addictions (chemical, relationship, behavioral, etc.). The new title of the program also reflects the fact that students progressing through these courses often become aware of their own alcohol/drug problems or those within their families and seek help; thus, there is a rehabilitation nature to the educational sequence.

ADERP was established to meet the following objectives: (1) to define, increase, and evaluate the competencies and skills of professional alcoholism and drug counselors; (2) to increase the scope of knowledge about alcohol and drugs for clinical supervisors, program managers, medical personnel, mental health workers, and those in other fields serving as gatekeepers; (3) to develop and train new personnel for the alcohol and drug field; and (4) to conduct alcoholism and drug abuse rehabilitation research. Both workshop and academic courses are designed to meet the objectives.

Graduate studies leading to a master’s degree are made available to full-time, part-time, or work-study students. A concentration package is available also in the undergraduate curriculum for students who choose the Alcohol and Drug Education/Rehabilitation Program option. Graduate and undergraduate programs provide classroom-based courses as well as workshops for academic and/or continuing education credit.

Courses are open also to other rehabilitation students as well as those in pharmacy, nursing, psychology, corrections, business, and others, as electives.

In accordance with the mandate from the Virginia General Assembly for certification of all alcohol and drug counselors in the state, ADERP developed an approved program of education to meet requirements as stated by the Virginia Alcoholism Counselor Certification Committee. The program currently meets those standards more recently established for Virginia Substance Abuse Counselor Certification. Education for certification involves the completion of 400 hours of approved substance abuse education which includes the following five areas of competency: knowledge of drug, alcohol, and substance abuse treatment; case management; counseling prin-
ciples and techniques; information and referral; and recovery. This 400-hour educational program consists of 220 contact hours with the appropriate didactic/experiential ratio and 180 practicum hours which may be fulfilled either through the academic degree program or by successfully completing the progression of seminar and nondegree academic courses.

Instruction addresses a core body of knowledge which is inclusive of the following courses: Overview of Alcoholism and Drug Abuse; Recovery of Alcoholism and Drug Abuse; Treatment of the Alcoholic/Drug Addict with the Significant Others (Family); and Principles, Methods, and Techniques in Treatment of the Alcoholic and Drug Addict (Group Interaction). Also, a focus on direct application of this core body of knowledge (220 hours of didactic and experiential education) is experienced, in the field, by all students before completion of the course sequence as they accomplish 12 core functions in a clinical setting under supervision through the practicum/internship course.

In addition to the core body of knowledge, areas of special interest are addressed in Crisis Intervention with the Alcoholic and Drug Addict, Prevention Case Management, Occupational Alcoholism and Drug Abuse Program Development, and other courses, depending on the individual’s educational level and area of interest.

ADERP’s growth in training through education parallels its initiation and subsequent expansion into the greater Richmond community. Contributions of the program to the community include multidisciplinary informational contacts; referrals to various agencies, skilled instructors, and speakers available upon request; knowledgeable counselors who value account ability and professionalism (as seen in those seeking certification and licensure), exchanges of current trends in treatment and education as transmitted by students doing internship/practicum placements at local agencies. Also included are increased awareness as enhanced by multimedia coverage of workshops and other events, individual rehabilitation of some program participants that return to the community with a message of hope in recovery while supporting AA, Al-Anon or concerned persons programs, and finally, ADERP is a vital part of the community support network.

ADERP, a nationally recognized program, has established itself as a foundation of the educational community as well as the greater Richmond community and the overall state structure where alcohol and drug education/rehabilitation is a new frontier. Information on academic courses and all workshops is available in the ADERP brochures and/or supplements and the University bulletins.

For further information, write or call the Department of Rehabilitation Counseling, Alcohol and Drug Education/Rehabilitation Program, Virginia Commonwealth University, Richmond, VA 23284-2030, (804) 367-6233.

ADVANCED CERTIFICATE IN PROFESSIONAL COUNSELING

In cooperation with the School of Education, the Department of Rehabilitation Counseling sponsors an advanced counseling track for persons who hold a master’s degree and want to work toward a license in professional counseling. Many professional counselors offer their services to the public as private practitioners. Faculty in the Department of Rehabilitation Counseling and the School of Education have been instrumental in developing professional counseling in Virginia and supporting licensure activities for professional counselors.

Optional Focus Areas

The Department of Rehabilitation Counseling, through its courses and those in other departments, offers focus areas to all graduate students within the department. Although focus areas are offered, the student may select general rehabilitation and not choose to have a special focus. These areas include (1) mental health rehabilitation; (2) correctional rehabilitation (public offender rehabilitation); (3) vocational evaluation and work adjustment; (4) services to persons with severe disabilities; (5) counseling, (individual and group—with courses offered in Adlerian lifestyle counseling, rational emotive techniques, and gestalt counseling; and (6) alcohol and drug rehabilitation.

Courses provide considerable flexibility for students who wish to emphasize special concerns. Internships are provided in mental health, correctional settings, or other settings (such as vocational evaluation and work adjustment units in various rehabilitation facilities). Students may emphasize working with persons with physical disabilities and the development of community resources through special courses, such as rehabilitation case studies, occupational information, job analysis and placement, work evaluation techniques, work adjustment techniques, and internship. A course in rehabilitation research is offered also and usually is directed toward a student's
area of special interest. Faculty members encourage students to select term papers and research project topics to emphasize areas in which they have the highest level of interest.

All students should note, however, that it is not necessary to specialize or choose a sequence area. This is available only for students who wish to become highly specialized in a specific area of rehabilitation.

Admissions

Beyond the general graduate school admissions standards, the following procedures and requirements apply:

1. An undergraduate grade-point average on a 4.0 scale of at least 2.7 overall or in the last 60 hours is required.
2. A personal interview with the chairman is required. If this is impractical, the chairman will designate an alternative for a pre-acceptance interview.
3. The Department of Rehabilitation Counseling evaluates the applicant’s fitness for a career in rehabilitation counseling. Careful attention is given to previous work experience, academic background, scholarship, and emotional maturity. The application is then reviewed and passed upon by the Admissions Committee.

Applicants for the Master of Science in rehabilitation counseling must have a satisfactory score on the Graduate Record Examination or the Miller Analogies Test.

Transfer Credit

A maximum of six semester hours of acceptable graduate credit earned in a degree program at an accredited institution but not applied toward the M.S. degree. Such credits will be evaluated for acceptance purposes at the completion of nine semester hours of work in the graduate program in rehabilitation.

Candidacy

Admission to graduate study does not constitute candidacy for a degree. Rather, a student who has been admitted to graduate study is advanced to degree candidacy upon the recommendation of the department in which the degree is sought. Advancement to degree candidacy requires that the candidate must have completed between nine and 15 semester hours of graduate study with a minimum grade-point average of 3.0; demonstrated clearly the aptitude and ability to pursue graduate work, including independent study; exhibited a commitment to rehabilitation counseling as a profession; demonstrated promise for a successful career in the field selected in terms of temperament and personality. Admission to degree candidacy is not an automatic process, but rather the application for candidacy is approved by the department only after careful evaluation of all pertinent factors.

Requirements for the Degree of Master of Science in Rehabilitation Counseling

In addition to general graduation requirements

1. Students must complete a minimum of 39 graduate semester credits, approved by the chairman, exclusive of any credit for supervised clinical practice for rehabilitation counselors with an overall grade-point average of 3.0 or above.
2. Application to degree candidacy may be made after the student has demonstrated his ability to pursue work of graduate caliber by satisfactorily completing a semester of residence credits (nine credits minimum; 15 credits maximum). Admission to degree candidacy is given upon certification of acceptable records of achievements by the student’s advisor.
3. All students must complete supervised clinical practice for rehabilitation counselors under the direction of the faculty and immediate supervision of a qualified person in an approved agency or facility. Before internship can be approved, all students must complete 100 hours of practicum work approved by the faculty.
4. All students must pass a comprehensive examination. It is administered by the chairman after students have completed a minimum of 30 graduate credits.

Supervised Clinical Practice

Supervised clinical practice in a rehabilitation agency setting is required of all students. Clinical practice provides an opportunity for students to develop techniques and skills in connection with the total rehabilitation process. It gives them an opportunity for application of theory in the practice of rehabilitation counseling and case management in a rehabilitation setting. Provided under the direction of the faculty and the immediate supervision of qualified personnel in approved rehabilitation agencies or facilities, supervised clinical practice constitutes full-time study for one semester.
Voluntary activities or introductory field experience may not be substituted for, nor counted toward, supervised clinical practice.

Numerous agencies and organizations in Virginia and other states have cooperated with the Department of Rehabilitation Counseling to provide students with opportunities for supervised clinical practice. The primary sources of training are state-federal vocational rehabilitation agencies, Veterans Administration, Employment Security Commission, social service departments, correctional institutions, hospitals, clinics, sheltered workshops, and evaluation centers. The disability areas have included physical (e.g., spinal cord injury, visual impairments, orthopedic disabilities, speech, and hearing disorders, etc.), psychiatric, mental retardation, alcoholism, drug addiction, public offenders, the disadvantaged, etc. The student's advisor will be able to provide the names, addresses, and telephone numbers of agency supervisors who have worked with students in the past. Information regarding a variety of community resource directories is available also.

For the Advanced Certificate in Professional Counseling Program, the supervised clinical practice experience is designed to meet some of the specific needs of the individual student. The exact objectives, experiences, and evaluation procedures are agreed upon prior to the initiation of the course. Hours in direct supervision may be submitted to the Board of Professional Counselors to satisfy, in part, the supervision requirements for licensure as a professional counselor.

Correspondence and Further Information

At the undergraduate level, the department offers a minor in Rehabilitation Services in interdisciplinary cooperation with other majors. For a select few, it is possible to obtain a baccalaureate with a focus in some aspect of rehabilitation services through the interdisciplinary Bachelor of General Studies Degree. Departmental faculty also work cooperatively with the Doctor of Philosophy (Ph.D.) Programs in Education, Social Work, Clinical and Counseling Psychology, and Health Services Organization and Research and with the Doctor of Public Administration (D.P.A.) Program.

Further information regarding all programs may be obtained by writing to the chairman of the Department of Rehabilitation Counseling, School of Community and Public Affairs, Virginia Commonwealth University, Richmond, VA 23284-2030, (804) 367-1132.

Graduate Courses in Rehabilitation Counseling (REH)

502 History and Techniques of Manual Communication I. Semester course; 3 credits. A study of the basic principles of manual communication through nonverbal techniques, eye-contact training, fingerspelling, and basic patterns of American Sign Language Systems. Also a focus on history and development and various methods of communication with deaf persons.

503 History and Techniques of Manual Communications II. Semester course; 3 credits. A review and continued study of the development and techniques of basic sign language with emphasis upon additional sign vocabulary acquisition and improvement of expressive and receptive skills.

504 Advanced Manual Communication: AMESLAN. Semester course; 3 credits. A comprehensive and in-depth study of American Sign Language (AMESLAN) as an independent language of the deaf with low verbal skills and emphasis on English and sign language idioms not known in most forms of manual communications.

512 Overview on Alcoholism. Semester course; 3 credits. Overview of alcoholism as a progressive, family disease which can be arrested by a multidisciplinary, rehabilitative approach; consideration of the etiology of addiction from physiological, psychological, and sociocultural viewpoints as well as methods of intervention at various stages; description of the highlights of the continuum of care available in the recovery process.

522 Recovery of Alcoholism. 3 credits. Prerequisite: REH521. Overview on Alcoholism. Exploration of the denial system present in U.S. society which complicates the early intervention and treatment of a progressive, family disease; presentation of new hope for the alcoholic and his family in the attempts being made in certain areas of society to begin the recovery process early; description of approaches proving to be helpful in facilitating the alcoholism professions in guiding the alcoholic and his family from isolation to involvement and integration.

523 Principles, Methods, and Techniques in Treatment of the Alcoholic. 3 credits. Prerequisites: REH 521 and 522 or permission of instructor. Integration of principles, methods, and techniques utilized in the recovery process of alcoholism and drug abuse especially in group work; exploration of the alcoholic, with provision for group involvement, co-facilitation, and practice counseling sessions.

525 Introduction to Rehabilitation. 3 credits. This course is designed to give the student a comprehensive overview of the rehabilitation process. It emphasizes its historical, philosophical, ethical, social, and legal aspects. Special attention is devoted to the professional aspects of rehabilitation counseling, the need for it and the skills and functions of the counselor.

527 Rehabilitation of the Industrially Injured Client. Semester course; 3 lecture hours. 3 credits. This course emphasizes the unique needs of the industrially injured client and current methods of rehabilitation and programs available through insurance companies and governmental agencies.

533 Directed Readings in Rehabilitation. 3-6 credits. Topical course. Provides an opportunity for students to intensify understanding in one or more areas of rehabilitation through
539 Current Problems in Rehabilitation. 3-6 credits. Topical seminar. A study of development and implications resulting from rehabilitation research and demonstration activities. Agency problems related to staff improvement and expansion of rehabilitation services and facilities will also be considered as well as reviews of specific disability problems and trends in rehabilitation.

540 Directed Readings in Alcoholism. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Opportunity to investigate and pursue in depth a particular concept encountered in the alcoholism and drug abuse concentration courses, or to study in detail a particular problem in alcoholism or drug abuse while working in the field under the direction of the alcoholism addiction personnel in the department.

551 Treatment of the Alcoholic with Significant Others. Semester course; 3 lecture hours. 3 credits. Prerequisites: REH 521, 522, and 523 or permission of instructor. Stress on the importance of the family disease concept of addiction utilized throughout the concentration series; demonstrations and role-playing of situations involving the alcoholic, drug abuser, and significant others provided; discussions of multiple-impact family therapy and other approaches developed relevant to the alcoholic and drug abuser.

559 A Survey of Rehabilitation of Blind and Visually Impaired Individuals. 3 credits. The purpose of this course is to acquaint the student, rehabilitation counselors, and other personnel working in related areas with problems encountered in the rehabilitation of blind and partially sighted persons.

561 Work Evaluation Techniques for Rehabilitation. 3 credits. An in-depth examination of the methods and techniques utilized in determining employment potential and the role of the work evaluator in the rehabilitation process. Specific procedures and approaches are analyzed including the TOWER System, Singer-Graflex System, and other methods currently utilized in rehabilitation services.

562 Work Adjustment Techniques for Rehabilitation. 3 credits. An in-depth analysis of methods utilized in overcoming maladaptive worker behavior in rehabilitation services including group process, sheltered workshops, and nonverbal techniques. The role and function of adjustment personnel in the rehabilitation process. Current problems and research in methods of adjustment.

563 Independent Living in Rehabilitation. 3 credits. This course will offer students an opportunity to acquire the knowledge and skills necessary for providing services to severely disabled people in the area of independent living. Emphasis will be placed on evaluation and adjustment approaches for people who are clients of public and private rehabilitation centers, employment workshops, group homes, and in the emerging centers for independent living in rehabilitation.

593 Field Work Practicum. 3 credits. Designed to complement and follow REH 520, this eight-week on-the-job experience is jointly supervised by a university faculty member and by the student’s training supervisor in the public or private rehabilitation agency or facility where the student is employed. A choice of exercises is offered with required written reports of each exercise selected. These exercises are programmed to encourage the further integration of concepts, practices, and skills learned in REH 520 with actual agency policy and service delivery. Enrollment is limited to eligible employees of public and private vocational rehabilitation agencies and facilities who have completed REH 520.

607 Community Resources. 3 credits. This course emphasizes the means by which the community uses its resources and services to meet the needs of handicapped persons. It provides for study and discussion of the nature and organization of community resources as they relate to rehabilitation, availability of community resources through public and private agencies and facilities including employment potentials, problems in the development and utilization of community resources, observational visits to key agencies, and lectures by representatives of various rehabilitation programs.

611 Individual Counseling Approaches in Rehabilitation. 3 credits. This course is designed to acquaint students with various approaches involved in the individual counseling of rehabilitation clients. Emphasis will be placed on principles and techniques which assist individuals to develop a better understanding of vocational, educational, and personal adjustment problems related to severe and multiple disabilities and to make realistic plans regarding solutions to these problems. Audio-visual tape experiences will be offered.

612 Group Counseling Approaches in Rehabilitation. 3 credits. This course is designed to acquaint students with various approaches involved in the group counseling of rehabilitation clients. Emphasis will be placed on principles and techniques which promote the development of effective interpersonal communications, decision making and leadership as they concern vocational, educational, and personal adjustment problems related to severe and multiple disabilities. Audio-visual tape experiences will be offered.

613 Advanced Rehabilitation Counseling Seminar. 3-9 lecture hours. 3-9 credits. Prerequisites: REH 611 and 612 or permission of instructor. This course is designed to provide an opportunity for students to undertake a more in-depth study of selected approaches to individual and/or group counseling of rehabilitation clients. Principles and techniques relevant to vocational, educational, and personal adjustment problems related to severe and multiple disabilities will be systematically explored and studied. Audiovisual tape experience will be offered.

614 Counseling, Death and Loss. 3 lecture hours. 3 credits. Prerequisites: REH 611 or permission of instructor. Explores the psychosocial processes of adaptation to severe losses such as those occasioned by the onset of disability, death, and developmental life changes. Emphasizes the knowledge and skills required by rehabilitation counselors in dealing with losses experienced by their clients.

623 Career Development. 3 credits. Provides an orientation to occupations and career development information for rehabilitation counselors, study of the literature on careers and occupational information, writing the job analyses, visits to selected business and industrial establishments employing handicapped persons, and job analyses related to the employment of handicapped individuals.
625 Measurement and Evaluation in Rehabilitation. 3 credits. Consideration will be given to the selection of tests for rehabilitation clients; the determination of need for testing, administering and interpreting tests; adaptation of tests to special disability groups; suggestions for the integration of tests results with the overall rehabilitation diagnosis; the establishment of local norms for rehabilitation clients; the work-evaluation report; and interpretation of test results to client. Tests of achievement, aptitude, intelligence, interests, and personality will be critically examined. Laboratory fee $20.00.

630 Advanced Alcoholism and Drug Case Management. 3 credits. The course is a study of the elements of case management by the alcoholism and drug abuse counselor from case finding to termination. This process will be explored in comparison with other helping disciplines. In addition to a comprehensive examination of the many skills required for case management, there will be opportunities for class practice of case management.

633 Rehabilitation Case Studies. 3 credits. This course provides for critical analyses of representative rehabilitation cases. Rehabilitation case records are utilized as a basis for presenting an understanding of the handicapped client and his problems, the rehabilitation casework processes and diagnoses, and the provision of services.

635 Theory and Practice in Prevention of Alcoholism. 3 credits. Prerequisite: permission of instructor. Utilization of human service agencies and community at large to affect attitude and behavior change concerning the use and abuse of alcohol and other drugs; development of skills in educating, coordinating, motivating, planning, and implementing in prevention area; project in prevention.

640-641 Medical Information for Rehabilitation Counselors. 3-6 credits. This course provides medical information for rehabilitation counselors and introduces students to medical terminology. It provides knowledge of the etiology, prognosis, methods of treatment, effects of disabling conditions, and implications for the rehabilitation counselor. Physician-counselor relationships are emphasized as is the interpretation of medical reports. (This course is offered in cooperation with the Department of Rehabilitation Medicine, Medical College of Virginia of Virginia Commonwealth University.)

642 Psychiatric Information for Rehabilitation Counselors. 3 credits. This course provides psychiatric information for rehabilitation counselors so that they may have an understanding of disabling psychiatric conditions as well as the emotional aspects of physical disabilities. It deals with impairments of a mental origin including mental retardation, behavioral disorders, nerves, and psychoses — both organic and functional, as well as convulsive disorders. Emphasis is placed on physical, emotional, and social factors that contribute to the various mental illnesses.

644 Alcohol and Human Behaviors. 3 credits. Prerequisites: REH 521, 522, 523, and 695 or permission of instructor. Understanding the significance of behavior as a tool in diagnosing, treating, and/or referring the addict; appreciation of particular cues to observe the predominant behavior associated with living problems and reflected by the alcohol or drug abuser.

645 Delivery Services to the Alcoholic. 3 credits. Prerequisites: REH 521, 522, 523 or permission of instructor. Exposure to the 22 professional tasks of the alcoholism and drug abuse counselor through discussion centered around examples brought into class from clinical experience; understanding how these tasks, dealing with the alcoholic and drug abuser and his family, apply to different situations; a summary of the other five parts in the alcoholism concentration culminating in a philosophy of the alcoholism and drug abuse counselor.

650 Occupational Alcoholism and Drug Abuse Program Development. 3 credits. This course is designed to provide information and data for graduate students on the importance of the effects of alcohol and other drugs in a work setting. Various types of programs used by business, industry, and other organizations to deal with such employees will be presented. The course context was developed to provide the student with the opportunity to gain knowledge and skills necessary to design, implement, and maintain systems to reduce human and productivity losses due to alcoholism/drug addiction and its effects.

653 Disability and Support Systems. 3 credits. This course will offer students an opportunity to acquire knowledge and skills in working with the social, medical, and vocational organizations which comprise the interpersonal environment in which the client’s rehabilitation takes place. Emphasis will be placed on evaluating the strengths and weaknesses of the various human systems in which the client lives and works. Theories and techniques will be taught which can maximize the rehabilitative potential of these systems.

655-656 Seminar in Rehabilitation. 3-6 credits. Current trends, problems, and developments in rehabilitation are discussed. Students pursue a special interest area such as cultural deprivation, disability determination, work adjustment, work evaluation, etc., and share information and experience mutually with the group. Lectures, reports and group discussions are utilized.

672 Research in Rehabilitation. 3-6 credits. The student undertakes a research project with the assistance of a faculty member. He is required to write a paper and pass an examination in order to receive credit.

681-689 Institutes and Workshops. Orientation institutes and other short-term training programs are offered for rehabilitation counselors newly recruited to the rehabilitation field and for the further professional development of those already employed. Content will vary according to the aims of the institutes or workshops. Length of time and number of credits are announced prior to each institute or workshop.

691 Seminar in Special Problems in Rehabilitating Handicapped Persons. 3-6 credits. Topical seminar. This course is presented in a series of units. Each unit places emphasis on a special disability group such as paraplegic, deaf and hard of hearing, alcoholic, epileptic, cerebral palsied, cardiac, blind, mentally retarded, mentally ill, drug addict, aged, etc. The incidence and nature of disabilities, psychological factors, vocational problems, and specialized treatment and placement facilities required and techniques of team approach; use of rehabilitation centers and specialized facilities and use of consultants.

693 Introduction to Field Experiences for Rehabilitation Counselors. 3 credits. This course provides for concurrent field experience. It is designed for students who have no
training or experience in interviewing and counseling in rehabilitation settings.

694 Practicum in Job Placement in Rehabilitation Counseling. 3 credits. This course provides for actual experience in rehabilitation counselor activities, with emphasis on placement techniques — including itinerary planning, plant surveys, job analysis, placement, and follow-up.

695 Supervised Clinical Practice in Alcoholism. Block assignment; 9 credits. Prerequisites: REH 521, 522, and 523. Practical learning by observing and doing the 22 tasks of the alcoholism counselor as outlined in the Littlejohn Report; general direction and supervision by alcoholism personnel within department and direct supervision by a person qualified within the facility to discuss counselor/client problems.

696-697 Supervised Clinical Practice. Block assignments; 9 credits. Practical learning by observing and doing. Trainees have many opportunities for the application of theory in the practice of rehabilitation counseling and case management and/or work evaluation and work adjustment in a rehabilitation setting. Training is provided under the general direction and supervision of the faculty and the direct supervision of a qualified person within the agency or facility. Students meet regularly with the clinical practice supervisor within the agency or facility to discuss clients' problems and possible solutions.
The School of the Arts of Virginia Commonwealth University had as its beginning a sculpture course offered in 1926. In 1928 a one-faculty art department was formed under the direction of Miss Theresa Pollak and since that date has become one of the largest art schools in the United States, achieving national recognition through its quality programs in the visual and performing arts.

In 1969 the Department of Dramatic Art and Speech and the School of Music, formerly independent units within VCU, were combined with the visual arts departments of the School of Art to form the present School of the Arts.

The School of the Arts is accredited by the National Association of Schools of Art and Design and the National Association of Schools of Music and offers a rich and unique concept of graduate study for students in the visual and performing arts. It is one of the few state-aided professional art schools in the nation with a professional curriculum within a combined academic and professional environment. Located within an urban complex of higher education, students are provided not only with the advantages of comprehensive university facilities, but also with cultural opportunities offered in the greater Richmond community, including activities generated by over fifty museums and galleries and performances by nationally and internationally acclaimed arts organizations.

Graduate students study with faculty who are dedicated educators and who are also committed professional artists, designers and scholars. Each year both faculty and students of the School of the Arts are honored with prestigious regional and national awards which attest to the school’s high quality of instruction and commitment to excellence.

The graduate program offers five advanced degrees in ten departments in the following areas of study:

**Doctor of Philosophy**
- Department of Art History
  - Art History

**Master of Arts**
- Department of Art History
  - Architectural History
  - Historical Studies
  - Museum Studies

**Master of Art Education**
- Department of Art Education
  - Art Education

**Master of Fine Arts**
- Department of Communication Arts and Design
  - Visual Communications
Department of Crafts  
Ceramics  
Furniture Design  
Glassworking  
Jewelry or Metalworking  
Textiles
Department of Interior Design  
Interior Environments
Department of Painting and Printmaking  
Painting  
Printmaking
Department of Photography and Film  
Film  
Photography
Department of Sculpture  
Sculpture
Department of Theatre  
Acting  
Costume Design  
Directing  
Stage Design/Technical Theatre  
Theatre Education

Master of Music
Department of Music  
Composition  
Music Education  
Performance, including conducting

The School of the Arts has a full-time faculty of 145.

GRADUATE STUDENT STATUS
The School of the Arts recognizes two categories of graduate students. The first is comprised of those who are accepted either provisionally or as students with full standing into the graduate degree programs of the various departmental areas. These students may matriculate full-time or part-time except for the residence limitation discussed elsewhere in this bulletin.

The second category is that of the nondegree-seeking graduate student, or "special" graduate student. There are two types of "special" graduate students. The first is the student whose expectation of eventual acceptance into a graduate program is high and who wants to begin graduate work while application materials are being completed and processed.

Holders of the baccalaureate degree from recognized institutions may enroll in graduate courses as nondegree-seeking special graduate students, but such courses are not applicable toward a graduate degree from this institution unless the student is accepted into a graduate degree program prior to the conclusion of the semester in which the student registered as a nondegree-seeking graduate student.

A nondegree-seeking student who is later admitted as a degree-seeking student will not be allowed to apply toward a degree more than six credits earned as a nondegree-seeking student.

The second type of nondegree-seeking graduate student is the student who holds a baccalaureate degree, who wishes to take graduate courses for personal enrichment, and who does not intend to work toward a graduate degree. There is no limit to the number of credits that students in this category may take, as long as the academic performance is credible.

All nondegree-seeking ("special") graduate students must have written permission from the chair of the appropriate department in order to enroll in classes.

ADMISSION PROCEDURE
Applications for admission to graduate degree programs in the School of the Arts may be obtained by mail from the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051 or picked up in person at 901 West Franklin Street, Room B-1.

General information about admission to graduate study and application procedures can be found in Part I of this bulletin.

ADMISSION REQUIREMENTS
A. For Ph.D. degree see Ph.D. in Art History section.
B. For all other degrees—M.A., M.A.E., M.F.A., and M.M.
   1. Applicants should hold the baccalaureate degree from an accredited institution.
   2. It is expected that applicants will have a 3.0 (B) average on the last 60 semester hours of undergraduate work.
C. The prospective student should consult the appropriate section of this bulletin for additional admission requirements for a particular degree program. Such requirements include:
   1. The Graduate Record Examination for applicants to art history.
   2. An audition and examination for applicants for music, as described in the program description for the M.M. degree.
   3. An audition or presentation of portfolio, as well as a personal interview, for applicants for the M.F.A. in theatre.
   4. A portfolio review for all applicants to the visual arts M.F.A. degrees. (A personal interview is encouraged.)
ADVISING
All students accepted into advanced degree programs must make an appointment with the chair of the department prior to registration for their first semester of course work. Normally, the student's initial advisor will be the chair of the department; but students may be assigned an advisor more directly related to their areas of concentration.

Students are encouraged also to consult faculty members outside their major area and arrange with the appropriate departmental chair to use facilities and equipment available in other departments.

REGISTRATION
Graduate art students are urged to plan their schedules and register during advance registration. Registration materials for students accepted into advanced degree programs are available in the department during the advance registration and registration periods. The advantage of advance registration is that of securing places in classes before they are closed and of obtaining proper counsel from advisors. All graduate students must see their assigned advisors for schedule planning and signature approval. New nondegree-seeking graduate students, or those contemplating registration as such, must secure written permission to register from the departmental chair.

CONTINUOUS ENROLLMENT POLICY FOR GRADUATE STUDENTS
Graduate students in the School of the Arts must observe the University Continuous Enrollment Policy as explained in Part I of this bulletin. Candidates for all advanced degree programs, after completing all formal course work, must register for at least one semester hour of credit each term, except summer, until the culminating graduate project (dissertation, thesis, creative project, exhibition, recital, etc.) is completed and the student is ready to graduate. If graduate degree candidates expect to avail themselves of the faculty and resources of the University in the preparation of the dissertation/thesis/creative project during a summer term, they must register for one semester hour during that term as well. Also, if candidates intend to graduate in August, they must be enrolled for at least one semester hour in the summer term.

SPECIAL CHARGES
All degree-seeking graduate students are charged an art comprehensive fee. The art comprehensive fee is not charged students who are registered only in course work to complete a dissertation/thesis/creative project or who are enrolled in order to satisfy the one-credit requirement for continuous enrollment. Nondegree-seeking graduate students enrolled in any of the numerous courses which require an additional outlay for materials will be billed for those individual fees by the Office of Student Accounts.

In addition to the comprehensive fee for all majors in the School of the Arts, all students registering for private music lessons pay an applied music fee.

FINANCIAL SUPPORT
The School of the Arts awards a limited number of graduate assistantships and scholarships to full-time students. Applications should be made directly to the chair of the student's department. Applicants seeking financial support must submit complete applications by March 15 for fall admissions and November 1 for spring admissions.

TRANSFER CREDIT
A maximum of nine graduate credits may be transferred from other accredited institutions and applied to any of the graduate degree programs in the School of the Arts upon approval of the department chair.

ADVANCED DEGREE CANDIDACY
Students seeking an advanced degree in all programs except art history must apply for advanced degree candidacy. Those seeking the M.A.E. and the M.M. must make application during or after the completion of the first nine semester credits of graduate work and prior to the completion of 18 semester credits. Students pursuing the M.F.A. degree must make application during or after the completion of the first 15 semester credits of graduate work and prior to the completion of 30 semester credits. Applications for candidacy are available in the departmental offices and the Office of Graduate Studies, School of the Arts. Admission to a degree program does not constitute candidacy, and admission to degree candidacy is not an automatic process. Departments carefully review applicants for candidacy on such bases as examination or review of creative work or performance. Upon certification by the department that the applicant has met all departmental expectations, including the minimum 3.0 grade-point average, and is adequately prepared to continue pursuing the degree pro-
program, the School of the Arts will admit the applicant to degree candidacy.

Students who are found to be inadequately prepared to continue their graduate programs but who demonstrate the potential to ultimately fulfill degree requirements will be advised as to what additional work will be needed in order to meet departmental expectations. Candidacy, in such instances, will be postponed until departmental expectations are satisfied; postponement of candidacy may result in termination of financial assistance. Students whose academic or creative work demonstrate no likelihood of successful completion of a graduate program will be denied candidacy by the School of the Arts.

SCHOOL OF THE ARTS RESIDENCY REQUIREMENTS

Candidates for the Master of Fine Arts degree in crafts, painting and printmaking, sculpture, and theatre must complete a minimum of one-third of their degree program semester-hour credits within one calendar year.

Candidates for all master's degrees in the School of the Arts have five years plus two possible extensions of one year each to complete all degree requirements. The above limitations apply to both full-time and part-time students. A petition for an extension is initiated with the academic or thesis advisor.

ADVANCED DEGREE REQUIREMENTS

1. Students must achieve candidacy (with the exception of art history students).
2. Students must complete all formal coursework.
3. Students must maintain at least a 3.0 cumulative grade-point average. No grade below "B" will count toward graduation for students in the art history and the visual communications degree programs. For all students in the theatre program, any grade below "B" in any course will result in termination from the degree program. Students in all programs in the department of music must not have more than six hours or 20 percent of semester hours attempted—whichever is greater—with a grade of "C." For all other degree programs in the School of the Arts, no grade below "B" is acceptable for any course within the student's major department, and a grade below "B" in a course in the student's major department will result in termination from the degree program.
4. All students must complete the culminating project (dissertation, thesis, final examination, creative project, recital, etc.) as outlined in departmental guidelines. The thesis, or other written documentation related to the culminating project, must be done in a form that can be retained by the University and in accordance with departmental guidelines. Students preparing a thesis must use the guidelines set forth in The Preparation of Thesis, available in departmental offices or the Office of Graduate Studies, School of the Arts.

THE SCHOOL OF THE ARTS LIBRARY

The School of the Arts Library, located in the Pollak Building, has a collection of more than 450,000 slides and a working collection of current art publications and magazines.

VCU is a short distance from Washington, D.C., Baltimore, Philadelphia, and New York City and the museums, libraries, and research facilities in those urban areas.

GRADUATE COURSES IN ART (ART)

530 Guided Study Abroad. Semester course; 1-6 credits.

601-602 Seminar in Art. Continuous course; 3-3 credits. Discussion and research in the visual arts providing experience and involvement in the various studio areas for students not concentrating in these areas.

592, 692 Individual Projects/Fieldwork. Semester courses; 1-6 credits. By appointment with director of graduate studies after approval by department chairman. (Obtain individual research project form from the dean's office prior to enrollment.) Individual work for graduate students.

690 Methods of Art Research. Semester course; 2 credits. Review of selected research methods relevant to the composition of a thesis in the student's master's degree area. Preparation of a proto-thesis concludes course work.

705, 706 Research in the Arts. Semester courses; 3, 6 credits. By appointment with director of graduate studies after approval by department chairman. (Obtain individual research project form from the director of graduate studies prior to enrollment.) Individual research for graduate student.

Department of Art Education

FACULTY

Bleck, Charles F. Associate Professor and Director, Art Foundation Program. Ph.D., North Texas State University; curriculum, painting.
Burton, David Associate Professor. Ph.D., The Pennsylvania State University; philosophy, design.
Ferris, Michael Associate Professor. D.Ed., Ball State University; teaching methods, ceramics.
Hynson, Priscilla C. Associate Professor Ed.D., George Peabody College of Vanderbilt University; teaching methods, related arts.

Landis, Alan L. Professor D.Ed., The Pennsylvania State University; curriculum, jewelry.

Reeves, Daniel Professor and Chairman Ed.D., Illinois State University; research, painting.

Tisinger, Betty Professor D.Ed., The Pennsylvania State University; multicultural arts, art for the exceptional student.

Wright, James Associate Professor D.Ed., The Pennsylvania State University; theory, sculpture.

The Master of Art Education program attempts to expand and further refine each M.A.E. student's ability, knowledge, and attitudes in order to provide the profession with more effective art teachers, coordinators, supervisors, and other educational specialists in the arts.

PROGRAM DESCRIPTION

The M.A.E. program is structured on an individualized base rather than on a prescribed program of graduate studies. To benefit from the program's flexibility, each M.A.E. student must assess his or her own educational needs and professional goals. From this assessment, and with a graduate advisor's assistance, the M.A.E. student gains the opportunity and the responsibility to help determine a viable structure for the content and sequence of an individualized program of graduate studies.

Such a program can utilize the collective expertise of the art education faculty as well as appropriate community resources. Graduate course work, therefore, could include both on-campus and off-campus involvement.

Opportunities for personal growth through the M.A.E. program also include the rich resources of other University graduate departments in the visual and performing arts, education (including supervision, administration, and special areas), the natural and social sciences, and the humanities. Alternative approaches to traditional thesis methods also are encouraged within the program.

ADMISSION REQUIREMENTS, M.A.E.

Undergraduate Preparation. In addition to the School of the Arts admission requirements, applicants in art education must have completed a minimum of 36 semester hour credits in studio art at the undergraduate level. It is desirable for applicants to have had at least two years of teaching experience prior to beginning graduate studies.

Portfolio. Applicants must submit evidence of creative or professional involvement in the formation of their choice. Included should be material such as slides of representative work, description of professional activities, articles published, curriculum and program material developed, and other documentation of activities with artists, teachers, and children.

DEGREE REQUIREMENTS, M.A.E.

Program Pattern

<table>
<thead>
<tr>
<th>Credits</th>
<th>Art Education Electives</th>
<th>Approved Electives</th>
<th>Issues and Methods of Inquiry</th>
<th>Thesis Project Option or Nonthesis Option</th>
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Thesis or Project Option

A thesis or project problem may develop from graduate course work or professional involvement. Projects are those endeavors of thesis proportion that do not fit the traditional thesis format. A thesis or project may be explored by descriptive research, historical research, empirical/statistical research, design of learning packages, philosophical study, curriculum development, or action research.

Nonthesis Option

In lieu of the thesis, students may elect to complete six credit hours of graduate course work in the Department of Art Education. The selection of these six credits is subject to the approval of the student's advisor. In addition, the student must pass successfully a written and oral examination at the conclusion of all course work. The examination will pertain to the course work, to contemporary issues in the field, and to the student's particular area of expertise.

GRADUATE COURSES IN ART EDUCATION (AEN)

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.

508 Two-Dimensional Art Experiences. Semester course; 2 seminar and 3 studio hours. 3 credits. The course explores the media, techniques, and concepts of drawing, painting, and printmaking. Not offered for credit for studio art majors.

509 Three-Dimensional Art Experiences. Semester course; 2 seminar and 3 studio hours. 3 credits. Exploration of sculptural concepts with three-dimensional materials such as wood, metal, clay, fiber, plaster, plastic, and glass. Not offered for credit for studio art majors.

510 Experiences in the Arts. Semester course; 2 lecture and 3 studio hours. 3 credits. Explores traditional and contempo-
rary forms of expression in the visual, literary, and performing arts. Leads students to discover relationships among apparently independent art forms using such activities as lectures, guest speakers, and required attendance at events in the arts. No prerequisites.

520 Teaching Concepts Through the Arts. Semester course; 1 lecture, 1 seminar, and 3 studio hours. 3 credits. Students will investigate and compare traditional and contemporary patterns of expression, develop experiential techniques for teaching concepts, and participate in a series of activities which reveal relationships among the arts and other subject areas. Seminars will include guests from the visual, performing, and literary arts. Open to all graduate students.

550 Art for the Exceptional Learner. Semester course; 2 lecture and 3 laboratory hours. 3 credits. A study of exceptional learners including handicapped, gifted and talented, aged, and others, and their participation in and appreciation for the visual arts. Courses may include practicum and field experiences.

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 which effect the perception of art, advertising, and other media. Investigates light, color, perception, illusions, and other related topics.

591 Topics in Art Education. Semester course; variable credits from 1-3. May be repeated for a maximum of nine credits. 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.

600 Seminar: Issues in Art Education. Semester course; 36 lecture hours. 3-6 credits. The course investigates contemporary issues and identifies problems in art education. Students prepare oral and written reports that explore new directions and discuss the implications for teachers and art programs.

601 Art for Elementary Classroom Teachers. Semester course; 2 lecture and 2 studio hours. 3 credits. An inquiry into the nature of art and its importance in the elementary curriculum. Through personal experiences with art concepts and media, students learn about themes, form and expression, and develop a broader understanding of the value of art for children.

611, 612 Literature in Art Education. Semester course; 3 lecture hours. 3, 3 credits. Review, analysis, and assessment of significant historical and contemporary writings in art education and related fields.

652 Art Supervision and Administration. Semester course; 3 lecture hours. 3 credits. Exploration of the duties and responsibilities of the public school art supervisor and administrative positions in art education within various organizations or institutions.

665 Curriculum Development and Evaluation. Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits. A review of curriculum development including: needs assessment, determination of goals and objectives, curriculum writing, evaluation, and feedback processes. Theoretical approaches in the visual arts will be studied and curriculum models designed, developed, and analyzed.

670 Media in Art Education. Semester course; 3 lecture hours. 3 credits. The course examines diverse aspects of newer technologies in relation to art programs. These aspects include media-assisted learning, applications of communications technology to artistic expression, and study of media forms.

680 Teaching Laboratory. Semester course; 3 lecture hours. 3 credits. Observations and experimental teaching experiences with children in art. Group discussions and evaluation of ideas, objectives, and methods.

690 Issues and Methods of Inquiry in Art Education. Semester course; 3 lecture hours. 3 credits. Readings and discussions of studies in art education and related research emphasizing possibilities for implementation by art teachers. Methods of research in the field will be reviewed and sample research proposals will be developed by the students.

799 Thesis. Semester course; 1-6 credits. Prerequisite: Completion of all formal coursework, candidacy and approval of the department chair. Preparation of a thesis is based upon independent research. May be repeated.

Department of Art History

FACULTY

Bonds, Maurice Professor Emeritus M.A., Columbia University.
Brownwell, Charles E. Associate Professor Ph.D., Columbia University; Seventeenth and Twentieth Century, American Architectural History and Decorative Arts; Renaissance to early Twentieth Century European Art and Architecture.
Crowe, Ann G. Assistant Professor Ph.D., Stanford University; Nineteenth and Twentieth Century, museology.
Farmer, James D. Assistant Professor Ph.D., University of Texas, Austin; Pre-Columbian, Native American, Modern Art of Mexico.
Hill, Sharon J. Associate Professor Ph.D., New York University; Classical, Medieval.
Hobbs, Robert C. Rhoda Thalhimer Endowed Professor of American Art Ph.D., University of North Carolina, Chapel Hill; Nineteenth and Twentieth Century American, Native American.
Jacobs, Fredrika H. Assistant Professor Ph.D., University of Virginia; Aesthetics, Renaissance, Baroque.
Kopkin, Bruce M. Associate Professor and Acting Chairman M.F.A., Virginia Commonwealth University; museology, folk art of the U.S., and Nineteenth Century Decorative Arts.
Lawal, Babatunde Professor Ph.D., Indiana University, Bloomington; Traditional and Contemporary African Art, Afro-American Art, Art Renaissance, Baroque, Modern.
Perry, Regina A. Professor Emeritus Ph.D., Western Reserve University; African, Oceanic, Anglo-American, Colonial, African American, Native American, architectural history.
Risatti, Howard Associate Professor Ph.D., University of Illinois; Twentieth Century, criticism.
AFFILIATED GRADUATE FACULTY

Becker, Lawrence  

Cormack, Malcom  
Paul Mellon Curator, Virginia Museum of Fine Arts M.A., University of Cambridge; Eighteenth and Nineteenth Century British Painting.

Hanson, Susan A.  
Director, Meadow Farm Museum, Crump Park Ph.D., University of Maryland; museology.

Lounsberry, Carl R.  

Rasmussen, William S.  
Assistant Curator of American Art to 1900, Virginia Museum of Fine Arts Ph.D., University of Delaware; American, architectural history.

The department offers a broad-based education in the humanistic discipline of art history in three different tracks. The first track offers a degree in art history that stresses a general comprehensive knowledge of the field on the master’s level, as well as the opportunity to develop professional skills of research and writing. Throughout, expertise is developed in criticism and the historiographic methods, such as connoisseurship, stylistic analysis, and iconography. Individual research is encouraged through seminars, independent projects, and ultimately, the writing of a thesis.

The Department of Art History offers a second track which concentrates on the humanistic study of architectural history. General comprehensive knowledge in the field of architectural history as well as in that of art history is stressed in relation to work in the areas of urban studies and/or historic house museums.

The Department of Art History also offers a third track in museum studies, one which takes particular advantage of the rich cultural facilities of Virginia’s urban environment. The program is run in coordination with numerous local and regional museums, stressing on-site instruction and internships. An opportunity is offered for the study of curatorial and administrative aspects, as well as educational programming for museums.

Overseas studies are available through university-sponsored programs abroad in Europe and Asia.

Graduate assistantships and fellowships are available to full-time students.

M.A.—HISTORICAL

Graduate studies leading to the M.A. degree in art history is intended to train students to become creative and accomplished teachers and scholars in the discipline of art history. The program is designed to provide a comprehensive knowledge of the major areas and historical periods of art, as well as the various research and methodological skills requisite to the field.

The requirements listed below are in conjunction with School of the Arts graduate admission and degree requirements.

Admission Requirements

In addition to the School of the Arts requirements, applicants should have completed a minimum of 21 undergraduate semester credits in art history with additional work in relevant humanities and social science courses, such as English, philosophy, foreign language, and history. Students whose undergraduate training is less extensive may be admitted provisionally and subsequently attain full graduate status.

Degree Requirements

A total of 30 credits in course work and thesis:

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<th>Credits</th>
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<tr>
<td>Art History (period courses)</td>
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<tr>
<td>Historiography and Methodology</td>
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<tr>
<td>Thesis</td>
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<td>Total</td>
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At least six of the 21 art history credits must be taken in seminar classes.

Degree candidates must have a reading knowledge of German or any appropriate Romance language. The requirement may be fulfilled after admission by passing the relevant foreign language examination.

Students also must demonstrate general programmatic competence in art history by passing a comprehensive examination, taken sometime toward the end of the course work.

The master’s program culminates with a thesis, written under the direction of a departmental adviser and a thesis committee.

For more complete information and details on these procedures, please contact the Department of Art History.

M.A.—ARCHITECTURAL HISTORY

The Art History Department offers a Master of Arts degree with a track in architectural history. While concentrating in architectural history, students required to take courses in art history, as well as museum studies and/or urban studies and planning. Such a program is designed for students who wish to pursue careers as academicians or practitioners in the field, as well as for those who wish to pursue a doctoral degree. The courses taken in museum studies, or in conjunction with the Department of Urban Studies and
Planning, provide a unique interdisciplinary approach to the study of architectural history.

**Admission Requirements**

In addition to the School of the Arts requirements, applicants should have completed a minimum of 21 undergraduate semester credits in art and/or architectural history of which six credits must be in the survey of architectural history. Some basic drafting experience is also required. Additional work in relevant humanities and social sciences, such as literature, philosophy, foreign language, and history is necessary. Students whose undergraduate training is less extensive may be admitted provisionally and subsequently attain full graduate status.

**Degree Requirements**

A total of 39 credits in course work and thesis:

<table>
<thead>
<tr>
<th>Credits</th>
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<tbody>
<tr>
<td>Architectural History ............</td>
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<tr>
<td>Art History (period courses) .......</td>
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<tr>
<td>Historiography and Methodology ......</td>
</tr>
<tr>
<td>Urban Studies and Urban Planning and/or</td>
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<tr>
<td>Museum Studies .........................................</td>
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<td>Thesis .................................................</td>
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<td>Total .............................................</td>
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At least three of the 12 architectural credits and three of the art history credits must be taken in seminar classes.

Degree candidates must have a reading knowledge of German or any appropriate Romance language. The requirement may be fulfilled after admission by passing the relevant foreign language examination.

Students also must demonstrate general grammatical competence in art history by passing a comprehensive examination taken sometime toward the end of the course work.

The master's program culminates with a thesis, written under the direction of a departmental advisor and a thesis committee.

For more complete information and details on these procedures, please contact the Department of Art History.

**M.A.—MUSEUM STUDIES**

The two-year program in museum studies stresses those attitudes and skills necessary to accomplish the major goals of any professional museum operation: to collect, to preserve, to exhibit, and to interpret the art and artifacts of the past and present within an extended curriculum and professional museum environment. The course of study also includes an internship for academic credit under the direct supervision and professional guidance of individuals in the field.

The curriculum provides a broad educational background in art history and, in the field, will include studies in connoisseurship, registration methods, exhibition design, and educational programs for museums. It also provides a more particularized experience in areas in which the student desires to develop expertise. These areas include museum theory and administration, historic house museum, curatorship and contemporary alternative space gallery.

**Admission Requirements**

In addition to the School of the Arts admission requirements, applicants should have completed a minimum of six credits in the survey of western art, nine credits of period studies, and some undergraduate work in the humanities. Any applicant whose training is less extensive may be provisionally admitted and subsequently may gain full graduate status upon completion of the deficiency.

**Degree Requirements**

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<td>Museum Studies .................................................</td>
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<td>Museum Internship ..................................................</td>
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<td>Art History (period courses) .......</td>
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<td>Art Historiography and Methodology ......</td>
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<td>Elective ..................................................</td>
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<tr>
<td>Museum Project or Thesis ........................................</td>
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At least three of the 18 art history credits must be taken in a seminar class. Museum studies students must have a reading knowledge of German or any appropriate Romance language. This requirement may be fulfilled after admission by passing the relevant foreign language examination.

Students also must demonstrate general grammatical competence in museum studies and art history by passing a comprehensive examination taken toward the end of the course work.

An internship at one of the cooperating local or regional museums is a degree requirement of particular importance, enabling students to apply their knowledge and to develop a personal awareness of effective museum exhibition procedures. As a culmination to the course of study, students may opt to plan and mount a major exhibition on campus or at a museum in lieu of a written thesis, with the approval of the department.

**PH.D. PROGRAM IN ART HISTORY**

The Ph.D. in the history of art is a research-oriented degree designed to train critical and productive scholars who are well-grounded in
the literature, methodology, and major art historical problems in a designated area of study. The program’s focus is on interdisciplinary and multicultural studies utilizing new critical methodologies.

Doctoral students will undertake an established program of course work and will be engaged in directed research and scholarly exposition within specialized areas of art historical inquiry. The Ph.D. program in the history of art is designed to prepare participants for roles in teaching and curatorial positions at museums in departments of collection management and educational programming.

**Degree Requirements**

<table>
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<tr>
<th>Credits</th>
<th>Course work beyond the master’s degree in</th>
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<tr>
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<td>Art History ........................................</td>
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<td>Major area ...........................................</td>
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<td>Minor area ...........................................</td>
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<td>Dissertation ........................................</td>
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The requirements of the School of Graduate Studies for candidacy exams and dissertation committees apply to participants in this program. Part-time study for portions of the program is possible.

**Admission to the Ph.D. Program**

To enter the doctoral program, the applicant must have the approval of the Graduate Committee, the Chair of the Department of Art History and ultimately final approval from the Director of Graduate Studies in the School of the Arts and the Associate Provost for Research and Graduate Affairs of the University. Applicants with an undergraduate degree and a minimum of 21 undergraduate credits in art history are eligible to enter the master’s degree program. Students who have completed all of the requirements (including the language requirements) for the Master of Arts degree in the Department of Art History at VCU except the master’s thesis may request admission to the doctoral program by submitting a formal written request accompanied by two research papers to the departmental Graduate Committee. The Graduate Committee may waive the requirements of the master’s degree and the writing of the master’s thesis, and grant the student entrance into the doctoral program. (Such a waiver does not constitute a master’s degree). Students who have completed a Master of Arts degree in art history at VCU or any other accredited institution will be eligible to apply directly to the doctoral program.

Upon entering the program, the student will be assigned a program advisor, who, together with the departmental Chair of the Graduate Committee, will advise the student in establishing a program of study.

For application materials, write to: Director of Graduate Studies, School of the Arts, 325 N. Harrison Street, Pollak Building, Richmond, VA 23284-2519.

**Requirements for the Ph.D. Degree**

Students must have demonstrated proficiency (usually by passing the Princeton E.T.S. reading examination) in one language (either French or German) at the time of application to the Ph.D. program. Reading proficiency in a second language must be demonstrated by the completion of the 12 semester hours of doctoral course work. (Although French and German are typically the two languages of proficiency, the student may be required to demonstrate proficiency in other languages for study in particular areas). Students must complete (with a grade of “B” or higher) 24 hours of course work beyond the master’s degree (at least half must be seminar courses: 15 hours will be in the major field and 9 hours in the minor field); satisfy the language proficiency requirement; pass the comprehensive examination, gain approval for the dissertation proposal, and be granted candidacy; complete the dissertation and successfully defend the dissertation. All degree requirements must be completed within seven years of the first semester of enrollment in the doctoral program.

**Majors and Concentration**

Students will choose an area of major concentration from one of the following: Studies in Art and Architecture, Eighteenth Century to the Present or Studies in Non-Western Art and Architecture (African, Oceanic, Pre-Columbian and Native American Art). Students will select an area of minor concentration, which may be from any area of Art historical inquiry outside the major or, upon approval of the Graduate Committee, may be outside the department. Fifteen credits will be taken in the major and nine in the minor. Students will be particularly encouraged to undertake cross-cultural investigations.

**Comprehensive Exam/Admission to Candidacy**

Doctoral students will be required to pass a comprehensive examination, consisting of written and oral components. After satisfactory
completion of the comprehensive examination and demonstration of proficiency in two languages, the student will work with an advisor to establish a committee and will submit to said committee a dissertation proposal. Upon approval of the dissertation proposal, candidacy for the doctoral degree will be granted. Only after candidacy is granted may a student enroll for dissertation credits. (A student who does not pass the comprehensive examination may take that exam a second time.) This second examination must be taken within six months of the first attempt.

Dissertation
After admission to candidacy participants proceed to propose, complete and defend their dissertation. This is done under the supervision of the dissertation director working in concert with the dissertation committee. Participants are required to maintain continuous enrollment of at least three credit hours per semester (excluding summer) until they have attained 6 hours of dissertation credit, after which they may enroll for as few as one credit per semester. The number of credit hours per semester is expected to reflect the intensity of use of University resources, especially faculty time. The dissertation must represent independent research which is devoted to an original question or hypothesis with the appropriate development, analysis, and interpretation. Successful defense of the dissertation completes the requirements for the degree.

GENERAL INFORMATION
Financial Assistance. Although financial assistance is limited, funds are available. No prospective student should refrain from seeking admission to the school for financial reasons alone. However, since funds available through the School of the Arts are limited, applicants are strongly urged to seek additional sources to finance their education.

Research and Teaching Assistantships. Research and teaching assistantships may be available to doctoral students. Additional information is available from the director of Graduate Studies, School of the Arts.

GRADUATE COURSES IN ART HISTORY (ARH)

502 Historical Preservation and Architectural History. Semester course; 3 lecture hours. 3 credits. No prerequisites. 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.

504 Advanced Studies in Prehistoric and Ancient Art. Semester course; 3 lecture hours. 3 credits. May be repeated to 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 Schedule of Classes for specific topic to be offered each semester.

505 Advanced Studies in Greek, Etruscan, and Roman Art and Architecture. Semester course; 3 lecture hours. 3 credits. May be repeated to 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 Schedule of Classes for specific topic to be offered each semester.

514 Advanced Studies in Medieval Art and Architecture. Semester course; 3 lecture hours. 3 credits. May be repeated to a maximum of 12 credits. An advanced, detailed study of a selected aspect of development in the art and ideas of Byzantine, Germanic, Romanesque or Gothic Europe or of Islam. See Schedule of Classes for specific topic to be offered each semester.

519 Advanced Studies in Renaissance Art and Architecture. Semester course; 3 lecture hours. 3 credits. May be repeated to 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 Schedule of Classes for specific topic to be offered each semester.

524 Advanced Studies in Baroque and Eighteenth Century Art and Architecture. Semester course; 3 lecture hours. 3 credits. May be repeated to 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 eighteenth century. See Schedule of Classes for specific topic to be offered each semester.

529 Advanced Studies in Nineteenth Century Art and Architecture. Semester course; 3 lecture hours. 3 credits. May be repeated to a maximum of 12 credits. An advanced, detailed study of a selected aspect of the development of the art and ideas of the nineteenth century including Neoclassicism, Romanticism, Realism, Impressionism in Europe and/or America. See Schedule of Classes for specific topic to be offered each semester.

539 Advanced Studies in Twentieth Century Art and Architecture. Semester course; 3 lecture hours. 3 credits. May be repeated to a maximum of 12 credits. An advanced, detailed study of a selected aspect of the development of the art and ideas of the twentieth century in Europe and/or America. See Schedule of Classes for specific topic to be offered each semester.

542 Advanced Studies in the Architecture of Richmond. Semester course; 3 lecture hours. 3 credits. May be repeated to 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 Schedule of Classes for specific topic to be offered each semester.

544 Advanced Studies in Art and Architecture of the United States. Semester course; 3 lecture hours. 3 credits.
May be repeated to 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 Schedule of Classes for specific topic to be offered each semester.

549 Advanced Studies in the Art and Architecture of Asia. Semester course; 3 lecture hours. 3 credits. May be repeated to 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 Schedule of Classes for specific topic to be offered each semester.

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.

554 Advanced Studies in African or Oceanic Art and Architecture. Semester course; 3 lecture hours. 3 credits. May be repeated to 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 Schedule of Classes for specific topic to be offered each semester.

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.

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.

569 Advanced Studies in Museum Methods. Semester course; 3 lecture hours. 3 credits. May be repeated to 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.

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.

574 Advanced Studies in Film. Semester course; 3 lecture hours. 3 credits. May be repeated to a maximum of 12 credits. An advanced, detailed examination of selected topics in the history of film. See Schedule of Classes for specific topic to be offered each semester.

575 Advanced Studies in the History of Photography. Semester course; 3 lecture hours. 3 credits. May be repeated to a maximum of 12 credit hours. An advanced, detailed examination of selected topics in the history of photography. See Schedule of Classes for specific topic to be offered each semester.

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.

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.

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 audio-visual 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.

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 audio-visual materials), exhibition catalogues, clippings, and file and computer retrieval systems.

584 Museum Administration. Semester course; 3 lecture hours. 3 credits. Prerequisite: ARH 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.

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.

591 Topics in Advanced Art and Architectural History. Semester course; variable credit; 1-6 credits. 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. Permission of instructor required. Topics vary; see Schedule of Classes for specific copy.

593 Advanced Museum Internship. Semester course; 9 to 18 studio hours. 3 to 6 credits. Course may be repeated to a maximum of 9 credits. Prerequisite: permission of instructor, chairman of the graduate committee, and/or chairman of the Department of Art History. Advanced field work in a local, regional, or national museum.

602 Native American Art and Architecture of the Southwest United States. Semester course; 3 lecture hours. 3 credits. A study of the major prehistoric and historic native cultures of the Southwest, considered in terms of the characteristics which distinguish them from each other and which show continuity to modern forms. Emphasis is placed on use
of modern Pueblo and non-Pueblo art forms as models for interpreting prehistoric forms of the Anasazi, Hohokam, Mogollon, Navajo and related cultures.

691 Topics Concerning the Yoruba Presence in the Americas. Semester course; 3 lecture hours. 3 credits. May be repeated. An examination of Yoruba-inspired cultural and artistic traditions in North and South America and the Caribbean. See schedule of classes for specific topic to be offered each semester.

699 Museum Project. Semester course; 3-6 credits. Prerequisite: permission of departmental graduate committee and chairman of the department of Art History. The planning, mounting, and documentation of a major exhibition on campus or in a local/regional museum.

714 Seminar in Pre-Columbian Art and Architecture. Semester course; 3 lecture hours. 3 credits. May be repeated. Prerequisite: permission of the instructor. Advanced research on specific topics related to the study of Pre-Columbian art in the Mesoamerican and Andean regions.

752 Art and Architecture of Nigeria. Semester course; 3 lecture hours. 3 credits. A study of the culture and traditional art forms of Nigeria, from ca. 500 BC to present, including architecture, sculptural works in wood, stone, ivory and metal, royal attire, jewelry, and weaponry. Special emphasis will be placed upon the art of the Yoruba and Benin bronzes.

759 Seminar in Aesthetics, Theory, and Criticism of Art and Architecture. Semester course; 3 lecture hours. 3 credits. May be repeated to a maximum of six credits. An advanced, detailed study of selected topics of aesthetics, art theory and criticism in a seminar situation. See Schedule of Classes for specific topic to be offered each semester.

761 Seminar in Latin American Renaissance Art and Architecture. Semester course; 3 lecture hours. 3 credits. May be repeated. Prerequisite: permission of the instructor. Advanced research on specific topics related to the study of Renaissance art in the Caribbean, Mexico, Central and South America.

762 Seminar in Latin American 17th and 18th Century Art and Architecture. Semester course; 3 lecture hours. 3 credits. May be repeated. Prerequisite: permission of the instructor. Advanced research on specific topics related to the study of Baroque and Rococo art and architecture in the Caribbean, Mexico, Central and South America.

780 Aspects in Christian Iconography. Semester course; 3 lecture hours. 3 credits. Seminar: the study of meaning in the visual arts of Europe from the Middle Ages to the Neo-Classical period. Students will analyze special themes of a Christian or classical derivation and study major cultural shifts within a broader historical perspective.

781 Aspects of Buddhist Iconography. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Seminar: research into the origins and expansion of Buddhist art in Asia.

782 Aspects of Hindu Iconography. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Seminar: research into the origins and expansion of Brahmical Hindu art in Asia.

789 Problems in Advanced Art and Architectural History. Semester course; 3 lecture hours. 3 credits. May be repeated. Seminar for scholarly research and discussion of specific issues.

791 Topics in Early Modern Art. Semester course; 3 lecture hours. 3 credits. May be repeated. An indepth investigation of American and/or European Art and Architecture of the early twentieth century. See Schedule of Classes for specific topic to be offered each semester.

797 Directed Research Project. Semester course; variable credit; one to three credits per semester to a maximum of six credits. Prerequisite: permission of instructor, coordinator of graduate studies and chairman of the Department of Art History. Advanced individual work on subject to be formulated by student and instructor.

799 Thesis. Semester course; 1-6 credits. Prerequisite: Completion of all formal coursework, comprehensive examinations, foreign language examination, and approval of the departmental chair of graduate studies and department chair. Preparation of a thesis based on independent research. May be repeated.

899 Dissertation Research. Semester course. Variable credit. May be repeated. A minimum of 6 semester hours. Prerequisite: completion of all course work and foreign language requirements; students must have been granted Ph.D. candidacy. Preparation of a dissertation based on independent research.

Department of Crafts

FACULTY

Eastman, Allan A. Professor Emeritus B.S., University of New York at Buffalo.
Hammersley, William S. Associate Professor M.F.A., Universitry of Wisconsin, Madison; woodworking, furniture design.
Hawthorne, John Associate Professor M.F.A., Cranbrook Academy of Art; fabric design, textiles.
Ipsen, Kent F. Professor M.F.A., University of Wisconsin, Madison; glassworking.
Iverson, Susan Professor M.F.A., Tyler School of Art; tapestry, textiles.
Meyer, C. James Professor M.F.A., State University College, New Paltz; metalsmithing, jewelry.
Rosenbaum, Allan Assistant Professor M.F.A., Virginia Commonwealth University; ceramics.
Silliman, Christopher Professor M.F.A., New York State College of Ceramics at Alfred University; ceramics.
Thompson, Nancy K. Professor and Chairman M.F.A., Indiana University; jewelry.

The Department of Crafts offers a program of study leading to the Master of Fine Arts degree in five disciplines: ceramics, furniture design, glassworking, jewelry or metalworking, and textiles.

Within the studio concentration, emphasis is placed on self-motivation, individual investigation, and the development of professional attitudes and skills. Students are expected to demon-
strate a serious commitment to their work and to develop mature ideas and forms of expression.

ADMISSION REQUIREMENTS, M.F.A.

Undergraduate Preparation. In addition to the School of the Arts admission requirements, applicants in crafts must have completed a minimum of 36 semester hour credits in studio art at the undergraduate level. Students admitted to the graduate program are expected to have achieved a high level of competency in one of the departmental disciplines.

Portfolio. Applicants must submit a minimum of 20 slides of recent representative work, four of which must be drawings, the remainder of which should be in the field of application.

DEGREE REQUIREMENTS, M.F.A.

Program Pattern

<table>
<thead>
<tr>
<th>Studio</th>
<th>Electives including Art History</th>
<th>Graduate Seminar</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>............................................................</td>
<td>42</td>
<td>9</td>
<td>60</td>
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</table>

The candidate for the M.F.A. degree in crafts must present a cumulative show of work near the end of the program of study. The show must have the approval of a simple majority of the graduate faculty for the degree to be awarded.

GRADUATE COURSES IN CRAFTS (CRA)

547 Ceramic Technology. Semester course; 3 lecture hours. May be repeated. See Schedule of Classes for specific topic to be offered each semester.

591 Special Topics and Practicum. Semester course; 1-3 credits. May be repeated. Prerequisite: permission of instructor. A topical seminar/workshop offered in a variety of craft subjects or issues not included in the regular curriculum. See Schedule of Classes for particular topic or topics to be covered each semester.

601 Metal or Jewelry. Semester course; 9, 18, or 27 studio hours. 3, 6, or 9 credits. May be repeated. Personal investigation of materials, processes, and attitudes relating to the creative production of metal and/or jewelry forms.

621 Furniture Design. Semester course; 9, 18, or 27 studio hours. 3, 6, or 9 credits. May be repeated. Design, research, and experimentation in wood and varied materials, relating to a body of work demonstrating the student's mastery of material.

641 Ceramics. Semester course; 9, 18, or 27 studio hours. 3, 6, or 9 credits. May be repeated. Problems in the design and production of functional and nonfunctional ceramic objects as well as study of experimentation in ceramic technology and kiln design.

651 Glassworking. Semester course; 9, 18, or 27 studio hours. 3, 6, or 9 credits. May be repeated. Prerequisite: permission of instructor. Investigation of and experimentation with the ideas, material, and processes relative to the production of glass forms.

661 Textiles. Semester course; 9, 18, or 27 studio hours. 3, 6, or 9 credits. May be repeated. Work in contemporary and traditional textile techniques.

690 Graduate Seminar. Seminar course; 1 or 3 lecture hours. 1 or 3 credits. May be repeated. Degree requirement for graduate students in the Department of Crafts. A weekly seminar for the purpose of discussing contemporary issues in the arts as they affect the artist-craftsman.

The Master of Fine Arts in Design

INTERIOR ENVIRONMENTS
PHOTOGRAPHY/FILM
VISUAL COMMUNICATIONS

GENERAL PROGRAM DESCRIPTION

The purpose of this advanced degree program in design is to prepare the individual designer to assume a leadership role in a complex and expanding profession. The course work, applied experience, and research that constitute the program will enable the designer to better solve visual and spatial problems and to function more effectively as an administrator, planner, and educator.

The program offers the graduate student the opportunity to use appropriate courses and resources from schools within the University, to participate in internship and research with various agencies and organizations concerned with programs of design, and to view design as an interdisciplinary profession with an essential contribution to make toward the solution of the problems of today.

CHARACTERISTICS OF THE PROGRAM

The Master of Fine Arts in design is an advanced interdisciplinary program in the study of design which utilizes knowledge and human potential in alternative ways to define problems and create change.

Graduate students not only have the opportunity to work within a design field, such as visual communications, interior environments and photography/film, but also have the opportunity to develop competencies across fields and to engage in research and inquiry of a social or environmental nature to create new visual forms and communicative content in a rapidly changing society.
Internship and Field Experiences
Within a professional school of the arts in an urban university there are excellent opportunities for appropriate graduate field experiences. They include:

1. Formal arrangements with state agencies, industries, foundations, and community organizations which would enable the graduate designer to function as a member of a project team or task force.
2. Service to various organizations, offered as the need arises, possibly with the student working on a specific problem or project.
3. Research internships developed with the university on school-supported or outside-funded projects, especially those that concern social problems, health care, and institutional environments.

PROGRAM REQUIREMENTS
Thesis
The thesis is a requirement for the M.F.A., design (visual communications) degree, and a research-design project is required for the M.F.A., design (interior environments) degree. For both degrees, the culminating work is done in a form which can be retained by the University.

EXAMPLES OF THESIS
Interior Environments
An investigation in a scholarly area or specific research and documentation of a technical or creative project.

Visual Communications
An exhibition of a visual communications problem appropriately documented or a specific research problem which explores the communicative, formal, and/or technological aspects of visual problem solving.

COURSES FOR M.F.A. IN DESIGN (DES)
Courses Common to All Subspecialties

601 Interdisciplinary Design Seminar. Semester course; 3 lecture hours. 3 credits. An introductory seminar for beginning graduate students across the three subspecialty areas which examines the mission of the contemporary designer and the technological, psychological, and aesthetic resources. Professional designers, educators from other fields on campus, and resource people from business and industry will participate.

602 Advanced Design Seminar. Semester course; 3 lecture hours. 3 credits. May be repeated. An advanced seminar in which students and faculty from the three subspecialty areas meet and discuss the professional and conceptual aspects of interdisciplinary design activity. Students will draw upon past knowledge and current investigations.

603 Design and Visual Communication Education. Semester course; 3 lecture hours. 3 credits. This course will explore the philosophical, informational, and technical aspects of design education.

School of the Arts and University Courses
The following courses common to all graduate programs in the School of the Arts are available to M.F.A. students in design who desire to engage in research supervised by qualified professors within the school and other academic divisions within the University.

ART 592, 692 Individual Projects/Fieldwork
ART 704, 705 Research in the Arts

A variety of graduate courses offered within the School of the Arts can be utilized as electives by the student in this degree program. Some examples are

ARH 539 Advanced Studies in Twentieth Century Art and Architecture
ARH 574 Advanced Studies in Film
PAP 605-606 Graduate Painting
PAP 615-616 Graduate Printmaking
PAP 621-622 Graduate Drawing
SCU 500, 600 Graduate Sculpture
THE 603, 604 History of Dynamic Literature

VCU offers a wealth of graduate courses which can, as electives, support the educational process and personal development of our graduate students.

Department of Interior Design
FACULTY
Dorsa, Edward A. Assistant Professor M.A., Ohio State University; industrial and product design, furniture design.
Field, Jerry J. Professor Emeritus B.S., Certificate in I.D., Virginia Commonwealth University; Diploma, Parsons School of Design; history of interior design and architecture, period restoration.
Gunter, Ben D. Professor Emeritus M.Ed., University of Virginia; interior design education, business and commercial design.
Harwood, M. Buie Professor M.F.A., Louisiana Tech University; history of interior design and architecture, professional practice and standards, interior design education and process.
Jeon, Ki-Jeong Assistant Professor M.I.Arc., University of Oregon; computer-aided design, design process, commercial interior design.
Long, James T. Associate Professor M.Arch., University of Kansas; design theory, design of the 20th century, color and lighting design.
Marlow, Craig H. Associate Professor M.F.A., Louisiana Tech University; graphic communication, design.
Petrie, Paul E. Professor and Chairman M.F.A., Syracuse University; interior design education, professional practice.
Whitehead, Camden Associate Professor M. Arch., Virginia Polytechnic Institute; design process, materials.
The graduate program in interior environments will provide individuals with design backgrounds the opportunity to expand their knowledge of intellectual, creative, cultural, and philosophical attitudes toward design at the post professional degree level.

The depth of the program will stimulate professional excellence in a specific area of interior environments and will allow interaction with disciplines in the School of the Arts and the University.

The department offers accelerated undergraduate preparation for those interested individuals with noninterior design backgrounds. Assessment of the individual candidate's needs will determine the scope of the qualifying program. This is an opportunity to gain the skills and design experiences required to qualify for admission to the graduate degree program.

SPECIFIC ADMISSION REQUIREMENTS
Undergraduate Preparation. A minimum of 36 semester credits in studio art at the undergraduate level; additional semester credits are required in related courses such as architecture, business, environmental support systems, art/architectural history, and environmental psychology.

Portfolio. A minimum of ten recent design projects which exemplify awareness, understanding, and competency in creative design, graphic skills, and technical ability. Other pertinent data should be included as necessary.

DEGREE REQUIREMENTS
A minimum of 60 credits are required within prescribed courses. A research-design project is required to complete the program of study. This project is undertaken and developed in the context of IDE 699 and must consist of the testing of an original idea that is supported by research. This information will be synthesized through the design development process and culminate in an individual creative project of complex scale and scope. Documentation must follow established guidelines and be presented in a form that can be retained by the department and the University.

Typical Program Pattern

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
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<tbody>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>Graduate Design Studio</td>
<td>6</td>
</tr>
<tr>
<td>Interior Environments Seminar: Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>Graduate Design Studio</td>
<td>6</td>
</tr>
<tr>
<td>Interior Environments Seminar: Research-Design Thesis Investigation</td>
<td>3</td>
</tr>
<tr>
<td>Third Semester</td>
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<tr>
<td>Graduate Design Studio</td>
<td>6</td>
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<tr>
<td>Fieldwork/Internship</td>
<td>6</td>
</tr>
<tr>
<td>Research-Design Project Thesis</td>
<td>3</td>
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<tr>
<td>Fourth Semester</td>
<td></td>
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<tr>
<td>Interior Environments Seminar: Design Studies</td>
<td>3</td>
</tr>
<tr>
<td>Research-Design Project Thesis</td>
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<td>Seminar Elective: Interdisciplinary</td>
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<td>Total</td>
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GRADUATE COURSES IN INTERIOR ENVIRONMENTS (IDE)

601 Graduate Design Core. Semester course; 6, 12 studio hours. 3, 6 credits. To be repeated. Designing in specialized areas on interior environments at the advanced level. The subjects focus on the needs of the students.

621 Interior Environments Seminar. Semester course; 3 lecture hours. 3 credits. To be repeated. Examines current and relevant interior design theories, issues, and methods.

693 Field Work, Internship. Semester course; 6, 12 studio hours. 3, 6 credits. Approval of department chairman and advisor. Professional experience in the cooperative solution of design problems in interior environments which relate theory to practice. Formal arrangements must be made with state agencies, industries, and community organizations and individuals.

699 Research-Design Project Thesis. Semester course; 2, 6 studio hours. 1, 3, 6, 9 credits. To be repeated. Approval of Departmental Review Committee. The project must test an original design theory synthesized through the development of a design process, investigative research, and an individual project of complex scale and scope.

Department of Communication Arts and Design

FACULTY

Apgar, Nicolas Professor M.F.A., Syracuse University; drawing, illustration.

Bevilaqua, William Professor Emeritus M.F.A., University of North Carolina; drawing, visual thinking.

Bostic, Alexander Assistant Professor B.F.A., Pratt Institute; illustration.

Brinks, Lindsay Associate Professor M.A., Western Michigan University; graphic design, typography.
Interview. The department strongly recommends that applicants arrange an interview with the assistant chairman during which they meet with graduate faculty and current students and tour facilities. Applicants may call the department to do so.

Typical Program Pattern

First Semester

<table>
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<tr>
<th>Course Description</th>
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<td>Visual Communications Seminar</td>
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<tr>
<td>Visual Communications Workshop</td>
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<tr>
<td>Graduate Elective</td>
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Second Semester

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<td>Visual Communications Seminar</td>
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<td>Visual Communications Workshop</td>
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<tr>
<td>Graduate Elective</td>
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Third Semester

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<td>Visual Communications Seminar</td>
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<td>Visual Communications Workshop</td>
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Fourth Semester

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<td>Directed Research in Visual Communications</td>
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<tr>
<td>Thesis or Creative Project</td>
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<td><strong>Total</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

**GRADUATE COURSES IN VISUAL COMMUNICATIONS (CDE)**

519 Virtual Reality. Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisite: permission of instructor required. An exploration into the creation of fully immersive, interactive, virtual environments and their use as communication and artistic mediums.

537 Integrated Electronic Information/Communication Systems. Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisite: permission of instructor required. A course concentrating on the design, development, authoring, production, and publication of electronic information/communication programs. Emphasis is placed on the creative integration of expressive form, communicative function, and effective application of advanced visualization technology.

593 Visual Communications Internship. Semester course; 3 or 6 credits. Prerequisite: permission of chairman required. May be repeated to a maximum of 6 credits. Supervised study in cross-disciplinary visual communications research projects to integrate theory with practice. Training is provided under the direction and supervision of qualified professional practitioners and a faculty advisor.

611 Visual Communications Workshop. Semester course; 18 studio hours. 9 credits. May be repeated. A team-taught studio course focusing on the philosophical, communicative, and aesthetic relationships of visual communications problem solving and the effective articulation of concepts.

621 Visual Communications Seminar. Semester course; 3 lecture hours. 3 credits. May be repeated. A detailed examina-
tion of selected theoretical, historical, aesthetic, and social areas of concern to me designer. Scholarly research, critical analysis, and discussion are expected.

631 Visual Communications Teaching Practicum. Semester course; 1 lecture and 6 practicum hours. 3 credits. Prerequisite: permission of department chairman. Observation, instruction, and practice to develop skills in the design, organization, and conduct of courses in visual communications. Explores multiple teaching strategies, student development, learning styles, and evaluation techniques.

692 Visual Communications Research/Individual Study. Semester course; 6 studio hours. 3 credits. May be repeated. The structuring, research, execution, and presentation of an independent project in visual communications under the guidance of a faculty advisor.

697 Directed Research in Visual Communications. Semester course; 12 studio hours. 6 credits. Prerequisites: successful completion of 30 credit hours of graduate study and permission of department chairman. Supervised investigation and presentation of selected problems in Visual Communications.

699 Creative Project. Semester course; 1-6 credits. Prerequisite: successful completion of 30 credit hours of graduate study and permission of department chairman. May be repeated. A course based on exploration and testing of original and expressive ideas in visual communications. Executed under the supervision of a graduate advisor and review committee.

799 Thesis. Semester course; 1-6 credits. May be repeated. Prerequisites: successful completion of 30 credit hours of graduate study and permission of department chairman. Preparation of a thesis based on carefully planned and executed independent research or study under the supervision of a graduate advisor and thesis committee. Research emphasis must be placed on problems/processes that represent significant study in design.

Department of Photography and Film

FACULTY
Bremer, David Associate Professor M.A., Ohio University; still photography.
Dixon, Clifton Associate Professor M.A., University of Maryland; cinematography.
Heroy, John Associate Professor M.F.A., State University of New York at Buffalo; still photography.
Lensen-Tomasson, Nancy Associate Professor M.F.A., University of New Mexico; still photography.
Nan, George Professor and Chairman M.S., Illinois Institute of Technology; still photography.
Quarterman, Dale Professor M.S., Illinois Institute of Technology; still photography.
Strommer, Joan Associate Professor M.F.A., University of Minnesota; cinematography.

The Department of Photography and Film seeks through its graduate program to advance the highest standards of the media of photography and film by encouraging the creative and professional growth of both its students and faculty. The goal is to provide a forum for the development and exchange of visual ideas and to encourage its members to translate these ideas through the medium with a high degree of sensitivity and proficiency.

The program is meant to be flexible. Participants in the program may choose to emphasize their search for personal expression by using either traditional or electronic technology to accomplish their personal goals. The program culminates with the presentation of a body of work, either visual or written and visual, that coherently expresses some aspect of the medium.

The successful candidate for the M.F.A. degree will be prepared adequately to continue to function as a working photographer and to begin a career in teaching or in photographic design.

ADMISSION REQUIREMENTS
Undergraduate Preparation. The 36 semester hour credits in studio art at the undergraduate level must include a minimum of nine semester hour credits in photography or cinematography.
Portfolio. Photography — a minimum of 20 recent photographs. Cinematography — A minimum of three recent films for which the applicant has had a primary responsibility in production. A videotape may be substituted for one of the films.

DEGREE REQUIREMENTS
The advanced study of photography and film is both broad and varied. Therefore, the program’s requirements are flexible and determined by the needs of each student on an individual basis. There are, however, a few definite requirements. Each student must have on completion of the program a knowledge of contemporary art history and design; a more indepth knowledge of the history of his discipline, be it still photography or film; and an understanding of the critical dialogue that is connected with his medium. The extent to which courses are suggested for students to meet these requirements depends on their background.

Typical Course of Study

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved Electives</td>
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<tr>
<td>Graduate Seminar</td>
<td>12</td>
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<tr>
<td>History of Photography and Film</td>
<td>9</td>
</tr>
<tr>
<td>Graduate Exhibition</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
</tr>
</tbody>
</table>
GRADUATE COURSES IN PHOTOGRAPHY/FILM (PTY)

500 Photographic Studio and Seminar. Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisite: permission of instructor. Experimentation in the studio with both silver and nonsilver processes for creating the photographic image, leading to producing a cohesive body of work. The seminar examines the technical and aesthetic components of these processes and the language and theories of photographic criticism.

601 Photographic Studio. Semester course; 6, 12 studio hours. 3, 6 credits. May be repeated. Nonmajors by permission of instructor. Student will work on specific problems relating to the areas of their major interests. Options will be available in black and white photography, color photography, and motion picture photography.

602 Research in Photography and Film. Semester course; 6, 12 studio hours. 3, 6 credits. May be repeated. Nonmajors by permission of instructor. Students will engage in appropriate theoretical, experimental, or historical research in a specific area.

690 Seminar in Photography and Film. Semester course; 3 lecture hours. 3 credits. An examination of contemporary issues and developments in photography and film. Students will have a chance to discuss their work and the work of others. May be repeated.

693 Field Work, Internship. Semester course; 6, 12 studio hours. 3, 6 credits. May be repeated. Professional field experience in the theoretical and practical applications of photography and film through cooperative organizations. Formal arrangements will be made with state agencies, industries, community organizations, and professionals in the field.

699 Graduate Exhibition. Semester course; 1, 3 lecture hours. 1, 3 credits. To be taken the last semester of graduate program with approval of the chairman and review of student's record. Students in this course will prepare and mount an exhibition of their own work. In addition they will be asked to provide a complete documentation of the sources and ideas presented in the exhibition.

Department of Music

FACULTY

Austin, Terry L. Associate Professor Ph.D., University of Wisconsin at Madison; conducting.

Batty, L. Wayne Professor M.M., Chicago Musical College; voice, choral music.

Bick, Donald A. Associate Professor M.M., University of Maryland; percussion.

Bilyeu, Francile Assistant Professor M.M., University of Tulsa; flute.

Bilyeu, Landon Associate Professor M.M., University of Tulsa; piano.

Blank, Allan Professor M.A., University of Minnesota; composition, theory.

Brooks, Christopher Assistant Professor Ph.D., University of Texas at Austin; music history.

Carrier, Loran Associate Professor D.M.A., University of Maryland; electronic music, composition.

Cordle, David Assistant Professor and Chairman D.M., Florida State University; piano.

Day, Melanie K. Assistant Professor M.M., Boston University; opera theatre, vocal coaching.

Donnell, Cynthia S. Associate Professor M.M., University of North Carolina, Greensboro; voice, lyric dictation.

Guerard, Sandra L. Associate Professor and Assistant Chairman Ph.D., University of Connecticut; music education.

Guthmiller, John Assistant Professor D.M.E., University of Colorado; voice, conducting.

Lohuis, Ardyth Professor D.M.A., College-Conservatory of Music, University of Cincinnati; organ, church music.

Marrion, Melissa Wulich Professor M.M., College Conservatory of Music, University of Cincinnati; piano.

Murray, Robert P. Professor D.Mus., Indiana University; violin, viola.

Newlin, Dika Professor Ph.D., Columbia University; history, literature, composition (applied).

Patykula, John Assistant Professor M.M., Virginia Commonwealth University; guitar.

Richards, Douglas J. Associate Professor M.M., Florida State University; jazz.

Robinson, J. Lawrence Professor Emeritus M.M., University of Michigan; organ, harpsichord, church music.

Smetana, František Professor Emeritus Diploma, École Normale de Musique Paris, France; cello.

Vlahcevic, Sonia K. Professor Ph.D., Catholic University; piano, theory.

West, Charles Associate Professor D.M.A., University of Iowa; clarinet.

Wilson, Neil Professor Ph.D., Indiana University; voice.

The Department of Music views graduate students as sensitive musicians who bring with them a particular educational background and a variety of life experiences. They have defined for themselves their professional and artistic goals. The graduate program is a collaborative effort among the students and the faculty to help each student achieve these goals.

The music curriculum allows individual uniqueness and expertise. Its flexibility accommodates the personal aspirations of the student while it emphasizes quality musicianship. At VCU a great deal is expected of graduate-level musicians, and the atmosphere in which they work is both provocative and challenging.

As musicians, all students perform regularly in recitals and concerts. These performances include more than 150 public concerts presented each year as well as studio and departmental recitals. VCU student and faculty composers frequently are featured in works for traditional instrumentation and/or for electronic media. Participating in the VCU musical community means involvement in a musically rich environment studio lessons with artist-teachers, small classes, independent study, and participation and touring with performing organizations and ensembles.
ADMISSION REQUIREMENTS
In addition to the School of the Arts admission requirements, applicants in music must audition. Appointments for auditions are arranged through the Department of Music office. Audition tapes may be sent by out-of-state applicants. Preparation in music history and theory is assessed through the submission of a departmentally developed written examination or through the GRE Advanced Music Examination.

Performance
Two representative works from different periods of music.

Composition
A portfolio of compositions must be submitted by all applicants to the M.M. program in composition. The portfolio should demonstrate ability to compose in traditional and nontraditional styles.

Conducting
The audition/interview will cover the following areas: knowledge of orchestration and music literature, ability to play and harmonize simple melodies at sight, and proficiency in at least one performance area.

Music Education
An appointment should be scheduled for a pre-acceptance interview with the coordinator of Music Education.

PROGRAM AND DEGREE REQUIREMENTS
Comprehensive Examinations
These exit examinations are offered at the beginning and end of each fall semester. The topics covered in the written examinations will vary according to degree concentration. Students will receive advance notification of the areas for which they will be held accountable.

Piano Proficiency Examinations
These exams, graded to the pianistic needs of the various fields of concentration, must be passed prior to the granting of the degree. The specific requirements are detailed in the Handbook for Graduate Studies in Music.

Performance Achievement Levels
Ten achievement levels have been established for applied instrumental and vocal study. These achievement levels are explicit in terms of expected repertoire, with technique and sight-read-

Performance (Master of Music)
Within the performance track there are two emphases: solo performance and conducting.

Solo Performance. The applied music faculty is comprised of artists/teachers who remain active professional performers, including musicians from the Richmond Symphony Orchestra and principal freelance performers in the metropolitan D.C. area. Faculty include soloists with major orchestras, operatic and concert singers, coaches, and conductors. Performance opportunities are available for instrumentalists and vocalists in orchestra, chamber groups, choirs, musical theater, opera, and jazz groups. Student soloists also appear with many regional and university ensembles.

Conducting. VCU offers the diversity of ensemble conducting experiences essential to the development of the graduate conductor. Conducting majors ordinarily elect to specialize in either band, choral, or orchestral conducting. At the discretion of the major teacher, the student will assist also in rehearsing and conducting major departmental ensembles. Each student will be expected to demonstrate skill in rehearsing and conducting at least one work in each of the areas outside his specialization. Conducting students will meet recital requirements through cumulative conducting experience with various ensembles and an expository paper.

Solo Performance Credits
Music History Electives ........................................ 2
Analysis for Performance and Composition .................... 6
Bibliography and Methods of Research .......................... 2
Conducting, Rehearsing, and Interpreting ..................... 3
Performance .................................................. 6
Ensemble (two semesters) ..................................... 2
Approved Electives ........................................... 5
Lecture Recital ................................................ 3
Recital ......................................................... 3

32
### Conducting

<table>
<thead>
<tr>
<th>Conducting</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Conducting</td>
<td>6</td>
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</tbody>
</table>

| Ensemble   | 2       |

| Bibliography and Methods of Research | 2       |

| Analysis for Performance | 6       |

| Music History, Literature, Composition, or Theory (at least one course in each area) | 8       |

| Approved Electives | 5       |

| Recital | 3       |

### Composition (Master of Music)

The composition degree program is centered on private study with faculty members who are themselves published composers as well as outstanding performers. Emphasis is placed on the development of traditional compositional skills as well as contemporary techniques. The availability of two separate electronic music studios gives VCU comprehensive facilities.

The degree recital requirement is fulfilled by the presentation of a full program of original works, a score and expository paper of the program’s major work, and an exit portfolio consisting of a minimum of four works.

### Music Education (Master of Music)

The Master of Music (education) is a flexible program which allows the student to choose between two emphases, one addressing the goals of the researcher and the other designed to meet the needs of the music education student who intends to pursue a career in higher education or the student who seeks to enhance skills as a teaching practitioner in the public/private schools.

In addition to required core courses, the student works with the advisor to plan a program and to select electives consistent with the chosen emphasis and the student’s individual needs and circumstances. Students have the opportunity to take courses during the fall, spring, and summer as full-time or part-time students. In addition to coursework, a thesis, recital, or research project is required.

### Master of Music: Education (Research Track)

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<thead>
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<th>Credits</th>
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<tbody>
<tr>
<td>Bibliography and Methods of Research</td>
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### Master of Music: Education (Practitioner’s Track)

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<td>Analysis for Performance</td>
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<tr>
<td>Methods of Education Research</td>
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<td>Electives</td>
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### Additional Information

Students in all fields of graduate music study may, with the approval of their advisor, department chairman, and the director of graduate studies, elect independent study for the fulfillment of course requirements.

All degree-seeking students in music should consult the current Handbook for Graduate Studies in Music for specific departmental policies which pertain to their degree programs, the calendar of diagnostic and proficiency examination dates, and comprehensive examinations.

### GRADUATE COURSES IN MUSIC

#### Courses in Performance (APM)

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<tbody>
<tr>
<td>563-564 Pedagogy</td>
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<table>
<thead>
<tr>
<th>Credits</th>
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<tbody>
<tr>
<td>571 Choral Pedagogy</td>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>575-576 Score Reading</td>
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<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>585 Opera Theatre</td>
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</table>
600-Level Private Instruction: Principal and Secondary Performing Mediums. Semester courses; repeatable without limitations; one half-hour or one hour private lessons per week. 1 to 3 credits. Extra fee required. One hour practice daily for each credit. Lessons are available in the following areas: bassoon, carillon (one credit only), cello, clarinet, conducting, composition (three credits only; by permission of instructor), double bass, drum set (undergraduate, one credit only), euphonium, flute, French horn, guitar, harp, harpsichord, oboe, opera performance, organ, percussion, piano, saxophone, synthesizer, trombone, trumpet, viola, violin, and voice. In order to register for any private lesson, nonmusic majors must obtain correct course number in either Room 132, Performing Arts Center, or at the music table in the Mosque during registration; music majors need to consult their advisors.

663 Advanced Pedagogy. Semester course; 3 lecture hours. 3 credits. Further study in pedagogical systems and techniques with emphasis on materials for intermediate and advanced-level students. Studio observation will be included. Sections: (1) piano, (2) voice, (3) organ, (4) percussion, (5) brass, (6) woodwinds, and (7) strings.

670 Large Ensembles. Semester course; 3 or 4.5 laboratory hours. 5 or 1 credit. Sections: (1) orchestra, (2) University band, (3) symphonic band, (4) chorus, and (5) Choral Arts Society. (Auditions required for sections 1, 3, and 4.) Each section may be repeated up to six times for credit.

671 Piano Technique Seminar. Semester course; 1 lecture hour. 1 credit. Physiology of piano playing. Alternative approaches to building and reconstructing technique.

673, 674 Piano Literature and Performance Practice. Semester course; 2 lecture hours. 2, 2 credits. To familiarize the student with a broad repertoire of performing and teaching material. Discussion of approaches to styles and idioms of various periods, solution of technical and musical problems encountered in specific pieces, evaluation of various editions of piano literature.

675 Teaching Practicum. Semester course; 2 lecture hours. 2 credits. A semester of supervised studio teaching consisting of intermediate and advanced piano literature.

679 Conducting, Rehearsing, and Interpreting. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Acquisition of refined conducting competence including effective and efficient rehearsal procedures, recognition and correction of errors, effective communication, appropriate stylistic interpretation, and complex dextrous skills.

681 Group Piano Methods and Management. Semester course; 2 lecture hours. 2 credits. Management, methods, and materials for group teaching. Includes beginning students of all ages, intermediate level students, and college keyboard skills classes.

690 Small Ensembles. Semester course; 2 or 3 laboratory hours. 5 or 1 credit. Auditions required for all sections. Each section may be repeated up to six times for credit. 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 orches-

SCHOOL OF THE ARTS V 155

799 Recital. Semester course; 1, 3, 6 credits. Public presentation of a full recital. Content to be approved by Graduate Committee.

Courses in Music History (MHT)

551-552 Orchestral Repertoire. Semester courses; 1 lecture hour (1 credit); 1 lecture and 2 laboratory hours (2 credits). Performance and study of selected major symphonic works from historical, analytical, and stylistic perspectives. Research reports will include comparisons of interpretations. Repertoire will consist of basic audition pieces selected by orchestras. Laboratory sessions will utilize available instrumentation for performance.

591 Topics in Music. Semester course; variable credits, 1-3. May be repeated for a maximum of nine credits. Flexible term courses in selected aspects of music performance, theory, literature, or history. See Schedule of Classes for specific topic to be offered each semester.

650 Seminar in Music History. Semester course; 2 lecture hours. 2 credits. May be repeated up to four times with different topics. Prerequisite: MHT 690. An intensive study of a limited phase or segment of music history through examination of relevant materials and extended class discussion.

666 Twentieth Century Music. Semester course; 2 lecture hours. 2 credits. May be taken concurrently. Prerequisite: MHT 690 (may be taken concurrently). Impressionistic, expressionistic, neoclassic, and neoromantic influences and styles of music. Development of new sound-generating techniques and methods for ordering the new tonal materials (offered every fifth semester).

667 Music of the Middle Ages and the Renaissance. Semester course; 2 lecture hours. 2 credits. Prerequisite: MHT 690 (may be taken concurrently). Principal musical developments from the first through the sixteenth centuries. Sacred and secular monophonic, homophonic, and polyphonic forms and styles; the development of instrumental idioms and forms.

668 Music of the Baroque. Semester course; 2 lecture hours. 2 credits. Prerequisite: MHT 690 (may be taken concurrently). Principal developments, ca. 1590-1750; accompanied monody and the beginning of opera; forms and styles of sacred and secular compositions (offered every fifth semester).

669 Music of Rococo and Classical Eras. Semester course; 2 lecture hours. 2 credits. Prerequisite: MHT 690 (may be taken concurrently). Major development in sacred and secular forms and styles, ca. 1730-1828; social and artistic influences on music; dominance of instrumental music; Mozart, Beethoven, and the German Symphony (offered every fifth semester).

670 Music of the Romantic Era. Semester course; 2 lecture hours. 2 credits. Prerequisite: MHT 690 (may be taken concurrently). Influence of the Romantic Era on concepts of musical forms and styles; the development of the art song, the growth of opera, the exploitation of instruments and tonality (offered every fifth semester).

690 Bibliography and Methods of Research. Semester course; 2 lecture hours. 2 credits. A course to introduce
graduate students to the chief bibliographic materials in music and music education to help develop skills of research and writing necessary to produce a thesis or other formal research paper. Offered yearly, fall semester.

**Courses in Music Theory (MHT)**

513 Arranging. Semester course; 3 lecture hours. 3 credits. Practical, technical, and conceptual considerations of arranging and transcribing for vocal and instrumental groups will be explored. Students will demonstrate competence in these creative areas to the optimum level of school and/or church music organizations.

615 Seminar in Music Theory. Semester course; 2 lecture hours. 2 credits. May be repeated up to four times with different topics. Topical discussions and relevant research appropriate to the principal eras of music development. (Not offered every year.)

**Courses in Music Composition (MUC)**

611-612 Analysis for Performance and Composition. Continuous course; 3 lecture hours. 3 credits. Analysis of the organization, combination, and manipulation of constructive devices of music from the eighteenth century to the present with demonstration of this knowledge through performance.

620 Composition Seminar. Semester course; 2 lecture hours. 2 credits. May be repeated up to four times for credit. Discussion, analysis, and criticism of selected compositions pertinent to the improvement of student skills and understanding.

**Courses in Music Education (MUE)**

583 Special Workshop in Music Education. Semester course; 1/2-3 credits. Flexible term courses on selected aspects of music education. See Schedule of Classes for specific offerings each term.

595 Music and the Exceptional Individual. Semester course; 3 lecture hours. 3 credits. A comprehensive study of music activities for special populations (e.g., mentally retarded, emotionally disturbed, learning disabled, cerebral palsied, etc.) of all ages. Topics will include identification of populations, programs, facilities, literature, services, and resources.

597 Human Response to Music. Semester course; 3 lecture hours. 3 credits. The human response to music in relation to physiological, cognitive, and affective responses; music ability and preference; acoustics and research methods applied in human responses to music problems will be studied.

646 Aesthetics. Semester course; 2 lecture hours. 2 credits. A study of music from the standpoint of design and craftsmanship as it embodies the principles of art defined and reflected in the literary writings of philosophers and composers. Examples of other art forms will be examined when relevant.

661-662 Music Education Philosophy and Technology. Continuous course; 3 lecture hours. 3-3 credits. Development of educational competencies which are intrinsic to contemporary educational processes including strategy design, evaluation procedures, curricula structuring, and school administration. Alternatives within these areas of competence will be developed and substantiated through philosophical rationale.

675 Pedagogy of Music. Semester course; 2 lecture hours. 2 credits. A class designed to train the prospective teacher to present the elements and materials of music in a program designed for the general classroom; to include listening, performing, composing, and incorporating music in a meaningful aesthetic experience.

676 School Music Supervision and Administration. Semester course; 2 lecture hours. 2 credits. The study of the organization, curriculum, course content, administration, and personnel problems in public school music.

799 Thesis. Semester course; 1-3 credits. Prerequisite: Permission of the music education coordinator. Preparation of a thesis based on independent research. May be repeated.

**Department of Painting and Printmaking**

**FACULTY**

Baldwin, Ruth Assistant Professor M.F.A., The American University; painting.

Bradford, James A. Associate Professor M.F.A., University of Wisconsin; painting.

Bumgardner, James A. Professor B.F.A., Virginia Commonwealth University; painting.

Campbell, Jewett Professor Emeritus attended New York Art Students' League; painting.

Donato, Gerald M. Professor M.F.A., University of Wisconsin; painting.

Doughtt, Michael Associate Professor and Chairman M.F.A., University of Wisconsin; painting.

Freed, David C. Professor M.F.A., University of Iowa; printmaking.

Gower, Ann Renee Assistant Professor M.F.A., University of Wisconsin; painting.

Kevorkian, Richard E. Professor Emeritus M.F.A., Syracuse University; painting.

Martin, Bernard M. Professor Emeritus M.A., Hunter College; painting.

Miller, James B. Associate Professor M.F.A., University of Arkansas; painting and printmaking.

Pollak, Theresa Professor Emerita attended New York Arts Students' League; painting.

Russell, Milo F. Professor Emeritus M.A., University of Virginia; painting.

Tapia, Javier Assistant Professor M.F.A., University of Texas; painting.

Tisserat, Barbara Associate Professor M.F.A., University of Wisconsin; printmaking.

Wetton, Philip S. Professor Diploma Coventry College; printmaking.

Yarowsky, Morris Professor M.F.A., California College of Arts and Crafts; painting.

The Department of Painting and Printmaking offers a graduate program in studio art leading to the M.F.A. degree. Students admitted to the program are expected to have achieved a high level of competency in either painting or printmaking. The graduate program is designed to encourage the development of professional attitudes and skills, with an emphasis on individual investigation.

**ADMISSION REQUIREMENTS, M.F.A.**

**Undergraduate Preparation.** In addition to the School of the Arts admission requirements,
applicants in the visual arts must have completed a minimum of 36 semester hour credits in art at the undergraduate level.

**Portfolio.** Painting — 12 slides of representative work. Printmaking — 12 recent unframed prints. Although all reasonable care will be given the work, the University will not be responsible for its condition.

**DEGREE REQUIREMENTS, M.F.A.**

**Program Pattern**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
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<tr>
<td><strong>First Semester</strong></td>
<td></td>
</tr>
<tr>
<td>Studio</td>
<td></td>
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<tr>
<td>6 credits major departmental studio</td>
<td>6</td>
</tr>
<tr>
<td>3 credits departmental studio</td>
<td>3</td>
</tr>
<tr>
<td>Art and Critical Theory</td>
<td>3</td>
</tr>
<tr>
<td>Graduate Seminar</td>
<td>3</td>
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<td>15</td>
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<tr>
<td><strong>Second Semester</strong></td>
<td></td>
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<tr>
<td>Studio</td>
<td></td>
</tr>
<tr>
<td>6 credits major departmental studio</td>
<td>6</td>
</tr>
<tr>
<td>3 credits approved studio elective</td>
<td>3</td>
</tr>
<tr>
<td>Art and Critical Theory</td>
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</tr>
<tr>
<td>Graduate Seminar</td>
<td>3</td>
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<tr>
<td></td>
<td>15</td>
</tr>
<tr>
<td><strong>Third Semester</strong></td>
<td></td>
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<tr>
<td>Studio</td>
<td></td>
</tr>
<tr>
<td>6 credits major departmental studio</td>
<td>6</td>
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<tr>
<td>3 credits approved studio elective</td>
<td>3</td>
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<tr>
<td>Approved Academic Elective (Graduate Level)</td>
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<tr>
<td>Graduate Seminar</td>
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<tr>
<td></td>
<td>15</td>
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<tr>
<td><strong>Fourth Semester</strong></td>
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<tr>
<td>Departmental Studio</td>
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<tr>
<td>Approved Elective (Graduate Level)</td>
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<td></td>
<td>15</td>
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<td><strong>Total</strong></td>
<td>60</td>
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**GRADUATE COURSES IN PAINTING AND PRINTMAKING (PAP)**

**525 Issues in Contemporary Visual Arts.** Semester course; 3 lecture hours. 3 credits. May be repeated up to six credits. Prerequisite: painting and printmaking majors only. The investigation of content and meaning of major directions in contemporary art as they relate to the studio. Students will relate their own work to major movements in contemporary visual art.

**527, 528 Art and Critical Theory.** Semester courses; 3 lecture hours. 3, 3 credits. Prerequisite: general art history or equivalent. Reading and interpretation of major critical works on painting and related areas. First semester: modernist critics and later schools; Greenberg, Fried, Judd, Lippard. Second semester: structuralist criticism, analysis of theoretical aspects of conceptual art, recent major critical writing on painting.

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1Enrollment in the Graduate Seminar is mandatory for the duration of the student’s study in the graduate program.

**605 Graduate Painting.** Semester course; 6 or 12 studio hours. 3 or 6 credits. A studio class in which primary emphasis is placed on the creative disciplines of contemporary painting. Special attention is given to the development of personal expression through individual criticism. May be repeated.

**615 Graduate Printmaking.** Semester courses; 6 or 12 studio hours. 3 or 6 credits. Specialization in one printmaking medium with emphasis upon technical research and the aesthetic suitability of design to medium. May be repeated.

**621 Graduate Drawing.** Semester course; 6 studio hours. 3 credits. A studio class with individual criticism. Special attention is given to contemporary concepts. Permission of instructor required for nonpainting and printmaking majors. May be repeated.

**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 Sculpture**

**FACULTY**

Helfgott, Myron Professor M.F.A., Southern Illinois University.

Henry, Charles R. Professor M.F.A., Cranbrook Academy.

King, Elizabeth Associate Professor M.F.A., San Francisco Art Institute.

North, Harold E. Professor M.F.A., Virginia Commonwealth University.

Seipel, Joseph Associate Professor and Chairman M.F.A., Rinehart School of Sculpture.

Van Winkle, Lester Professor M.A., University of Kentucky.

"In dreams begin responsibilities" William Butler Yeats once said. And so too the sculpture department is in the business of fomenting dreams and encouraging responsibility.

The Department of Sculpture exists for persons who wish to structure their ideas by manipulating tangible materials and to present opportunities to expand upon traditional methods of expression. The goals of the M.F.A. degree program in sculpture are to instill in students a sense of confidence based on accomplishments resulting from a rigorous examination of ideas and to help them develop methods of working and attitudes which will sustain them as they grow professionally.

The department has six full-time and numerous part-time faculty who represent various directions and attitudes relative to the making of art. The faculty encourage a broad range of ideas with solutions made real in wood, steel, plaster, foundry, installation, time-based media of video, performance and sound; and new technologies including holography and three-dimensional computer imaging.
Both formal and informal contact with faculty are designed into the program. Through studio reviews, seminars and research the students are expected to build an awareness of contemporary and historical definitions of art that will influence their creative work. In addition to their own investigations, the graduate students participate in and contribute to the undergraduate program.

The graduate students are provided with a generous amount of studio space and are given time, support, and encouragement to pursue their independently-determined goals.

ADMISSION REQUIREMENTS, M.F.A.

Undergraduate Preparation. In addition to the School of the Arts admission requirements, applicants in the visual arts must have completed a minimum of 36 semester hour credits in art at the undergraduate level. 

Portfolio. A minimum of 12 slides of representative work, three of which must be drawings.

DEGREE REQUIREMENTS, M.F.A.

Program Pattern

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Studio (Graduate Sculpture)</td>
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<tr>
<td>Elective</td>
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<td>Graduate Seminar</td>
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<td>Graduate Seminar</td>
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<td>Graduate Seminar(^1)</td>
<td>4</td>
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Total ................................... 60

GRADUATE COURSES IN SCULPTURE (SCU)

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.

517 Seminar in Contemporary Sculpture. Semester course; 3 lecture hours. 3 credits. A forum for consideration and discussion of recent developments in the field. May be repeated for a maximum of 12 credits.

590 Graduate Seminar. Semester course; 1 or 4 lecture hours. 1 or 4 credits. May be repeated. Degree requirement for graduate students in the Department of Sculpture. Weekly seminar for the purpose of exploring recent developments in sculpture and conducting critiques in which students can discuss the ideas and attitudes manifest in their work.

591 Topics in Sculpture. Semester course. Variable credits from 1-4. 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 topic to be offered each semester.

Department of Theatre

FACULTY

Brolio, Lawrence Assistant Professor and Assistant Chairman M.A., M.F.A., Cornell University; acting, directing, dramatic literature.

Campbell, Kenneth Professor Ph.D., University of Denver; directing.

Erickson, Maurice Leonard Associate Professor M.F.A., Ohio University; acting.

Holloway, Maurice Leonard Associate Professor Emeritus M.F.A., Boston University; creative dramatics, directing.

Hopper, Elizabeth Associate Professor M.F.A., University of Wisconsin, Madison; costume design.

Hopper, Gary Associate Professor M.F.A., Boston University; acting.

Keller, Ronald E. Associate Professor M.F.A., University of Massachusetts, Amherst; set design.

Newdick, Richard L. Professor and Chairman M.A., University of North Carolina; directing, dramatic literature.

Parker, James W. Professor Ph.D., City University of New York; theory, criticism, dramatic literature, acting.

Rodgers, Janet B. Assistant Professor M.F.A., Brandeis University; voice and speech for the stage.

Szari, Louis J. Associate Professor M.F.A., University of Texas, technical theatre.

The Department of Theatre offers intensive M.F.A. degree programs in performance, design, and theatre education. The curriculum provides graduate students with the educational and professional foundations essential to attaining the highest standards in the art of the theatre. Applicants are admitted only upon satisfactory demonstration of ability and genuine interest through audition and interview. The demands of the program are stringent; and only those students who are willing to commit themselves to the work in the department, who are capable of observing strict professional discipline, and who are in good health should apply.

The M.F.A. program is based on the philosophy that the nature of theatre requires the creative collaboration of all theatre artists working together. All share the responsibility of solving
problems relating to the planning, preparation, and realization of productions.

The curriculum consists of an intensive program of related practical and theoretical studies.

ADMISSION REQUIREMENTS, M.F.A.

In addition to the School of the Arts admission requirements, applicants in theatre must have completed a minimum of 30 semester hour credits in theatre at the undergraduate level. Professional experience will be considered also.

An audition or presentation of portfolio is required in addition to a personal interview which the applicant must arrange with the graduate advisor of the Department of Theatre.

Special Degree Option Requirements
Performance (Acting and Directing). Students must present upon entrance at least six hours of undergraduate production or technical theatre course credit or the equivalent in professional experience.

Production (Costume and Stage Design). Students must present upon entrance at least six hours of undergraduate performance course credit or the equivalent in professional experience.

Theatre Education. Students must present upon entrance at least three hours of undergraduate acting or directing credit and three hours of undergraduate design or technical theatre credit or the equivalent in professional experience.

Deficiencies in any of these special degree option requirements may be satisfied at VCU, but no graduate credit will be given for them. These prerequisites must be satisfied before the student may apply for candidacy.

CANDIDACY

After the completion of 15 and before the completion of 24 semester hours credit, or one full academic year, whichever comes first, the student seeking an advanced degree from the Department of Theatre, VCU, must apply for candidacy. Before applying for candidacy, candidates for the M.F.A. in acting must have completed two roles, at least one with a faculty director prior to applying for candidacy, in directing must have completed one state management assignment and one directing assignment (which may be an apprenticeship), in stage design must have served in a design position of substantial authority for at least one departmental production, in costume design must have completed two costume design classes and served in a position of designated authority, and in theatre education must have completed one stage management assignment and one directing assignment (which may be an apprenticeship).

In addition to the requirements listed above for the various area specialties, the process of evaluation for advancement to candidacy may require the presentation of a portfolio and/or audition; written, oral, and/or practical testing; and other devices deemed by the Department of Theatre to be serviceable measurements to determine the prospective success of the candidate at the advanced level in the program. Each candidate for the Master of Fine Arts in theatre may stand for evaluation for admission to candidacy a second time if the evaluation for candidacy is unsuccessful. If after the second evaluation the student is denied candidacy, he is obliged to withdraw from the program. In special circumstances where unusual strength in another area is evidenced and when the student is acceptable to the graduate faculty, he may be invited to transfer into another degree option. The completion of 18 semester hours credit is the latest point at which a student may transfer into another degree option without loss of credits.

Prior to applying for candidacy all students in all degree options in the M.F.A. program in theatre must satisfy the following noncredit degree requirement: Theatre History, six semester credits. This undergraduate course must be taken at this University unless exempted by test. If required to enroll in Theatre 307-308 Theatre History, the student will receive no semester credits towards the M.F.A. credit hour requirements. The exemption test must be taken no later than the end of the first semester of matriculation and may be attempted twice.

DEGREE REQUIREMENTS, M.F.A.
Core Requirements
Candidates for the M.F.A. in theatre in the areas of acting, directing, costume design, and stage design/technical theatre must satisfy the following core requirements in addition to the requirements of their special area. Theatre education candidates see below.

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. THE 703-704 Dramatic Criticism and Theory ...</td>
<td>6</td>
</tr>
<tr>
<td>B. Theatre Literature ..................................</td>
<td>6</td>
</tr>
</tbody>
</table>

(Both Theatre 703-704 and Theatre Literature may be exempted on the basis of an oral, written, or practical test administered between the date of admission to the program and the first matriculation period, or on the basis of the undergraduate transcript. If three or six hours in either or both area are exempted, the student must select the number of hours exempted in approved electives.)
Area Requirements:

A. THE 508 Scene Painting, and
   THE 640 Advanced Theatre Projects, Costume Design students only
   or
   THE 508 Scene Painting, State Design students only
   or
   THE 698 and 699 Creative Project and Creative Project Evaluation
   or
   ART 799 Thesis

Total .......................................................................... 24

Program Patterns

Acting Credits
Colloquium and Practical Training .................................. 12
Production .................................................................. 12
Graduate Acting ...................................................... 3
Approved Electives .................................................. 12
Core .......................................................................... 21

Directing

Directing ................................................................ 12
Internships ................................................................ 6
Minor emphasis ........................................................ 9
Theatre Literature
Design
Acting
Approved Electives .................................................. 12
Core .......................................................................... 21

Stage Design/Technical

Theatre
Stage Design ................................................................ 12
Costume Design ....................................................... 6
Scene Painting ........................................................... 3
Light Design ................................................................ 6
Advanced Theatre Technology .................................... 3
Approved Electives .................................................. 9
Core .......................................................................... 21

Costume Design

Costume Design ....................................................... 12
Scene Design ........................................................... 6
Light Design ............................................................. 3
Advanced Theatre Technology .................................... 3
Approved Electives .................................................. 15
Core .......................................................................... 21

Theatre Education

The Master of Fine Arts in theatre education will take the following sequence of courses; the student will not be required to satisfy the core requirements for degree options in acting, directing, costume or stage design, or dramaturgy.

Credits

Dramatic Theory and Criticism ...................................................... 6
Theatre Literature ................................................................ 6
Special Area Requirements:
Design ........................................................................... 6
Scene Design
Costume Design
Lighting Design
Sound Design

Performance ........................................................................ 6
Acting
Directing
Rehearsal and Performance
Management/Administration ............................................. 3
Stage Management
Theatre Administration

Electives ........................................................................ 6
Speech and Theatre Methods .............................................. 3
Theatre Education Curriculum Evaluation ...................... 3
Theatre Education Professional Internship ...................... 12
Approved Electives ..................................................... 9

Phase One — all course work except Creative Dramatics,
Speech and Theatre Methods, Curriculum Evaluation, and
Professional Internship.

Phase Two

Credits

Summer One: Elective .................................................. 3
Speech and Theatre Methods ........................................... 3
Academic Year: Professional Internship ......................... 12
Summer Two: Elective .................................................. 3
Curriculum Evaluation ................................................ 3

Research and Documentation, Theatre Education

A final report for Theatre Education Professional Internship is a degree requirement. Upon completion of the degree requirements four copies of this report will be prepared in accordance with School of the Arts procedures.

GRADUATE COURSES IN THEATRE (THE)

501, 502 Stage Voice and Speech. Semester course; 3, 3 credits. May be repeated with permission of instructor. Provides advanced work on breathing, support and projection of the voice with application to the demands of classical texts including Shakespeare, Moliere, and Greek drama.

505-506 Stage Design. Continuous course; 1 lecture and 4 studio hours. 3-3 credits. Prerequisite: permission of instructor. A professionally oriented study of the techniques, methods, and problems of stage design. Participation in departmental productions.

507 Introduction to Graduate Study in Speech and Theatre. Semester course; 3 credits. A study of methods used in graduate research in drama and speech.

508 Scene Painting. Semester course; 1 lecture and 4 studio hours. 3 credits. A detailed study of methods of painting scenery based on traditional and contemporary theories. Participation in departmental productions. This course may be repeated for a maximum of nine credits.

513-514 Acting Styles. Continuous course; 6 studio hours. 3-3 credits. Prerequisite: permission of instructor. A study of the history and theory of acting styles from the Greeks to the present. Open only to theatre majors upon satisfactory audition.

519 Instructional Methods in Theatre and Speech. Semester course; 3 lecture hours. 3 credits. A study of the basic
methods used in the teaching of theatre and speech communication.

525 Theatre Administration. Semester course; 3 lecture hours. 3 credits. The business aspects of successful theatre operation—college, commercial, community, regional—from basic purchasing methods to publicity and "house" operation for the finished product.

593 Professional Internship. Semester course; 3-9 credits. May be repeated. Prerequisite: permission of department chairman. A practicum in theatre conducted in cooperation with selected professional or semiprofessional theatre organizations. Majors only.

603, 604 Problems in the History of Dramatic Literature. Semester courses; 3 lecture hours. 3, 3 credits. An advanced, detailed study of a selected aspect in the development of dramatic literature.

605-606 Advanced Studies in Stage Design. Continuous course; 1 lecture and 4 studio hours. 3-3 credits. Prerequisite: permission of instructor. An advanced study in specific problems in stage design.

607 Problems in Scenic Techniques. Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisite: permission of instructor. An advanced, detailed study of selected problems in contemporary theory and practice of scenic technique. May be repeated.

609 Seminar in Production Process. Semester course; 1 lecture and 4 laboratory hours. 3 credits. May be repeated with a change of topic for a maximum of nine credits. Students and faculty in design, technical theatre, and performance working together in studio situations to identify and solve problems relating to the planning, preparation, and realization of productions.

613 Advanced Problems in Acting. Semester course; 3 credits. May be repeated with permission of instructor. Focus on acting problems related to the actor's needs to develop proficiency in craft areas.

621, 622 Problems in Costume Design. Semester courses; 2 lecture and 2 studio hours. 3, 3 credits. Prerequisite: permission of instructor. An advanced study in specific problems in costume design.

623, 624 Advanced Studies in Modern Drama. Semester course; 3 lecture hours. 3, 3 credits. Intensive, detailed studies of selected subjects in major Continental and American drama.

630 Production. Semester course; 6 laboratory hours. 3 credits. The design, rehearsal, and performance of dramatic works. May be repeated.

640, 641 Advanced Theatre Projects. Semester course; 1 or 2 lecture and 4 or 8 laboratory hours. 3 or 6 credits per semester. Individual or group projects in acting, directing, costume design, stage design, or dramaturgy. May be repeated.

651 Advanced Design Studio. Semester course; 1 lecture and 4 laboratory hours. May be repeated. Intensive individual training in design and presentation processes as they apply to contemporary professional production.

661, 662 Problems in Stage Directing. Semester courses; 3 lecture hours. 3, 3 credits. Prerequisite: permission of instructor. An advanced, detailed study of selected aspects of directing techniques for the stage.

693 Colloquium and Practical Training. Semester course; 2 lecture and 2 studio hours. 3 credits. Literary, historical, and theoretical studies together with specialized voice and movement training related to dramatic works in production. May be repeated for a maximum of 12 credits.

694 Theatre Education Professional Internship. Semester course; 1, 3, 6 credits. May be repeated. Prerequisites: THE 596 and 519 and permission of the graduate advisor in theatre. Research, design, and either implementation or thoroughly planned implementation of a curricular research and development project of relevance to a formal speech and/or theatre education program.

697 Research and Special Problems in Theatre. Semester course; 1, 3 lecture hours. 1, 3 credits. Individually directed study and research under faculty supervision on approved research problems or projects in theatre. May be repeated with permission of graduate advisor.

698 Creative Project. Semester course; 3 credits. Provides the culminating performance or design experience in the student's degree emphasis. Adjudicated by the faculty.

699 Creative Project Evaluation. Semester course; 3 credits. The major dramatic education program. Provides the student in acting, directing, costume design, and stage design the opportunity to document and evaluate the creative project. Defended before a committee of the faculty.

703-704 Dramatic Criticism and Theory. Continuous course; 3 lecture hours. 3-3 credits. The major dramatic theories from Aristotle to the twentieth century and associated movements as they affect the development of western drama.

791 Seminar in Special Issues in Theatre. Semester course; variable credit. 1-3 credits per semester. May be repeated for a maximum of nine credits. Prerequisite: permission of instructor. An advanced, detailed study of selected, contemporary issues not included in the regular curriculum. See Schedule of Classes for specific subjects to be offered each semester.

799 Thesis. Semester course; 1-6 credits. Prerequisite: Permission of the department graduate studies advisor and department chair. Preparation of a thesis based on independent research. May be repeated.
basic health sciences historically have been an integral part of the curriculum of medicine, dentistry, pharmacy, nursing, and allied health fields. In the earlier years of this University, the basic sciences departments were administered by the School of Medicine with the dean of that school working with a committee of deans to establish policy for the teaching of the basic health sciences in the several professional schools. In 1966, by the action of the Board of Visitors, a separate School of Basic Sciences and Graduate Studies was established. In 1974, with the establishment of a University-wide graduate program, it became the School of Basic Sciences, and in 1984 was renamed the School of Basic Health Sciences.

MISSION
The mission of the School of Basic Health Sciences is to provide a fertile and stimulating environment for teaching, learning, research and service; to promote the pursuit of knowledge; and to disseminate professional skills. The school and its faculty are charged to disseminate knowledge and to create new knowledge in the basic health sciences. The school and its faculty are dedicated to providing quality instruction, excellence in research and training, and critical evaluation and synthesis of biomedical knowledge and its application.

PROGRAM
All departments in the School of Basic Health Sciences provide instruction in their disciplines for students in the other schools. By developing large, strong departments with a good balance of faculty, postdoctoral fellows, and graduate assistants, it is possible to provide quality instruction for all the health profession schools and to maintain strong research, M.S., and Ph.D. programs, including combined M.S. or Ph.D., M.D. or D.D.S. programs.

MCV CAMPUS GRADUATE COMMITTEE
WILLIAM L. DEWEY, Ph.D.
Chair
The graduate programs in the School of Basic Health Sciences, School of Pharmacy, and the Department of Pathology on the MCV Campus of Virginia Commonwealth University are under the supervision of the MCV Campus Graduate Committee, which is composed of one faculty member from each department offering graduate degrees. In addition, nonvoting members representing the College of Humanities and Science and the Schools of Dentistry, Nursing, and Allied Health Professions meet with the committee. One member is chosen by the committee to serve as its convener, and the dean, School of Basic Health Sciences, serves as chairman of the MCV Campus Graduate Committee.
The graduate program directors currently on the committee are Dr. George Leichnetz, anatomy; Dr. Richard Franson, biochemistry and molecular biophysics; Dr. Daijin Ko, biostatistics; Dr. Jennifer Wayne, biomedical engineering program; Dr. Linda Corey, human genetics; Dr. Marvin Boots, medicinal chemistry; Dr. John Tew, microbiology and immunology; Dr. Joy Ware, pathology; Dr. Albert Munson, pharmacology and toxicology; Dr. Wesley J. Poyner, pharmacy and pharmaceutics; and Dr. James Poland, physiology.

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.

A student enrolled in a graduate program under the supervision of the MCV Graduate Committee may be dismissed from the school in which he is enrolled for failure to meet academic requirements prescribed by his school or failure to exhibit the attitudes and skills deemed necessary to function within his chosen scientific discipline.

Any action by a graduate student in a program under the supervision of the MCV Graduate Committee considered to be unprofessional conduct 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 admission application;
2. an act that violates the established legal standards regarding conduct of one person towards society, i.e. stealing, lying, cheating and slander;
3. conviction of a felony involving moral turpitude;
4. plagiarism or other scientific misconduct

REQUIREMENTS FOR ADMISSION
1. The purpose of admission requirements and procedures is to ensure selection of competent students whose motivation, ability, education, and character qualify them to pursue successfully graduate study in preparation for a scientific career.
2. The following credentials constitute an application and should be sent to the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23298-0568.
   a. Application for admission on a form furnished to the applicant on request. A fee in the form of a check or money order (payable to VCU), must accompany the application. The fee cannot be returned nor credited toward tuition payment.
   b. Official transcripts of all undergraduate and graduate work sent directly from college or university registrars to the School of Graduate Studies.
   c. Letters of recommendation from three present or former teachers or others believed by the applicant to be qualified to evaluate fitness to engage in graduate study for the degree in the field of choice.
   d. A personal letter from the applicant summarizing motivation, education, and aims in pursuing graduate study.
   e. Verbal, quantitative, and analytical portions of the Graduate Record Examination are required. Advanced tests (biology, chemistry, physics, or mathematics) are recommended where appropriate. The Medical College Admission Test or Dental Aptitude Test is acceptable in lieu of the Graduate Record Examination. For information on GRE examination, contact the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051 or the Office of Student Services, School of Education, Virginia Commonwealth University, Oliver Hall, 2087, Richmond, VA 23284-2020 or Educational Testing Service, Box 955, Princeton, NJ 08540.
   f. International applicants who do not use English as their natural language must have a TOEFL score greater than 550—See section on international students in Part I of this bulletin.
3. Acceptance of an applicant is based upon the recommendation of the chairman of the major department.

REGISTRATION
While most students register for the first semester beginning in August, arrangements may be made to initiate graduate work at other times during the academic year.

SCHOLARSHIPS, ASSISTANTSHIPS, AND FELLOWSHIPS
A number of state or federal teaching assistantships, scholarships, or fellowships are available, including the A. D. Williams fellowships (college endowment). The Daniel T. Watts Distinguished Fellowship is awarded to students with exceptional academic credentials.
A brief description of financial aid based on demonstrated need is contained in Part I of this bulletin. Need-based aid programs include National Direct Student Loan, college work-study, and institutional loans.

THE STUDENT’S ADVISOR AND ADVISORY COMMITTEE

1. Each student shall have an advisor and an advisory committee.

2. Appointment and duties of the advisor:
   a. The initial advisor will be the director of the graduate program of the student’s department or his/her designee.
   b. A permanent advisor shall be appointed from the graduate faculty by the chairman, MCV Campus Graduate Committee upon recommendation of the chairman of the student’s major department. Appointment should be made no later than the end of the second semester after matriculation. A change in advisor may be made by the chairman, MCV Campus Graduate Committee upon recommendation of the chairman of the major department.
   c. The advisor shall be chairman of the student’s advisory committee.
   d. The advisor shall, with the student’s advisory committee, have responsibility for guiding the student’s academic program.
   e. The advisor shall work out a plan of study with the student.
   f. The advisor shall supervise the student’s research work and thesis preparation and be one of the examiners of the thesis.
   g. At the close of each academic year, the advisor shall submit to the chairman, MCV Campus Graduate Committee, a statement covering the progress of the student and recommendations as to whether the student’s graduate studies shall be continued.

3. Appointment and duties of the student’s advisory committee.
   a. The student’s advisory committee shall be appointed at least six months prior to the comprehensive examinations by the chairman, MCV Campus Graduate Committee, upon recommendation of the student’s advisor and after the recommendation of the chairman of the major department. The composition of the advisory committee shall be such that all significant areas of the student’s course work are represented. For the purpose of examinations and thesis evaluation and because of special knowledge and distinction in the field of the candidate’s work, an additional member, who may be from a different institution, may be appointed to the student’s advisory committee by the chairman, MCV Campus Graduate Committee. Changes in the membership of the committee are made in the same way.
   (i) The committee for the Ph.D. candidate shall consist of a minimum of five members as follows: the student’s advisor; two other members of the graduate faculty of the department in which major work is to be taken; and at least two other representatives of the graduate faculty outside the major department, where feasible, from two different departments.*
   (ii) The committee for the M.S. candidate shall consist of a minimum of three members as follows: the student’s advisor, one other member of the graduate faculty of the department in which major work is to be taken, and one representative of the graduate faculty outside the major department.*

[*Note: A faculty member in the Schools of Medicine or Dentistry may be appointed to a student’s committee in lieu of a graduate faculty member if approved by the MCV Campus Graduate Committee]

b. The student’s advisory committee shall work with the student’s advisor in guiding the student’s graduate program and shall meet at least annually.

c. The student’s advisory committee shall recommend and approve a degree program (including foreign language if applicable) for the student as soon as practical. The proposed M.S. program should be filed with the chairman, MCV Campus Graduate Committee no later than the beginning of the third semester of study; for the Ph.D. degree, six months prior to the comprehensive examinations. In approving a foreign language, the student’s advisory committee is guided by the importance of the language in the scientific literature of the student’s major subject.
d. The student’s advisory committee shall conduct the oral comprehensive and final examinations.

GENERAL REQUIREMENTS FOR GRADUATE DEGREES

1. All full-time graduate students are expected to register for a minimum of 15 hours of graduate credit per semester and six semester hours during the summer exclusive of audited courses. This requirement includes research. As an example, when students are registered for ten credits in formal courses, they are expected to undertake five credits of research under their advisors or any approved faculty members. One semester hour registration is rarely permitted for graduate students on campus and only then in exceptional circumstances with prior permission.

2. Students may not take the comprehensive examination for the Ph.D. degree if their overall grade-point average is less than 2.5 or if the grade-point average for courses within the major department is below 3.0. Students may not take the final oral examination for the M.S. or Ph.D. degree if their overall grade-point average is below 3.0. Research credits shall not be counted in computing this average and shall be graded as “S”-satisfactory, “U”-unsatisfactory, or “F”-fail. Other grade interpretations are described in Part I of this bulletin.

3. All cases of unsatisfactory student performance, including any grade of “D” or “F,” failure to pass written or oral comprehensive examinations, or final examinations require approval of the MCV Campus Graduate Committee to permit students to continue. A student who has a cumulative Grade Point Average of 2.5 or less during any semester must successfully petition the MCV Graduate Committee to remain in the graduate program. The student may also lose financial aid.

4. Copies of the thesis or dissertation (as required), prepared according to standards approved by the MCV Campus Graduate Committee, shall be sent to the members of the student’s advisory committee three weeks or more before the date of the defense of thesis. These copies are to be submitted in temporary binders. Following acceptance of the thesis by the committee, the student must submit a copy of the thesis and a request for scheduling of the final examination to the chairman, MCV Campus Graduate Committee. After passing the final examination, it shall be the responsibility of the candidate to present to the chairman, MCV Campus Graduate Committee office the approved original thesis plus the minimum required number of copies (three for M.S., four for Ph.D.) in final form suitable for binding. In consultation with the office staff, the candidate shall be responsible for binding and processing of the thesis through University Library Services and for payment of all charges for these services.

5. A degree is granted only after all requirements have been fulfilled, including payment of all fees to the University, and after submission of the copies of the thesis for binding. Degrees are not granted in absentia unless specific written request is made to and permission granted by the dean of the school in which the student is enrolled.

MASTER OF SCIENCE

1. Advanced graduate study leading to the Master of Science degree is offered in the Departments of Anatomy, Biochemistry and Molecular Biophysics, Biostatistics, Human Genetics, including a tract in genetic counseling, Medicinal Chemistry, Microbiology and Immunology, Pathology, Pharmacology and Toxicology, Pharmacy and Pharmaceutics, Physiology, and the Program in Biomedical Engineering.

2. A minimum of 24 semester hours is required, exclusive of research credits. In practice it is found that two years of study usually are necessary to complete the requirements. A time limit of five calendar years, beginning at the time of first registration, is placed on work to be credited toward the Master of Science degree. Generally a maximum of one-third of the hours required for a master’s degree may be transferred from another VCU program or outside institution and applied toward the degree upon recommendation of the student’s advisory committee with the concurrence of the chairman of the MCV Campus Graduate Committee.

3. Each department, at its own discretion, may stipulate one foreign language requirement for the master’s degree. It is recommended strongly that students satisfy the foreign language requirement as soon as possible after beginning the program. Students must
do so at least two months before submission of the thesis.

4. Each student must conduct a substantial original investigation under the supervision of the advisor and prepare a thesis reporting the results of this research and analyzing its significance in relation to existing scientific knowledge. This study is reported in a thesis prepared in acceptable form and style. On approval of the thesis by the advisor, the student submits a copy to each member of the advisory committee.

5. The thesis is examined by the student's advisory committee members, who shall decide upon its acceptability. The committee members may confer with one another before making their decision. Each committee member shall report to the chair, MCV Campus Graduate Committee, through the student's advisor, when the thesis is acceptable for defense. The thesis is approved only if accepted unanimously.

6. On approval of the thesis, the student appears for a final oral examination administered by the student's advisory committee. The chairman, MCV Campus Graduate Committee or an appointee serves as chairman of the examination committee and will cast a vote. The final examination shall be open to the faculty; and its time and place (together with the candidate's name, department, and title of thesis) shall be announced at least ten working days in advance.

7. The final examination of an M.S. candidate includes the subject matter of course work as well as the thesis. A favorable vote, with no more than one negative vote, is required for the candidate to pass the examination. Only members of the student's advisory committee and the examiner appointed by the chairman, MCV Campus Graduate Committee shall vote. No examiner shall abstain from voting. A thesis is not required for completion of the genetic counseling tract in the Department of Human Genetics. In lieu of the thesis, students in this tract are required to successfully pass comprehensive oral and written examinations.

**DOCTOR OF PHILOSOPHY**

1. Advanced graduate study leading to a Doctor of Philosophy degree is offered in the Departments of Anatomy, Biochemistry and Molecular Biophysics, Biomedical Engineering, Biostatistics, Human Genetics, Medicinal Chemistry, Microbiology and Immunology, Pathology, Pharmacy and Pharmacology, Pharmacology and Toxicology, and Physiology.

2. At least two years in residence are required for entering students holding the M.S., M.D., or D.D.S. degrees and at least three years for those entering with the baccalaureate degree only. A time limit of seven calendar years, beginning at the time of first registration, is placed on work to be credited toward the Doctor of Philosophy degree.

**Admission to Candidacy**

Before admission to candidacy for the doctorate, students must have (1) completed required course work; (2) successfully completed the comprehensive examinations; and (3) fulfilled all additional departmental requirements. Students are admitted to candidacy by the chairman, MCV Campus Graduate Committee upon recommendation of their advisors and advisory committees, with the approval of the chairman of the major department.

**Comprehensive Examinations**

1. Upon satisfactory completion of all required, formal course work, the student takes written and oral comprehensive examinations. The written examination is administered by the student's major department. The student's advisory committee may require a minor field of study, in which case, the student will also take a written comprehensive examination given by that department. In the event of failure of the written comprehensive examination in the major or minor department, the student, with the approval of the MCV Campus Graduate Committee, may be permitted to repeat the written examination in the department in which the failure occurred.

2. After successfully passing the written examination(s), the student will take the oral portion within one month. This examination is conducted by the student's advisory committee. A favorable vote of the advisory committee with no more than one negative vote (all members being required to vote) shall be required to pass the oral portion of the comprehensive examination. The chairman, MCV Campus Graduate Committee or a faculty member representing the dean will chair the oral examination and will cast a vote.
3. If a student passes the written comprehensive examination, but fails the oral part, the student may be reexamined only in the oral part with the approval of the MCV Campus Graduate Committee.

4. The oral comprehensive examination is open to all members of the faculty. Faculty members in attendance may ask questions of the candidate, but their questions shall not be presented until after the advisory committee has completed its questions. Faculty members other than those on the advisory committee shall not vote on the success or failure of the candidate. The time and place of the examinations shall be posted at least ten working days in advance.

5. The examination must be completed successfully at least six months before submission of the dissertation.

Dissertation Research
1. The student must conduct a substantial original investigation under the supervision of the advisor and prepare a dissertation reporting the results of this research and analyzing its significance in relation to existing scientific knowledge.

2. When the dissertation has been completed, copies in acceptable form and style are submitted to the members of the advisory committee. The committee members decide upon the acceptability of the candidate's thesis. A favorable unanimous vote is required to approve the dissertation, and all examiners are required to vote.

3. If the advisory committee accepts the dissertation for defense, the candidate appears before them for a final oral examination. This examination is open to all members of the faculty. The final oral examination will be limited to the subject of the candidate's dissertation and related matters. A favorable vote of the candidate's advisory committee and no more than one negative vote, shall be required for passing the final oral examination. All committee members must vote. There shall be an announcement of the candidate's name, department, and title of dissertation, together with the day, place, and hour of the final oral examination at least ten working days in advance.

NONDEGREE SEEKING STUDENTS
Students not admitted to a degree program must obtain permission from the instructor before being allowed to register for courses.

SUMMER REGISTRATION
Graduate students are expected to devote ten or more weeks during the summer to full-time research. Students registered for research credit are billed at the established tuition rate.

TRAINING AS A TEACHER
Currently there is increased emphasis on competence as a teacher as well as an investigator for faculty members of colleges, universities, and professional schools. In addition to practical experience, laboratory teaching, and lecturing, students should give consideration to courses offered by the School of Education concerning learning theory, instructional strategy, and educational technology in adult education.

A complete listing of available courses in education are listed in this bulletin.

COMBINED M.S./PH.D. AND M.D. OR D.D.S. DEGREE PROGRAMS
Many future physicians and dentists, especially those interested in academic and research careers, need to start in-depth training in research while still in school or residency training. This need can be met effectively by completing the requirements for the M.S. or Ph.D. degree concurrently with the study of medicine or dentistry. The MCV/VCU medical and dental curricula, with free time for elective courses and research, provide an excellent opportunity for interested students to enter a combined M.S./Ph.D.-M.D. or D.D.S. program.

Admission of medical and dental students regularly enrolled in these schools to this combined degree program is processed through the Office of the Dean of the School of Basic Health Sciences by established procedures. The Medical College Admission Test or Dental Aptitude Test is accepted in lieu of the Graduate Record Examination. Undergraduate transcripts and references are obtained from the professional school. No application fee is required as students are already regularly enrolled in a school of the University.

The requirements for a combined professional school/graduate school degree in basic health sciences are equivalent to those required of students seeking a graduate degree alone and are determined by the individual department. One of the advisory committee members is the student's professional school advisor.

The minimum graduate residence requirement is one year for the M.S. and two years for the Ph.D. degree. Twenty-four weeks of graduate work (two summers) will be considered equiva-
lent to one year of residence. A time limit of five calendar years for the M.S. and seven calendar years for the Ph.D. degree, beginning at the time of first registration in the graduate school, applies to work to be credited toward degrees for students in combined programs.

INTERDISCIPLINARY PH.D. PROGRAMS

The Schools of Basic Health Sciences and Allied Health Professions offer Ph.D. programs in neurophysiological physical therapy and in anatomy-orthopedic physical therapy. These research degrees are planned primarily as physical therapy faculty development programs; other needs may be met for individual students. Interested physical therapists should contact the Departments of Anatomy or Physiology for details.

The School of Pharmacy offers a combined Doctor of Pharmacy and Ph.D. program in the program in pharmacetics and pharmacy administration. Interested pharmacists should contact the program director in the Department of Pharmacy and Pharmaceutics.

DEPARTMENTAL RESEARCH INTERESTS

The graduate course offerings and the list of graduate faculty for each department offering graduate work under the administration of the dean of the School of Basic Health Sciences are given in the appropriate school sections of this bulletin. The pages on which these may be found and brief statements of the research interests of the faculties of the departments follow.

School of Basic Health Sciences

1. Department of Anatomy ......................................... page 170

Research Interests: morphological and functional studies of axonal reaction, cerebral blood flow, neurotransmitter imbalance, and protein synthesis following traumatic or ischemic brain injury; neurophysiology, transmitter neurochemistry, and neuroanatomy of eye movement; neural regeneration and myelination; CNS multisensory integration; ontology, aging, and cell biology of the immune system; immune system dysfunction and therapeutic approaches to treatment of brain malignancy; endothelial pathophysiology; neuroendocrinology and hypothalamic control mechanisms; ultrastructure, immunocytochemistry, and aging of the reproductive system; computer-assisted instructional methods. The Department of Anatomy also offers a Pre-Professional Master's Degree track designed for students who are seeking to improve their academic qualifications prior to application to professional school. The track consists of 40 credit hours of course work and a library research thesis, which can be completed in one calendar year (fall and spring semesters, plus the following summer term). Enrollment is limited to ten students.

2. Department of Biochemistry and Molecular Biophysics ......................................................... page 171

Research Interests: enzyme chemistry; cellular control mechanisms; protein structure and function; macromolecular structure; genetic control of development and differentiation; complex carbohydrate biochemistry; nuclear proteins; mechanism of hormone action; neurochemistry; intracellular protein catabolism; protein and nucleic acid metabolism and processing; membrane structure and function; cell surface receptors; eucaryotic molecular genetics; spectroscopy; X-ray crystallography and other aspects of physical biochemistry. The Department of Biochemistry and Molecular Biophysics offers a Masters Degree program designed for individuals interested in a technical educational experience, but not necessarily a career in a laboratory science. The program includes 24 credit hours of course work, a laboratory research-based thesis, and requires a minimum of one calendar year (fall and spring semesters plus the following summer). Enrollment is limited to ten students.

3. Program of Biomedical Engineering ................ page 173

Research Interests: Biomedical instrumentation, signal processing, medical imaging, orthopedic and structural biomechanics, biomaterials and biocompatibility, cardiovascular hemodynamics, noninvasive diagnostics; mathematical modeling; drug delivery, molecular graphics.

4. Department of Biostatistics .............................. page 175

Research Interests: response surface applications to biomedical problems; correlation analysis; sequential analysis; multivariate analysis; statistical analysis of toxicology studies; multidimensional scaling; linear models; categorical data analysis; statistical analysis of clinical trials; epidemiological and demographic research; applications of Bayesian statistics to the medical sciences; robust statistics; stochastic modeling; time series analysis; statistical computing.

5. Department of Human Genetics ...................... page 177

Research Interests: human cytogenetics and somatic cell genetics; biochemical and molecular genetics; human population, quantitative and behavior genetics; clinical genetics including studies of twins, metabolic and neurosensory disorders, genetic counseling.

6. Department of Microbiology and Immunology ................................................................. page 178

Research Interests: microbial biochemistry, ecology, genetics and physiology; molecular biology; genetic mechanisms and regulation of prokaryotic and eukaryotic cells; biologic transport; cellular differentiation; immunobiology; immunotoxicology; immunopotentiation; host-parasite interactions; animal virology; mycology; microbial pathogenesis; cellular and molecular parasitology; cellular oncology; cellular and tumor immunology; cancer chemotherapy; antibiotics and chemotherapy.

7. Department of Pharmacology and Toxicology ................................................................. page 181

Research Interests: adrenergic receptors; analgesics; analytical toxicology; behavioral pharmacology and toxicology; cancer chemotherapy; carcinogenesis; central cardiovascular regulation; cholinerge mechanisms; clinical pharmacology; DNA damage and repair mechanisms; drug abuse; drug interactions; drug metabolizing enzymes; endogenous opioids; endogenous opioids; hepatotoxicology; ion and drug transport; immunotoxicology and immunopharmacology; macrophage function; microsomal proteins; neuropharma-
Department of Anatomy (ANA)

FACULTY

Abubaker, A. Omar  Assistant Professor (Oral and Maxillofacial Surgery)  Ph.D., D.M.D., University of Pittsburgh; temporomandibular pathogenesis.

Astruc, Juan A.  Professor M.D., Ph.D., University of Granada; neurobiology: corticofugal projections in eye movement; neuro ophthalmology and ocular motility.

Bigbee, John W.  Associate Professor  Ph.D., Stanford University; neural development and degenerative diseases.

Craig, Shirley S.  Associate Professor Ph.D., Virginia Commonwealth University; mast cell biology.

Christman, Carole W.  Instructor  Ph.D., Virginia Commonwealth University; neurobiology, axonal response to injury.

Ellison, Mary D.  Assistant Professor Ph.D., Virginia Commonwealth University; neurobiology: cerebral microvasculature.

Goldberg, Stephen J.  Professor Ph.D., Clark University; neurobiology; cranial nerve motor unit physiology.

Gudas, Stephen A.  Assistant Professor  (Rehabilitation Medicine) Ph.D., Virginia Commonwealth University; endothelial cell biology.

Haar, Jack L.  Professor  Ph.D., Ohio State University; immunobiology, immunobiology, thymic and hematopoietic stem cell differentiation.

Jackson, Caroline G.  Associate Professor Ph.D., Virginia Commonwealth University; developmental biology of the eye.

Johnson, James H.  Professor Ph.D., University of California-Los Angeles; mechanisms controlling luteinizing hormone release.

Jollie, William P.  Professor and Chairman  Ph.D., Harvard University; reproductive biology: placental transport mechanisms; neonatal immunity.

Krieg, Richard J., Jr.  Professor Ph.D., University of California-Los Angeles; growth and growth hormone secretion.

Leichnetz, George R.  Professor Ph.D., Ohio State University; CNS connections, neurobiology: cortical connections concerned with eye movement and visual attention.

Matt, Dennis W.  Associate Professor  (Obstetrics and Gynecology) Ph.D., Rutgers University; reproductive biology and aging. Invitro fertilization.

Mayer, David J.  Professor  (Anesthesiology) Ph.D., University of California-Los Angeles; CNS mechanisms of analgesia.

McClung, J. Ross  Associate Professor Ph.D., University of Texas-Galveston; neurobiology: cranial nerve motor unit anatomy.

Merchant, Randall E.  Associate Professor Ph.D., University of North Dakota; neurooncology.

Meredith, M. Alex  Associate Professor Ph.D., Virginia Commonwealth University; neurobiology: multisensory integration.

Owens, Noel O.  Associate Professor Ph.D., Nagpur University; mechanisms of vascular injury and stroke.

Pakurar, Alice S.  Associate Professor Ph.D., University of Michigan; computer-assisted instructional methods.

Phillips, Linda L.  Assistant Professor  (Neurosurgery) Ph.D., Wake Forest University; neurobiology, protein synthesis following brain injury.

Povlishock, John T.  Professor Ph.D., St. Louis University; neurobiology: morphological and functional correlates of mechanical brain injury.

Ramos, Ary S.  Assistant Professor M.D., Ph.D., Rio de Janeiro, University of California at Berkeley; neurobiology, neuronal differentiation during eye development.

Seibel, Hugo R.  Professor Ph.D., University of Rochester; reproductive biology: pineal organ.

1Department in parenthesis indicates primary appointment.
Sholley, Milton M. *Professor* Ph.D., Temple University; endothelial cell biology and cardiovascular disease.
Spencer, Robert F. *Professor* Ph.D., University of Rochester; neurobiology, anatomy, physiology, and pharmacology of visuomotor systems.
Stein, Barry E. *Professor* (Physiology) Ph.D., City University of New York; neurobiology, CNS multisensory integration.
SZakal, Andras K. *Professor* Ph.D., University of Tennessee; immunobiology: differentiation of macrophages.

501 *Gross Anatomy (Dentistry)*. 5.5 lecture and 8 laboratory hours. 9.5 credits. I. A systematic dissection and study of the human body with clinical correlation and emphasis on the head and neck.

502 *Microscopic Anatomy (Dentistry)*. 3 lecture and 6 laboratory hours. 6 credits. I. A study of the normal tissues and organs of the human body at the microscopic level, with emphasis on the histological organization and development of the oral cavity.

503 *Neuropathology (Dentistry)*. 1.5 lecture hours. 1.5 credits. I. This course provides the student with a broad exposure to the field of neuropathology. The structure and connections of the brain and spinal cord are stressed to prepare the student for dealing with physiological, pharmacological, and clinical aspects presented in other courses.

525 *Advanced Functional Anatomy (Occupational Therapy)*. 3 lecture hours and 4 lab hours. 5 credits. S. Prerequisites: BIO 205 or equivalent and permission of the instructor. A study of the anatomy and kinesiology of the human body using prospected specimens and the dissected cadaver. Emphasis is placed on the study of the extremities, particularly the hand.

529 *Advanced Functional Neuroanatomy (Occupational Therapy)*. 2 lecture hours and 2 lab hours. 3 credits. S. Prerequisites: ANA 525 and permission of instructor. A study of the morphological and functional aspects of the central and peripheral nervous systems of the human body with particular emphasis on motor activity.

607 *Embryology*. 3 lecture hours. 3 credits. I. A study of basic mechanisms and salient events of normal human development with emphasis on the ontogeny of organ systems.

609 *Gross Anatomy*. 4 lecture and 10 laboratory hours. 9 credits. I. A dissection and macroscopic study of the human body, with clinical correlations.

610 *Neuroanatomy*. 4 lecture and 4 laboratory hours. 6 credits. II. A study of the structure, connections and function of the central nervous system. Laboratory sessions complement lecture presentations, emphasizing light microscopic and ultrastructural neurohistology, gross and sectional anatomy of the brain, and tracing of functionally-related CNS connections.

611 *Histology*. 3 lecture and 6 laboratory hours. 6 credits. I. A study of the basic light and electron microscopic structure of cells, tissues, and organs. Emphasis on correlating structure with function.

613 *Advanced Studies in Anatomy*. 1-6 credits. I, II. An in-depth course in specific areas of anatomy: histology, gross anatomy, and neuroanatomy.

614 *Cytology*. 2 lecture hours. 2 credits. II. A topical approach to current areas of interest in mammalian cell and molecular biology.

616 *Techniques in Electron Microscopy*. 1-5 hours. 1-5 credits. I, II, S. Teaches basic and advanced techniques and theories of ultramicroscopy and electron microscopy as related to transmission and scanning electron microscopy.

690 *Anatomy Research Seminar*. 1 lecture hour. 1 credit. A course consisting of faculty and student-led seminars presenting current research in neurobiology, immunobiology, and reproductive biology.

691 *Special Topics in Anatomy*. 1-4 credits. I. or II. Lectures, seminars, tutorial sessions, and/or library research assignments in selected areas of advanced study not available in other graduate level anatomy courses, or as concentrated emphasis on a particular area of anatomical research.

697 *Directed Research in Anatomy*. 1-15 credits. I, II, S. Research leading to the M.S. or Ph.D. degree and elective research projects for other students.

**Department of Biochemistry and Molecular Biophysics (BIC)**

**FACULTY**

Abraham, Donald *Professor* (Chairman, Medicinal Chemistry) Ph.D., Purdue University; x-ray crystallography and drug design.
Arita, Toshio *Associate Professor* Ph.D., Niigata University; glycopolibiochemistry and cellular differentiation.
Banks, William L., Jr. *Professor* (Surgery and Preventive Medicine) Ph.D., Rutgers University; cancer, protein and nucleic acid metabolism, protein nutrition.
Brandt, Richard B. *Professor* (Preventive Medicine) Ph.D., New York University; glyoxalase enzyme system in cancer.
Chlebowski, Jan F. *Professor* (Chemistry) Ph.D., Case Western Reserve University; biosynthesis and regulation of enzyme structure and function.
Collins, James M. *Professor* Ph.D., University of Tennessee; biochemistry of cell cycle, DNA synthesis.
DeVries, George H. *Professor* Ph.D., University of Illinois; metabolism and composition of neurons and axons isolated from mammalian CNS.
Diegelman, Robert F. *Professor* (Surgery) Ph.D., Georgetown University; biology of wound repair, regulation of protein synthesis.
Evans, Herbert J. *Professor* Ph.D., Case Western Reserve University; biochemistry of hemostasis.
Franson, Richard *Professor* Ph.D., Bowman Gray School of Medicine; phospholipid metabolism.
Ghosh, Shobha *Assistant Professor* Ph.D., India Institute of Science; regulation of lipid metabolism.
Gonzales-Ros, Jose Manuel *Associate Professor* (University of Alicante) Ph.D., University of Madrid, Spain; biochemistry and biophysics of membranes.
Grogan, W. McLean *Professor* Ph.D., Purdue University; lipid metabolism in differentiation and transformation.
Harris, Robert B. *Associate Professor* Ph.D., New York University; peptide hormone processing, atrial peptide converting enzymes.

1Department in parenthesis indicates primary appointment.
2Department in brackets indicates affiliate appointment.
Hawridge, Fred M. Professor (Chemistry)\(^1\) Ph.D., University of Kentucky; analytical chemistry, bioenergetics and bioelectrochemistry and heme protein electron transfer reactions.

Liberti, Joseph P. Assistant Professor Ph.D., Loyola University, Chicago; mechanism of hormone action, regulation of translation.

Maggio, Bruno Professor Ph.D., Cordoba, Argentina; biophysical approaches to the structure of membranes and membrane proteins.

Newman, Samuye Assistant Professor Ph.D., Virginia Commonwealth University; gene expression of myelin, eucaryotic molecular biology.

Peterson, Darrell L. Associate Professor Ph.D., University of Notre Dame; structure of hepatitis B surface antigen proteins.

Roesser, James R. Assistant Professor Ph.D., University of Virginia; RNA-protein interactions and regulation of gene expression.

Roth, Karl S. Associate Professor (Pediatrics)\(^1\) M.D., Bowman Gray School of Medicine, Wake Forest University; biochemistry of inherited disorders.

Saito, Megumi Assistant Professor M.D., Kyoto University, Japan; lipid metabolism in cell differentiation.

Scarsdale, Neel Assistant Professor Ph.D., Yale University; nuclear magnetic resonance spectroscopy and macromolecular structure.

Schirch, LaVerne G. Professor Ph.D., University of Michigan; properties of enzymes involved in one-carbon metabolism.

Scott, Robert B. Professor (Internal Medicine)\(^1\) M.D., Medical College of Virginia; control of cell differentiation.

Shelton, Keith R. Professor Ph.D., University of Illinois; role of stress proteins in formation of lead-induced nuclear inclusion bodies, molecular structure of the nuclear envelope.

Van Tuyle, Glenn C. Associate Professor Ph.D., Thomas Jefferson University; mitochondrial DNA metabolism, RNA processing.

Wright, Christine S. Associate Professor Ph.D., University of California; sequencing and x-ray diffraction of wheat germ agglutinin.

Wright, H. Tonie Associate Professor Ph.D., University of California, San Diego; protein and nucleic acid structure by x-ray crystallography.

Yu, Robert K. Professor and Chairman [Chemistry, Neurology] Ph.D., University of Illinois; chemistry and metabolism of sphingolipids; chemistry and metabolism of glycoconjugates, mechanism of auto-immune diseases; control of cellular-differentiation and proliferation; NMR spectroscopy

Zehner, Zendra E. Associate Professor Ph.D., Baylor College of Medicine; regulatory signals governing gene expression.

501 Biochemistry (Dentistry). 4 lecture hours plus clinical correlations. 5 credits. I. 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.

502 Biochemistry (Medicine). 3 lecture hours. 3 credits. I. An introduction of structural biochemistry, intermediary metabolism, cell biology and methods of biochemical analysis as part of the fundamental background of modern medicine. Enrollment restricted to students accepted in the School of Medicine.

503-504/MIC 503-504 Biochemistry, Cell and Molecular Biology. 5 lecture hours. 5 credits. I, II. Prerequisites: undergraduate organic and physical chemistry, or permission of the instructor. A comprehensive introductory course that describes basic biochemistry and reviews current concepts of modern cell and molecular biology.

505-506 Experimental Biochemistry. 4 laboratory hours. 2 credits. I, II. Prerequisite: BIC 503 (or concurrent) or equivalent, quantitative chemistry. Laboratory work, including theory and practice of advanced biochemical research methods.

507-508 Bio-organic Chemistry. 3 lecture hours. 3 credits. I, II. Prerequisite: permission of the instructor. Study of structure, chemistry, and mechanism of small, biologically important molecules.

509 Biophysical Chemistry. 3 lecture hours. 2 credits. I. Study of major physical/chemical concepts of biological organization with emphasis on self-assembly and dynamic interactions of biological structures.

516C Human Nutrition. 3 lecture hours. 3 credits. This off-campus survey course is designed for secondary school health and physical education, and biology teachers as well as others who wish to expand their knowledge of nutrition. The course involves core as well as current issues in Human Nutrition and primarily involves a series of interdisciplinary lecture/discussions. Topics include: description of the biochemistry and physiology of food components and nutrients; the accepted recommendations relating to health, nutrition and exercise, physical fitness and athletic performance; as well as topics related to eating disorders; growth and development; nutrition misinformation; nutrition and health issues.

550 Basic Science Core Curriculum for Postgraduate Dental Students. 3 lecture hours. 3 credits. I. This course is designed to provide the postgraduate dental student with the educational experience in the basic science required for the successful completion of his/her specialty training program. Selected lectures in the basic science areas related to dentistry are presented and are supplemented by assigned articles.

601 Membranes and Lipids. 3 lecture hours. 3 credits. II. (Alt. yrs. spring '95) Prerequisite: BIC 503-504. Comprehensive presentation of important areas in biological membrane research. Key topics include techniques in the study of membrane lipids and proteins, "order" and organization in membranes, transport, receptors and cell surface antigens, physical measurements in membranes, reconstituted systems, and signal transduction.

602 Physical Properties of Macromolecules. 3 lecture hours. 3 credits. II. Prerequisite: BIC 503-504 and physical chemistry. Physico-chemical approaches to the determination of the structure and conformation of macromolecules.

603 Bioorganic Chemistry. 3 lecture hours. 3 credits. I. Prerequisite: permission of instructor. Study of structure, chemistry, and mechanism of small biologically important molecules.

\(^1\)Department in parenthesis indicates primary appointment.

\(^2\)Department in brackets indicates affiliate appointment.
604 Enzymology. 3 lecture hours. 3 credits. II. Prerequisites: BIC 503-504. Physical and chemical properties and mechanisms of action of enzymes. Treatment of chemical catalysis, enzyme kinetics, and correlation of enzyme structure to mechanisms.

605 Molecular Biology. 3 lecture hours. 3 credits. I. Prerequisite: undergraduate chemistry or biochemistry. Nucleic acid structure, genetic code, DNA replication, transcription, translation; structure and properties of self assembling systems: viruses, ribosomes, cytoskeletal proteins, membranes.

606 Biochemical Control Processes. 3 lecture hours. 3 credits. II. (Alt. yrs. spring '95) Prerequisite: BIC 503-504 and permission of instructor. An advanced course on aspects of control mechanisms at the molecular level.

610 Current Trends in Biochemistry. 2 lecture hours. 2 credits. I. Prerequisites: BIC 503-504. A study and literature review of common and complex biochemical substances using recent research methodology.

690 Biochemistry Research Seminar. 1 credit. I, II. Reports on recent biochemical literature and research by students and staff.

691 Special Topics in Biochemistry. 1-4 credits. I or II. Lectures, tutorial studies and/or special assignments in selected areas of advanced study not available in other courses or as part of research training.

697 Directed Research in Biochemistry. 1-15 credits. I, II, S. Research leading to the M.S. or Ph.D. degree and elective research projects for other students.

Program in Biomedical Engineering (BME)

FACULTY

Abraham, Donald J. Professor (Medicinal Chemistry) Ph.D., University of Pittsburgh; molecular graphics.

Adelaar, Robert S. Professor (Orthopedic Surgery) M.D., University of Pennsylvania; orthopedic and joint biomechanics.

Baumgarten, Clive M. Professor (Physiology) Ph.D., Northwestern University; properties of excitabile membranes, cardiac electrophysiology.

Biber, Thomas U. L. Professor (Physiology) Ph.D., University of Bern; cellular transport mechanisms.

Byron, Peter R. Professor (Pharmacy and Pharmacuetics) Ph.D., University of Manchester; instrumentation and formulations for aerosols.

Cardea, John A. Professor and Chair (Surgery, Orthopedics) M.D., West Virginia University; biomechanics and surgical procedures of total joint replacement.

Carter, W. Hans, Jr. Professor (Biostatistics) Ph.D., Virginia Polytechnic Institute and State University; design and analysis of response surface experiments.

Chlebowski, Jan Professor (Biochemistry and Molecular Biophysics) Ph.D., Case Western Reserve University; structure and function of macromolecules.

Cleary, Stephen F. Professor (Physiology) Ph.D., New York University; EMF effects on biological systems, radiation biophysics.

Damiano, Ralph J., Jr. Assistant Professor (Surgery) M.D., Duke University; cardiac waveform analysis.

DeSimone, John A. Professor (Physiology) Ph.D., Harvard University; cellular mechanisms in sensory physiology of taste.

Fatouros, Panos Professor (Radiation Physics) Ph.D., Ohio State; cephalometric radiography, magnetic resonance imaging.

Fei, Ding-yu Assistant Professor Ph.D., Pennsylvania State University; medical imaging, biofluid mechanics, and ultrasonic tissue characterization.

Freer, Richard J. Professor and Chair Ph.D., Columbia University; modeling of peptide hormones, design and synthesis of constrained peptides, fluorescence probes.

Funai, John T. Director (Cardiac Noninvasive Laboratory, McGuire VA Hospital) M.D., University of Hawaii; electrical and mechanical properties of cardiac muscle.

Gowdy, Robert H. Associate Professor (Physics) Ph.D., Yale University; general relativity and cosmology, microcomputer applications.

Grant, W. T. Associate Professor (Virginia Polytechnic Institute and State University) Ph.D., Tulane University; mathematical modeling of physiological processes.

Haas, Thomas Professor (Director Cooperative Graduate Engineering Program) Ph.D., Princeton University; biomedical materials.

Harkins, Stephen W. Professor (Gerontology) Ph.D., University of North Carolina; pain and age, psychophysics of sensation, perception and cognitive processing.

Harris, Robert B. Associate Professor (Biochemistry and Molecular Biophysics) Ph.D., New York University; design and synthesis of modulators of protein/hormone bioprocessing.

Heck, Gerald D. Assistant Professor (Physiology) Ph.D., Duke University; instrumentation design for cellular biophysics.

Hsia, Peng-Wie Assistant Professor (Surgery) Ph.D., University of Michigan; electrophysiology, signal processing.

Karnes, H. Thomas Assistant Professor (Medicinal Chemistry) Ph.D., University of Florida; biosensors and automated chemistry.

Kellogg, Glen Assistant Professor (Medicinal Chemistry) Ph.D., Northwestern University; molecular graphics and software development.

Kraft, Kenneth Associate Professor (Radiology) Ph.D., University of Rochester; medical imaging, magnetic resonance imaging.

Lamb, Robert L. Lamb Professor and Chair (Physical Therapy) Ph.D., P.T., University of Maryland; muscle biomechanics.

Lenhardt, Martin L. Professor Ph.D., Florida State University; supersonic bone conduction, auditory neurobiology.

Lutz, Harry A. Associate Professor (Surgery) Ph.D., Temple University; monitoring cerebral ischemia after severe head injury.

Marmarou, Anthony Professor (Surgery) Ph.D., Drexel University; modeling of neurological function following cerebral trauma.

Miller, W. Gregory, Jr. Professor (Pathology) Ph.D., University of Arizona; biosensors.

Moon, Peter Associate Professor (Dentistry) Ph.D., University of Virginia; dental bonding and mechanical testing of dental materials and biological reactions of materials.

Ochs, Alfred Assistant Professor Ph.D., Washington University; ocular motion in cerebellar disease, visual evoked potentials in multiple sclerosis.

1Department in parenthesis indicates primary appointment.
2Department in brackets indicates affiliate appointment.
Ottenbrite, Raphael Professor (Chemistry) Ph.D., University of Windsor; design and synthesis of polymers and biopolymers.

Pittman, Roland N. Professor (Physiology) Ph.D., State University of New York at Stony Brook; microcirculation, oxygen delivery.

Regelson, William Professor (Medicine) M.D., New York State University College of Medicine; auditory neurobiology.

Sarret, David C. Associate Professor & Chair (Surgery) D.D.S., University of Florida; dental composite restorative materials.

Schneek, Daniel Professor (Engineering Sciences and Mechanics, Virginia Polytechnic Institute and State University) Ph.D., Case Western Reserve University; cardiovascular dynamics, rheology.

Spratt, John A. Assistant Professor (Surgery) M.D., State University of New York Downstate Medical Center; cardioneurodegenerative and skeletal cardiomyopathy.

Wayne, Jennifer S. Assistant Professor Ph.D., University of California San Diego; biomechanics of cartilage and other soft tissue, joint biomechanics.

Wechsler, Andrew S. Professor and chair (Surgery) M.D., State University of New York Downstate Medical Center; cardioneurodegenerative and skeletal cardiomyopathy.

White, Kimber L. Associate Professor Ph.D., Virginia Commonwealth University; automated chemistry and immunopharmacology.

Zuelzer, Wilhelm Associate Professor (Orthopedics) M.D., Virginia Commonwealth University; biomechanics of knee and ankle joints.

502 Application of Microcomputers to Health Sciences. 1 lecture hour and 4 laboratory hours. 3 credits. I, II. Prerequisite: permission of instructor. This course introduces the various uses of microcomputers in health sciences. BASIC language and application systems such as databases, word processing and statistical programs as related to health science problems will be taught. Students are instructed in the use of the Digital Equipment Co. VAX Computer which is located in the Health Sciences Computer Center on the MCV Campus.

507 Biomedical Electronics and Instrumentation. 2 lecture and 2 laboratory hours. 3 credits. II. Fundamental principles and applications of electronics as related to biological sciences.

509 Microcomputer Technology in the Biomedical Sciences. 2 lecture and 2 laboratory hours. 3 credits. II. Microcomputer applications to the acquisition and manipulation of data in the biomedical laboratory.

511 Fundamentals of Biomechanics. 3 lecture hours. 3 credits. Prerequisites: calculus and ordinary differential equations (MAT 200-201, MAT 301 or equivalent). Presents basic properties of materials, describes methods of material testing, and introduces techniques for analyzing the solid and fluid mechanics of the body. Considers topics such as stress/strain relationships, particle mechanics, and force balances as well as viscous/inviscid flow. Bernoulli’s Law, Poiseuille flow, and laminar/turbulent states.

603 Biomedical Signal Processing. 3 lecture hours. 3 credits. Prerequisites: calculus and differential equations (MAT 301 or equivalent), including Laplace and Fourier Transforms. Explores theory and application of discrete-time signal processing techniques in biomedical data processing. Includes discrete-time signals and systems, the Discrete/Fast Fourier Transforms (DFT/FFT), digital filter design and implementation, and an introduction into processing of discrete-time random signals.

610 Microprocessor Interfacing for Biomedical Instrumentation. 2 lecture and 2 laboratory hours. 3 credits. I. Prerequisite: BME 509 or permission of instructor. Principles and applications of microprocessor interfacing for biomedical instrumentation. Topics include microprocessor architecture, assembly language, programming and debugging techniques, EPROM programming, and bus structure and interfacing.

611 Cardiovascular Dynamics. 3 lecture hours. 3 credits. I. Pre- or corequisite: PIO 501 or PIO 502. Analyzes and models the cardiovascular system in health and disease through studies on the properties of heart and vascular tissue, the mechanics of blood flow, and the application of engineering methods to the diagnosis and treatment of clinical abnormalities.

612 Structural Biomechanics. 3 lecture hours. 3 credits. Prerequisite: BME 511. Treats mechanical functions of the human body as an engineering structure II used to assist and supplement these functions. Includes movement of the musculoskeletal system, joint reaction forces, stresses and strains developed within bones, function and design of orthopedic prostheses and braces, effect of vibration and impact on the body, mathematical and other models of the body.

613 Biomaterials. 3 lecture hours. 3 credits. I. Prerequisite: undergraduate material science or permission of the instructor. Primary and secondary factors determining the performance of materials used for implants in the human body. Topics will include metallurgy of stainless steel, cobalt-chromium alloys, titanium alloys, biocompatibility of implant materials, mechanical and physical properties of biomaterials, corrosion of biomaterials, and medical polymers.

615 Medical Imaging. 3 lecture hours. 3 credits. I. Prerequisite: calculus and college physics. Covers the physical principles and techniques of medical imaging modalities such as ultrasound, x-ray, and nuclear magnetic resonance. Includes generation and detection of images, consideration of system design and qualitative image analysis.

622 Circuit Design and Analysis. 3 lecture hours. 3 credits. I. (Alt. yrs. spring '91.) Prerequisites: college physics, calculus. Emphasis is placed on the understanding in depth of the analysis and design of electronic circuits. Designed to meet the needs of quantitatively oriented students.

635 Modeling for Biomedical Engineers. 3 lecture hours. 3 credits. II. Prerequisite: permission of instructor. Applies mathematical modeling techniques to biomedical systems. Covers linear and nonlinear systems, deterministic and random systems, large systems, ecosystems, numerical techniques, graph theoretical approaches, and simulation packages. Utilizes examples of biochemical, physiological, and pharmacokinetic systems throughout.

641 Survey of Molecular Modeling Methods. Semester course; lecture and laboratory. 1 credit. Introduces computational chemistry and molecular graphics with the current
software used for drug design and small molecule/large molecule interacTions. Computational chemistry problems will be emphasized in the laboratory.

670 Advanced Molecular Modeling. Theory and Practice. Semester Course; lecture and laboratory. 3 credits. Prerequisite: PHC 641, BME 641 or permission of the instructor. Examines the principles and applications of computational chemistry and molecular graphics to current problems in drug design. Lectures focus on the application of specific computational methods and techniques to solve problems in drug/molecular design. Workshop sessions provide hands-on experience using state-of-the-art hardware and software for molecular modeling.

680-681 Research Orientation. 4 laboratory hours. 2 credits (non-didactic course) per semester. I-II. Research rotation through BME core and selected affiliate laboratories.

690 Biomedical Engineering Research Seminar. 1 lecture hour. 1 credit. I, II. Presentation and discussion of research reports and topics of current interest to the program seminar or special group seminar.

691 Special Topics in Biomedical Engineering. 1-4 credits. I, II. Lectures, tutorial studies, library assignments in selected areas of advance study, or specialized laboratory procedures not available in other courses or as part of the research training.

697 Directed Research in Biomedical Engineering. 1-15 credits. I, II, S. Research leading to the M.S. degree or elective research projects for other students.

Department of Biostatistics (BIS)

FACULTY

Bauer, David F. Associate Professor (Mathematical Sciences) Ph.D., University of Connecticut; nonparametric statistics.

Best, Alvin M., III Associate Professor (Psychiatry) Ph.D., Virginia Commonwealth University; linear models, response surface methodology, multivariate analysis, statistical computing.

Carchman, Richard A. Professor (Philip Morris, Inc) Ph.D., State University of New York, Downstate Medical Center; cyclic nucleotide metabolism in malignant transformation, macrophage function, toxicology.

Carter, Walter H., Jr. Professor and Chairman (Medicine, Pharmacology, and Toxicology) Ph.D., Virginia Polytechnic Institute and State University; design and analysis of response surface experiments, clinical trials, toxicology.

Chinchilli, Vernon M. Professor (Hershey Medical Center) Ph.D., University of North Carolina, Chapel Hill; multivariate analysis, clinical trials and nonparametric statistics, toxicological experiments.

Choi, Sung C. Professor (Neurosurgery) Ph.D., University of California; multivariate biostatistics, sequential analysis, design, and analysis of clinical trials.

Elswick, Ronald K. Assistant Professor Ph.D., Virginia Commonwealth University; multivariate analysis, statistical computing, clinical trials.

Flora, Roger E. Associate Professor (Pharmaceutical Research Associates, Inc.) Ph.D., Virginia Polytechnic Institute and State University; design and analysis of clinical trials, multivariate analysis.

Gennings, Chris Assistant Professor Ph.D., Virginia Commonwealth University; response surface analysis, multivariate statistics, toxicology.

Johnson, Robert E. Associate Professor (Mathematical Sciences) Ph.D. University of North Carolina, Chapel Hill; linear models, nonparametrics, survey sample theory.

Kilpatrick, S. James Professor Ph.D., The Queen's University of Belfast; health services research, epidemiology.

Kish, Charles W., Jr. Assistant Professor Ph.D., Virginia Commonwealth University; design and analysis of clinical trials, multivariate analysis, response surface methodology, software design and statistical computing.

Ko, Dajjin Associate Professor Ph.D., University of Washington; robust statistics, directional data, population estimates, time series analysis, stochastic modeling.

McClish, Donna K. Associate Professor Ph.D., University of North Carolina; statistical methods in epidemiology, applied stochastic process, health services research.

Minton, Paul D. Professor Emeritus Ph.D., North Carolina State University; distributions and models for biomedical applications.

Peace, Karl E. Associate Professor (Biopharmaceutical Research Consultants, Inc.) Ph.D., Virginia Commonwealth University; survival analysis, design and analysis of clinical trials.

502 Application of Microcomputers to Health Sciences. 1 lecture hour and 4 laboratory hours. 3 credits. I, II. Prerequisite: permission of instructor. This course introduces the various uses of microcomputers in health sciences. BASIC language and application systems such as data bases, word processing, and statistical programs as related to health science problems will be taught. Students are instructed in the use of the Digital Equipment Co. VAX computer which is located in the Academic Computer Center on the MCV Campus.

513-514/STA 513-514 Mathematical Statistics. 3 lecture hours. 3 credits. I, II. Prerequisite: MAT 307 Multivariate Calculus. Probability, random variables and their properties, distributions, conditional distributions, moment generating functions, limit theorems; Neyman-Pearson and likelihood ratio criteria for testing hypotheses.

516 Biostatistical Consulting. 1 lecture hour. 1 credit. I, II. The principles dealing with the basic art and concepts of consulting in biostatistics. The nonstatistical course discusses role, responsibilities of biostatisticians, relationship between clients and consultants, method of writing reports, etc.

523/STA 523 Nonparametric Statistical Methods. 3 lecture hours. 3 credits. II. 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.

524 Biostatistical Computing. 3 lecture hours. 3 credits. I. The Statistical Analysis System (SAS) is both a powerful computer language and a large collection of statistical procedures. Students learn how to create and manage computer data files. Techniques for thorough examination and valida-

1Department in parenthesis indicates primary appointment.

2Department in brackets indicates affiliate appointment.
tion of research data are presented as the initial step of a complete, computerized analysis. Descriptive statistics are computed and statistical procedures such as t-tests, contingency tables, correlation, regression, and analysis of variance are presented in this section. Special attention is paid to the applicability of each procedure. Students are encouraged to analyze their own or typical data from their discipline.

530(S) Elements of Biometry. 5 lecture hours weekly during July. 2 credits (for dental and medical fellows: graduate students with consent). Concepts of biostatistics and epidemiology. Summary statistics and tables. Normal distribution and statistical association. Chi-square tests, t-tests, Wilcoxon test, and other tests. Sensitivity, specificity, odds ratios, and related topics. Clinical trials, prospective and retrospective studies, and other miscellaneous topics in biostatistics and epidemiology.

531 Epidemiology and Risk Assessment. 3 lecture hours. 3 credits. II. A survey course which focuses on the concepts of epidemiology and its role in risk assessment. This course will distill the underlying theory and the principles used by epidemiologists. The course will introduce the sources and uses of vital data, their conversion into morbidity and mortality rates and indices. Procedures such as age standardization and abridged life table will be introduced as will be concepts of disease transmission, epidemicity and various summary statistics. The Surgeon General's criteria for causation will be examined, designs in epidemiological research reviewed and the use and limitations of epidemiological data in risk assessment described. Students should have a current VAX account and some background in mathematics and elementary statistics.

543-544/STA 543-544 Statistical Methods. 3 lecture hours. 3 credits. I. II. Prerequisite: graduate status or one course in statistics with permission of instructor. Basic concepts of statistical methods, statistical measures, variation, distributions, tests of significance, analysis of variance, correlation and regression; analysis and design of factorial experiments; analysis of covariance.

546 Linear Models. 3 lecture hours. 3 credits. II. Prerequisite: STA 514 or 554. Distribution of quadratic forms under normal theory; general linear model of full rank and less than full rank, Gauss-Markov theorem; estimability.

553-554 Applied Statistics. 3 lecture hours. 3 credits. I, II. Prerequisites: MAT 200-201 or equivalent and one previous course in statistics and permission of instructor. Introduces applied statistics of biostatistics intended primarily for graduate students in the Department of Biostatistics. Reviews elementary probability, theory and frequency distributions, sampling theory, principles of inference, one and two sample problems. ANOVA. Principles of experimental design. Variance components. Multiple comparison procedures. Block designs and Latin Squares. Nested ANOVA. Multiway ANOVA. Correlation and regression analysis. Multiple regression. Nonlinear regression. ANCOVA. MANOVA. Repeated measures.

571 Clinical Trials. 3 lecture hours. 3 credits. I. Concepts of data management; statistical design and analysis in single-center and multi-center clinical trials. Data management topics include the collection, edition, and validation of data. Statistical design topics include randomization, stratification, blinding, placebo- and active-control groups, parallel and crossover designs, and power and sample size calculations. Statistical analysis topics include sequential and group sequential methods.

572 Statistical Analysis of Biomedical Data. 3 lecture hours. 3 credits. I. Statistical methodology for data sets frequently encountered in biomedical experiments. Topics include analysis of rates and proportions, epidemiological indices, frequency data, contingency tables, logistic regression, life-tables and survival analysis.

581 Applied Multivariate Analysis. 3 lecture hours. 3 credits. II. Prerequisites: STA 544 or 554. Focuses on multivariate statistical methods, including Hotelling's T-square, MANOVA, multivariate multiple regression, canonical correlation, discriminant analysis, partially and blocking, multivariate outliers, components and factor analysis, and GMANOVA. Presumes the material in BIS 543-544 or BIS 553-554, including a matrix approach to multiple regression.

615-616 Advanced Inference. 4 lecture hours. 4 credits. I, II. Prerequisites: BIS 514 and STA 508, or permission of instructor. Mathematical preliminaries: probability and measure; integration; modes of convergence. Decision theoretical approach to statistical inference; decision rules; admissibility. Bayes and minimax procedures, invariance; complete classes. Point estimation; unbiasedness; efficiency; M, L, and R estimators; U statistics. Hypothesis testing: the Neyman-Pearson theory; unbiasedness and invariant tests; conditional tests; permutation tests; rank tests; likelihood based tests. Interval estimation; confidence sets; relationship between confidence sets and families of tests; unbiased and invaraint confidence sets. Asymptotics; stochastic convergence; statistical limit theorems; ARE; asymptotic likelihood based procedures. Overview of robust statistical procedures.

625 Analysis of Categorical Data. 4 lecture hours. 4 credits. I. (Alt yrs. '93-'94.) Prerequisites: BIS 514, 554 and 572. Introduction to the theory and methods of analysis of binomial and multinomial data. Topics include exact and asymptotic analysis of contingency tables; measures of association and agreement; modelling approaches including logistic regression, loglinear models, and weighted least squares; methods for ordinal responses.

631-632 Multivariate Analysis. 3 lecture hours. 3 credits. I, II. Prerequisites: STA 514, 554 and 572. Introduction to the theory and methods of multivariate analysis. Distributions; partial, multiple, and canonical correlations; maximum likelihood and decision theoretical estimation; one- and two-sample tests; invariance, MANOVA, GMANOVA, and multiple design models, nonparametric methods; inference with covariance matrices; principal components; factor analysis; discriminant analysis; clustering; multidimensional scaling.

638-639 Statistical Design and Analysis in Toxicology. 3 lecture hours. 3 credits. I, II. (Alt yrs. '92-'93.) Prerequisites for BIS students: BIS 514 and 554. Prerequisite for non-BIS students (who can enroll on a P/F basis): BIS 554. Classical bioassay, dose-response relationships, continuous and quantal data; probit and logit analysis; estimation of the ED50; combination experiments; low dose extrapolation and risk assessment; carcinogenicity, mutagenicity, and teratogenicity screening; overview of laboratory and experimental problems for the toxicologist.

647 Survival Analysis. 3 lecture hours. 3 credits. II. (Alt yrs. spring '93.) Prerequisites: BIS 514 and 554. The analysis of
survival (or failure time) data, with/without censoring. Actuarial and life-table methods, nonparametric and parametric estimation of survival functions, and comparison of survival curves; regression methods, such as the Cox proportional hazards model; competing risks; sequential models; applications to clinical trails.

650 Design and Analysis of Response Surface Experiments. 3 lecture hours. 3 credits. I. (Alt. yrs. fall '93.) Prerequisites: BIS 546 and 554. Philosophy, terminology, and nomenclature for response surface methodology, analysis in the vicinity of the stationary point, canonical analyses, description of the response surfaces, rotatability, uniform information designs, central composite in design, and modern design criteria.

655 Quantitative Epidemiology. 3 lecture hours. 3 credits. II. (Alt. yrs. '93-'94.) Prerequisites: BIS 554 and 572. Examines the quantitative aspects of epidemiological research. Includes causality in epidemiological research; the design, analysis, and interpretation of cohort and case-control studies; bias, confounding, and misclassification, matching, stratification, and adjusting of covariates; generalized linear models in epidemiological research, goodness-of-fit tests, and goodness-of-link tests.

660 Sequential Analysis and Advanced Design and Analysis of Clinical Trials. 3 lecture hours. 3 credits. II. (Alt. yrs. spring '95.) Prerequisites: BIS 514 and 554. Sequential methods versus fixed sample methods; the sequential probability ratio test with extensions and modifications; some applications of Cox's theorem; overview of analysis of clinical trials; closed and truncated tests; group sequential tests in clinical trials; sequential monitoring; sequential estimation; other topics with emphasis in clinical trials.

667 Advanced Data Analysis. 3 lecture hours. 3 credits. I. (Alt. yrs. '93-'94.) Prerequisites: BIS 514 and 554. Explores recently developed data analysis techniques to find the main features and underlying structure of data. Includes robust methods, bootstrap, linear model diagnostics, cross validation, nonparametric regression, optimal transformation, ACE algorithm, projection pursuit regression.

690 Biostatistical Research Seminar. 1 lecture hour. 1 credit. I, II. Talks by the students, faculty, and visitors describing recent research or reviewing topics of mutual interest. 691 Special Topics in Biostatistics. Lecture and laboratory hours by arrangement. 1-4 credits. I, II. The faculty (including visiting and adjunct professors) from time to time offer courses in newly developing areas of statistics and biometry. For information, contact the department secretary.

697 Directed Research in Biostatistics. 1-15 credits. I, II. S. Research leading to the M.S. or Ph.D. degree and elective research projects for other students.

Department of Human Genetics (GEN)

FACULTY

Black, Susan Assistant Professor (Fairfax Hospital) M.D., McGill University; clinical genetics.

Bodurtha, Joann Assistant Professor [Pediatrics] M.D., M.P.H., Yale University; clinical genetics, epidemiology, birth defects.

Brown, Judith A. Professor (Obstetrics and Gynecology) Ph.D., Indiana University; cytogenetic, clinical and molecular genetics.

Carter, Anthony D. Assistant Professor (Biochemistry and Molecular Biophysics) Ph.D., Rutgers University; regulation of the G proteins as agents of signal transduction, eucaryotic molecular biology.

Chinnici, Joseph P. Associate Professor (Biology) Ph.D., University of Virginia; population genetics.

Corey, Linda A. Associate Professor [Dentistry] Ph.D., North Carolina State University; quantitative and population genetics and twin studies.

Diehl, Scott Assistant Professor Ph.D., University of Texas at Austin; molecular genetics, linkage.

Eaves, Lindon J. Distinguished Professor [Psychiatry] Ph.D., D.S., University of Birmingham; M.A., Oxon; behavior and quantitative genetics.

Holmes, W. Michael Associate Professor (Microbiology and Immunology) Ph.D., University of Tennessee; molecular genetics, nucleic acid chemistry.

Howard-Peebles, Patricia Professor (Fairfax Hospital) Ph.D., University of Texas, Austin; cytogenetics, fragile X syndrome.

Jackson-Cook, Colleen Assistant Professor Ph.D., Virginia Commonwealth University; clinical, molecular, and population cytogenetics; Down's syndrome; sperm chromosome aneuploidy.

Kendler, Kenneth S. Professor (Psychiatry) M.D., Stanford University; human behavioral and psychiatric genetics.

Lloyd, Joyce Assistant Professor Ph.D., Wesleyan University (CT); eucaryotic molecular biology, globin gene regulation.

MacLean, Charles Professor (Psychiatry) Ph.D., University of North Carolina; genetic epidemiology, biostatistics, linkage.

Markello, Thomas C. Assistant Professor [Pediatrics] M.D., Ph.D., University of Virginia; clinical molecular and biochemical genetics.

Meyer, Joanne M. Assistant Professor Ph.D., Virginia Commonwealth University; quantitative genetics, developmental genetics, computer modeling of age-related genetic effects, statistical analysis.

Nance, Walter E. Professor and Chairman [Pediatrics] M.D., Harvard; Ph.D., University of Wisconsin; clinical genetics, twin studies and hereditary deafness.

Rizzo, William B. Associate Professor [Pediatrics] M.D., University of Illinois, College of Medicine; biochemical and clinical genetics.

Shulman, Joseph D. Professor (Fairfax Hospital) M.D., Harvard Medical School; reproductive biology.

Silberg, Judy L. Assistant Professor Ph.D., Virginia Commonwealth University; behavior genetics, psychology, twin studies, adolescent behavior, psychological testing.

Wolf, Barry Professor [Pediatrics] M.D., Ph.D., University of Illinois College of Medicine; biochemical and clinical genetics, newborn screening.

Young, Reuben B Professor [Pediatrics] M.D., Medical College of Virginia; pediatric endocrinology and genetic disorders of sexual differentiation.

501 Introduction to Human Genetics. 3 lecture hours. 3 credits. I. An introductory course in the principles of inheritance with particular reference to genetic variation in man.

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2Department in brackets indicates affiliate appointment.
502 Advanced Human Genetics. 2-6 lectures. 2-6 credits. I, II. A comprehensive study of the principles of specific areas in human genetics. This course supplements GEN 501 and is offered specifically for graduate students majoring in human genetics.

511 Human Cytogenetics. 3 lecture hours. 3 credits. II. Prerequisites: GEN 501 and GEN 502. I, II. A discussion of recent advances in human cytogenetics. Topics covered will include chromosome banding techniques and ultrastructure, meiosis, numerical and structural abnormalities, fragile sites, cancer cytogenetics, methodology for linkage studies, and population cytogenetics. Clinical cases are used to illustrate the application of special diagnostic methodologies.

516 Population Genetics. 3 lecture hours. 3 credits. II. Genetic and ecological factors affecting normal and abnormal variation within and between populations of organisms, especially man.

518 Methods in Human Population Genetics. 3 lecture hours. 3 credits. I. Data analysis and discussion of methods including segregation analysis and linkage. Topics covered will include inbreeding, ascertainment, and genetic epidemiology.

525-526 Practice of Genetic Counseling. Fall, 3 lecture hours. 3 credits. I and II. Provides context for practice of genetic counseling through literature review and practical techniques. Places special emphasis on pregnancy and childhood evaluation, interviewing techniques, social and ethical issues, including fieldwork in prenatal, general genetics and specialty clinics. Limited to genetic counseling students or by permission of instructor.

527-528 Medical Genetics. 3 lecture hours. 3 credits. I and II. Provides medical information and principles of human genetic disease with specific emphasis on the molecular basis of Mendelian disorders, disorders of sexual development, assessment of dysmorphic features, and the genetics of common diseases. Emphasizes the use of all available resource materials in genetics. Limited to genetic counseling students or by permission of the instructor.

531 Dental Genetics. 1 lecture hour. 1 credit. I. The basis of inheritance and variation in man, including simple and complex modes of inheritance, the nature of mutations, human chromosomal aberrations, variation in protein and antigens, genetic aspects of some syndromes, and birth defects.

600 Clinical Genetics. 1 lecture and 4 laboratory hours. 3 credits. I, II. Prerequisite: GEN 501 or equivalent. Practical experience in the genetic counseling clinic and on ward rounds. Includes collection and analysis of family histories, genetic counseling, and introduction to genetic nosology.

603 Mathematical and Statistical Genetics. 3 lecture hours. 3 credits. Prerequisite: BIS 543-544 or equivalent. Provides an introduction to the rudiments of theoretical and applied mathematical population genetics including the segregation of genes in families, genetic linkage and quantitative inheritance. Emphasizes the methods used in the analysis of genetic data.

614 Human Biochemical and Molecular Genetics. 4 lecture hours. 4 credits. II. Prerequisites: BIC 503-504, equivalent, or permission of instructor. Surveys the mechanisms and varieties of human gene mutations resulting in human genetic disease and emphasizes the different investigational disorders using current scientific literature.

617 Segregation and Linkage Analysis. 3 lecture hours, 3 credits, every spring semester. Prerequisite: Introductory Biostatistics or permission of instructor. Introduces the theory and practice of segregation and linkage analysis as applied to human kinship data. Emphasizes the techniques for the detection, characterization, and mapping of single loci with large effects on phenotype.

618 Advanced Segregation and Linkage Analysis. 3 lecture hours, 3 credits, fall semesters of even years. Prerequisite: GEN 617 or permission of instructor. Focuses on advanced topics related to segregation and linkage analysis. Presents alternatives to single major locus segregation patterns, advanced linkage analysis techniques such as multipoint mapping, and combined segregation and linkage analyses.

619 Quantitative Genetics. 3 lecture hours. 3 credits. II. The effects of genes and environment on complex human traits with emphasis on: Genetic architecture and evolution; nongenetic inheritance; mate selection; developmental change; sex-effects; genotype-environment interaction; resolving cause from effect; design of genetic studies, statistical methods and computer algorithms for genetic data analysis.

620 Principles of Human Behavioral Genetics. 3 lecture hours. 3 credits. I, II. The theory of genetic and nongenetic transmission considered in relation to the design, analysis, and interpretation of studies to identify the principal genetic and environmental causes of behavioral variation. Included will be analysis of intelligence, personality, social attitudes, and psychiatric disorders.

690 Genetics Research Seminar. 1 lecture hour. 1 credit. I, II. Selected topics in genetics presented by students and staff.

691 Special Topics in Genetics. 1-4 credits. I, II. Lectures, tutorial studies, library assignments in selected areas of advanced study or specialized laboratory procedures not available in other courses or as part of the research training.

697 Directed Research in Genetics. 1-15 credits. I, II, S. Research leading to the M.S. or Ph.D. degree and elective research projects for other students.

Department of Microbiology and Immunology (MIC)

FACULTY

Adler, Stuart P. Professor (Medicine) M.D., Johns Hopkins University; molecular epidemiology, epidemiology of CMV, human parvovirus B19, epidemiology and molecular biology.

Archer, Grodon L. Professor (Medicine) M.D., University of Virginia; staphylococcal genetics, virulence factors in Staphylococcus epidermidis, prosthetic value endocarditis.

Barbour, Suzanne E. Assistant Professor Ph.D., John Hopkins University School of Medicine; regulation of cell phospholipid metabolism. The role of phospholipid metabolism in the control of macrophage cell biology.

1Department in parenthesis indicates primary appointment.
Bear, Harry D. Associate Professor (Surgery) Ph.D., M.D., Virginia Commonwealth University; tumor immunology.
Bradley, S. Gaylen Professor [Pharmacology and Toxicology] Ph.D., Northwestern University; regulation of microbial metabolism, biology of actinomycetes, biology of Naegleria, cellular and molecular bases of microbial pathogenesis, microbial toxins and drug interactions.
Buck, Gregory A. Associate Professor Ph.D., University of Washington; eukaryotic gene expression and RNA processing, catalytic RNA, molecular pathogenicity of trypanosomes and Pneumocystis carinii, automated nucleic acid synthesis and sequencing.
Burns, James C. Associate Professor [Oral Pathology] D.D.S., Ph.D., Virginia Commonwealth University; herpes virology, cytomegalovirus and the etiology of Sjogren's syndrome, latency of virus infection in mice.
Burton, Gregory F. Assistant Professor Ph.D., Medical College of Virginia/Virginia Commonwealth University; follicular dendritic cells in HIV/AIDS pathogenesis and regulation of the antibody response.
Cabral, Guy A. Associate Professor Ph.D., University of Connecticut; viral oncology (herpes virus); herpes virology, cytokine regulation, and RNA processing, catalytic RNA, molecular pathogenicity of trypanosomes and Pneumocystis carinii, automated nucleic acid synthesis and sequencing.
Christie, Gail E. Associate Professor Ph.D., Yale University; protein-nucleic acid interactions in regulation of gene expression, RNA polymerase structure and function, global control mechanisms.
Coleman, Phillip H. Professor D.V.M., University of Georgia; Georgia, Ph.D., University of Wisconsin; vertebrate virology.
Conrad, Daniel H. Professor Ph.D., West Virginia University; mechanisms of immediate hypersensitivity, structure and function of IgE receptors.
Dalton, Harry P. Professor [Clinical Pathology] Ph.D., University of Massachusetts; clinical microbiology including pathogenesis of infectious disease, Chlamydia detection, and mechanisms of antibiotic resistance.
Formica, Joseph V. Associate Professor Ph.D., Georgetown University; pathogenesis, physiology and biological control of Agrobacterium tumefaciens.
Gates, James E. Gates Associate Professor [Biology] Ph.D., University of Missouri at Columbia; applied and environmental microbiology.
Hard, Richard C. Associate Professor [Pathology] M.D., St. Louis University; pathogenesis of host vs. graft disease; experimental model of pediatric AIDS, maternal-fetal transmission of HIV.
Holmes, W. Michael Associate Professor [Human Genetics] Ph.D., University of Tennessee; molecular genetics of RNA in metabolic control, RNA-protein interactions, Pol III gene expression.
Hsu, Hsiu-Sheng Associate Professor Ph.D University of Pennsylvania; host-parasite relationships and experimental pathology of bacterial infectious diseases.
Huff, Thomas F. Associate Professor Ph.D., University of Louisville; basic mechanisms of immediate hypersensitivity, mast cell differentiation, IgE regulation, protooncogenes and hematopoiesis.
Hylemon, Phillip B. Professor Ph.D., Virginia Polytechnic Institute and State University; biochemistry and genetics of steroid metabolism by anaerobic gut bacteria, regulation of cholesterol and bile acid biosynthesis in the liver, enzymology and genetics of hydroxysteroid dehydrogenases.
Jacobson, Eric S. Associate Professor [Medicine] M.D., Ph.D., University of Wisconsin; pathogenesis of cryptococcosis, genetic study of Cryptococcus neoformans.
Koertge, Thomas E. Associate Professor [Periodontics] D.D.S., Ph.D., University of Iowa; immunology of periodontal disease, secretoryory.
Krystal, Geoffrey D. Assistant Professor [Medicine] M.D., University of Miami, Ph.D. State University of New York, Stoney Brook; molecular biology of oncogenes, transcription and RNA processing of the myc gene family.
Lebman, Deborah A. Assistant Professor Ph.D., University of Pennsylvania; regulation of immunoglobulin genes, cytokines, molecular immunology.
Loria, Roger M. Professor [Academic Pathology] Ph.D., Boston University; host-virus interactions; enteroviruses in diabetes mellitus; cardiovascular diseases and atherosclerosis; upregulation of host immunity to infectious diseases; role of environmental factors, nutrition, lipids, and pesticides on virus infections.
Macrina, Francis L. Professor and Chair Ph.D., Syracuse University; genetic control of colonization and virulence in human indigenous microflora.
Marciano-Cabral, Francine Associate Professor Ph.D., University of Connecticut; pathogenic protozoa, parasite-host interactions, parasite-immunology, host resistance mechanisms.
Markowitz, Sheldon Professor [Medicine] M.D., Virginia Commonwealth University; genetics and physiology of bacterial pathogens, molecular epidemiology, investigational chemotherapy.
McCoy, Kathleen L. Assistant Professor Ph.D., University of Washington; regulation of immune responsiveness with emphasis on antigen processing and presentation.
Mikkelsen, Ross B. Associate Professor [Department of Radiation Oncology] Ph.D., University of California, Santa Barbara; host-parasite interactions in malaria and Ca2+/pH homeostasis and growth control in tumor cells.
Monaco, John J. Assistant Professor Ph.D., Stanford University; immuno genetics, molecular biology of the immune system, major histocompatibility complex antigen processing.
O'Neal Charles H. Associate Professor Ph.D., Emory University; proteins and nucleic acids involved in cellular transformation; role of tRNA in metabolic control.
Povirk, Lawrence F. Associate Professor [Pharmacology and Toxicology] Ph.D., University of California, Berkeley; molecular mechanisms of mechanisms of mutagenesis; molecular actions and targets for cancer chemotherapeutic agents.
Regelson, William Professor [Medicine] M.D., New York State University College of Medicine, Downstate; the immunological regulation of tumor growth, gerontological research, chemotherapy, and host resistance to both tumor and microbiological disease.
Rosenkrantz, Mark S. Assistant Professor Ph.D., Tufts University; regulation of nuclear genes required for mitochondrial function in eukaryotic cells.
Ruddy, Shaun Professor [Medicine; Division of Immunology and Connective Tissue Diseases] M.D., Yale University; cellular interactions with complement receptors, transmembrane signalling by immunoglobulin Fc receptors.
Schwartz, Lawrence B. Professor [Medicine] [Pathology] Ph.D., M.D., Washington University; immunology and biochemistry of mast cells.

1Department in parenthesis indicates primary appointment.
2Department in brackets indicates affiliate appointment.
Sung, San-Sang J. Assistant Professor (Radiation Oncology) \(^1\) Ph.D., Michigan State University; regulation of tumor necrosis factor gene expression in human lymphocytes. 

Swerdlow, Paul S. Assistant Professor (Medicine) \(^2\) M.D., Harvard University; ubiquitin and chromatin structure in eukaryotic differentiation. 

Taylor, Shirley M. Assistant Professor Ph.D., University of Southern California; regulatory mechanisms during cell differentiation; identification and characterization of lineage determination genes and mechanisms controlling their expression. Regulation of expression of folate-dependent enzymes. 

Tew, John G. Professor Ph.D., Brigham Young University; role of follicular dendritic cells in the immune response and the role of immune mechanisms in the pathogenesis of periodontal disease. 

Valerie, Kristoffer Assistant Professor (Radiation Oncology) \(^3\) Ph.D., Royal Institute of Technology, Stockholm; radiation-induced gene expression and DNA repair; genetic regulation of human immunodeficiency virus. 

Westin, Eric H. Associate Professor (Medicine) \(^4\) [Pharmacology and Toxicology] \(^5\) M.D., Albany Medical College; structure, function and control of expression of the cellular by protooncogene in human hepatopoeisis. 

Yager, Dorne R. Assistant Professor (Surgery) \(^6\) Ph.D., University of North Carolina, Chapel Hill; molecular virology; molecular biology of wound healing. 

502 Microbial Biotechnology. 3 lecture hours. 3 credits. I. Prerequisites: BIC 503 or equivalent. 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 antibody production. The products to be considered include antibiotics, steroids, vitamins, organic acids and solvents in addition to monoclonal antibodies and products resulting from the application of recombinant DNA technology. 

503-504/BIC 503-504 Biochemistry, Cell and Molecular Biology. 5 lecture hours. 5 credit hours. I, II. Prerequisites: undergraduate organic and physical chemistry, or permission of the instructor. A comprehensive introductory course that describes basic biochemistry and reviews current concepts of modern cell and molecular biology. 

506 Immunobiology. 3 lecture hours. 3 credits. II. A survey of immunobiology as a total host response to foreign agents, covering the nature of antigens and antibodies, antigen-antibody reactions, immunocompetent cells, allergic reactions, tumor immunology, transplantation immunology, and immunogenetics. 

507 Techniques in Molecular Biology and Genetics. 1 lecture hour. 1 credit. I. This course is designed to give an overview of the techniques utilized in modern molecular biology. The principles underlying techniques such as plasmid and phage cloning, RNA detection, PCR, DNA, sequencing, genomic mapping, heterologous gene expression, and production and analysis of recombinant proteins will be discussed in detail by experts in the field. 

508-509 Introduction to Microbiology and Immunology Research. 1 lecture and 4 laboratory hours. 3 credits. I, II. 

Prerequisite: permission of instructor. Introduction to all active research programs in microbiology and immunology. Presentations of research programs by investigators and rotation of students through faculty laboratories to gain direct exposure to individual research projects. Required of all first-year graduate students. 

510 Scientific Integrity. 1 lecture hour, 1 credit. II. A survey of contemporary issues relating to scientific integrity and ethics. Topics include scientific fraud and misconduct, peer review, use of humans and animals in biomedical research, ownership of data, intellectual property, conflict of interest, scientific record keeping, and biomedical ethics. 

512 Laboratory Safety. 1 lecture hour. 1 credit. I. Describes health hazards commonly found in biomedical laboratories and appropriate safety precautions and responses. Includes hazards of working with bacteria, viruses, parasites, fungi, recombinant DNA procedures and regulations, and chemical, electrical, and fire hazards. 

513 Infection and Immunity (Dentistry). 3.5 lecture hours and 4 laboratory hours. 5.5 credits. II. A lecture and laboratory study of the disease producing microorganisms of man with special emphasis on the roles of microorganisms in oral diseases and related topics that are of importance in dentistry. 

515 Medical Microbiology I. 3 lecture hours. 3 credits. I. An introductory microbiology course designed to correlate determinative bacteriology and mycology to human disease. Emphasis will be on the interaction of the human host and infecting agents at the cellular and molecular level. 

516 Medical Microbiology II. 3 lecture hours. 3 credits. II. A comprehensive introduction to the basic principles of animal virology and human parasitology. Interactions of the infecting agents and hosts will be stressed at the molecular and cellular level. 

517 Molecular Genetics and Gene Expression. 4 lecture hours. 4 credits. II. This course is designed as a broad survey of basic genetic concepts as they pertain to molecular genetics and as an introduction to current integrated approaches to the study of the genetic apparatus of cells. Both prokaryotic and eukaryotic cellular and viral systems will be discussed with regard to organization and expression of their genetic material. 

551 Basic Science Core Curriculum for Postgraduate Dental Students. 3 lecture hours. 3 credits. II. This course is designed to provide the postgraduate dental student with the educational experience in the basic science required for the successful completion of his/her specialty training program. Selected lectures in the basic science areas related to dentistry are presented and are supplemented by assigned articles. 

604 Cell Physiology and Metabolism. 3 lecture hours. 3 credits. II. Prerequisite: MIC 503. An advanced course on the physiology and metabolism of prokaryotic and eukaryotic cells with some emphasis on the regulation of cell functions. Lectures and class discussions will focus on current scientific literature including review articles and original research papers. 

606 Molecular Biology and Genetics. 3 lecture hours. 3 credits. I, II. Prerequisite: undergraduate organic and physical chemistry, or permission of the instructor. A comprehensive
introductory course that describes the structure of the genetic material and the molecular mechanisms involved in its maintenance, replication, transmission and expression. Emphasis will be on experimental approaches integrating genetics and biochemistry in the studies of molecular genetics in prokaryotic and eukaryotic cellular and viral systems.

653 Advanced Molecular Genetics. 3 lecture hours. 3 credits. II. Prerequisite: MIC 517 or equivalent or permission of instructor. An advanced course on the molecular mechanisms of gene regulation in procaryotic and eucaryotic cells, with some emphasis on developmental control of gene expression, oncogenesis, and the molecular basis of antibody diversity. Lectures and class discussion will focus on current scientific literature, including original research papers and recent review articles.

685 Advanced Immunobiology. 2 lecture hours. 2 credits. I. Lectures, seminars, and conferences on basic and clinical immunobiology. Topics have included tumor immunology, cell interactions in the immune response, genetics of the immune response, mechanisms of host-defense and membrane receptors in immunology and neoplasia. Open primarily to residents, medical students, and graduate students with an immunology background such as MIC 506.

690 Microbiology Research Seminar. 1 lecture hour. 1 credit. I, II. Presentation and discussion of research reports and topics of current interest to the departmental seminar or special group seminars.

691 Special Topics in Microbiology. 1-4 credits. I or II. Lectures, tutorial studies, and/or library assignments in selected areas of advanced study not available in other courses or as part of the research training.

697 Directed Research in Microbiology. 1-15 credits. I, II, S. Research leading to the M.S. or Ph.D. degree and elective research projects for other students.

Department of Pharmacology and Toxicology (PMC)

FACULTY

Abd-Elfattah, Anwar S. Associate Professor (Medicine)\textsuperscript{1} Ph.D., Mississippi State University; neuropharmacology and biochemical toxicology of organophosphorus and organochlorine neuropoisons.

Abood, Mary E. Assistant Professor Ph.D., University of California at San Francisco; molecular pharmacology of opioid action, second-messenger systems, regulation of gene expression during development.

Aceto, Mario D. Professor Ph.D., University of Connecticut; mechanisms of action of analgesics and psychotherapeutic agents, drug dependence.

Balster, Robert L. Professor Ph.D., University of Houston; animal models of drug dependence, behavioral pharmacology, behavioral toxicology, excitatory amino acids, inhalation studies.

Beardsley, Patrick M. Associate Professor Ph.D., University of Minnesota; behavioral pharmacology, development of medications for drug dependency disorders.

Blanke, Robert V. Professor Emeritus Ph.D., University of Illinois; analytical toxicology, biological monitoring, trace-metal metabolism.

Borzelleca, Joseph F. Professor Ph.D., Thomas Jefferson University/Jefferson Medical College; general toxicology; safety evaluation of pesticides and chemicals; water contaminants; effects of chemicals on reproduction, food chemicals, interactions of toxic agents.

Bradley, S. Gaylen Professor (Microbiology and Immunology)\textsuperscript{1} Ph.D., Northwestern University; effects of environmental chemicals on host resistance, microbial toxins, cellular and molecular basis of microbial pathogenesis.

Carter, Walter H. Professor (Chairman, Biostatistics)\textsuperscript{1} [Medicine] Ph.D., Virginia Polytechnic Institute and State University; design and analysis of response surface experiments, clinical trials, toxicology.

Compton, David R. Assistant Professor Ph.D., University of Texas Medical Branch; CNS pharmacology, drugs of abuse, antipsychotic drugs, organophosphates, receptor binding, transmitter synthesis and release, enzyme activity, behavioral correlates to biochemical events.

DeLorenzo, Robert J. Professor (Medicine)\textsuperscript{1} Ph.D., M.D., Yale University; neuroscience and molecular neurobiology; molecular bases of membrane excitability, neuropharmacology of neuroleptic drugs, and biochemical bases of the effects of calcium on neuronal functions.

Dewey, William L. Professor [Vice President for Research and Graduate Studies] Ph.D., University of Connecticut; mechanism of action of the constituents of marijuana, narcotic analgesics and their antagonists, including the role of endogenous substances in these actions, sudden infant death, neurosciences.

Egle, John L., Jr. Professor Ph.D., West Virginia University; cardiovascular and respiratory pharmacology and toxicology.

Ellis, Earl F. Professor Ph.D., Bowman Gray School of Medicine; cardiovascular pharmacology, the arachidonic cascade, cerebral microcirculation, platelets, nonsteroidal anti-inflammatory agents, brain injury.

Freer, Richard J. Professor [Director, Biomedical Engineering Program] Ph.D., Columbia University; synthesis and pharmacology of biologically active polypeptides, molecular graphics.

Fuchs, Bruce A. Assistant Professor Ph.D., Indiana State University; immunopharmacology, neuroimmunomodulation, modulation of immunity by neuroendocrine hormones, effects of drugs of abuse on the immune system.

Gewertz, David A. Associate Professor (Medicine)\textsuperscript{1} Ph.D., Mount Sinai College with Mount Sinai School of Medicine; biochemical and molecular pharmacology of topoisomerase II antagonists, mechanisms of intrinsic drug resistance.

Glennon, Richard A. Professor (Medical Chemistry)\textsuperscript{1} Ph.D., State University of New York at Buffalo; design, synthesis and evaluation of site-selective serotonergic agents, studies on drugs of abuse and on designer drugs.

Goldman, I. David Professor (Medicine)\textsuperscript{2} M.D., University of Chicago; membrane transport of antineoplastic agents, the role of drug transport in drug action, biochemical pharmacology of antifolates, cytotoxic nucleosides, and bases.

Harris, Louis S. Harvey Haag Professor Ph.D., Harvard University; relationship between chemical and biochemical factors and pharmacological actions of drugs affecting the central nervous system.

\textsuperscript{1}Department in parenthesis indicates primary appointment.

\textsuperscript{2}Department in brackets indicates affiliate appointment.
Holsapple, Michael P. Associate Professor Ph.D., Purdue University; immuno-toxicology of nitrosoamines, immunotoxicology of chlorinated dibenzodioxins, immunopharmacology, co-culture experiments with hepatocytes and lymphocytes, effects of ethanol and drugs of abuse on the immune system.

Kunos, George Professor and Chair Ph.D., M.D., McGill University (Canada), Budapest Medical University (Hungary); molecular biology of adrenergic receptors; central mechanisms of blood pressure regulation; endogenous opioids.

Lamb, Robert G. Professor Medicine Ph.D., University of North Carolina; regulation of liver cell phospholipid and triglyceride metabolism, phospholipases and their role in chemical dependent liver cell injury, liver cell culture.

Lichtman, Aron H. Assistant Professor Ph.D., Dartmouth College; neuronal mechanisms of cannabinoid action; pharmacology of antinociception; behavioral pharmacology; drugs of abuse.

Martin, Billy R. Professor Ph.D., University of North Carolina; central nervous system pharmacology, drugs of abuse, drug metabolism.

May, Everette L. Professor Ph.D., University of Virginia; medicinal chemistry, drug abuse.

Meade, Barbara J. Assistant Professor Ph.D., D.V.M., Virginia Polytechnical Institute, University of Georgia; hypersensitivity and autoimmune responses to chemicals.

Moran, Richard G. Professor Ph.D., State University of New York at Buffalo; pharmacology and molecular biology of folate metabolism; cancer chemotherapy.

Munson, Albert E. Professor Ph.D., Virginia Commonwealth University; immunotoxicology and immunopharmacology, regulation of immune response with neurotransmitters.

Narasimhachari, Nedathur Professor (Director of Pharmacology and Toxicology) Ph.D. Delhi University; biochemical correlates of schizophrenia and depression, neuropsychopharmacology, studies on mode of action of neuroleptics; studies on catecholamines and indoleamines in psychiatric disorders.

Patrick, Graham A. Professor Ph.D., University of North Carolina; central nervous system pharmacology and neurotransmitter systems, drugs of abuse.

Poklis, Alphonse Associate Professor Pathology Ph.D., University of Maryland; analytical and forensic toxicology, drug metabolism, biological monitoring.

Povirk, Lawrence F. Associate Professor Microbiology and Immunology Ph.D., University of California, Berkeley; mutagenic effects of DNA-directed cancer chemotherapeutic agents, mechanisms of DNA damage and repair, application of DNA sequence analysis to study mutational mechanisms.

Ritter, Joseph K. Assistant Professor Ph.D., University of Utah; molecular biology of drug metabolizing enzymes in liver.

Robinson, Susan E. Associate Professor Ph.D., Vanderbilt University; interactions between putative neurotransmitters and central cholinergic neurons, correlation between behavioral and biochemical effects of drugs, effect of prenatal exposure to drugs in developing neurotransmitters.

Rosecrans, John A. Professor Ph.D., University of Rhode Island; psychopharmacology, correlations between the behavioral and biochemical effects on CNS-acting drugs, drug dependence, effects of drugs on adaptive mechanisms to chronic stress.

Satin, Leslie S. Assistant Professor Ph.D., University of California at Los Angeles; physiology, biophysics and pharmacology of ion channels in endocrine and nerve cells, calcium channels, role of ion channels in pancreatic islet B-cells, role of calcium ions in secretion, channel modulation diabetes.

Shivachar, Amruthesh C. Assistant Professor Ph.D., University of Mysore, India; brain synthesis of cytochrome P450-arachidonic acid metabolites and their mechanism of action on neuronal signaling pathways including protein kinase C, blood-brain barrier functions, glial cell proliferation.

Smith, Forrest L. Assistant Professor P.H.A., Texas Tech University, Health Sciences Center; central role of endogenous opioids and tachykinins; calcium/opiate modulation of transmembrane calcium influx and sequestration; central mechanisms of opiate analgesia, tolerance and physical dependence.

Varga, Karoly Assistant Professor Ph.D., M.D., Semmelweis Medical University (Hungary); cardiovascular physiology and pharmacology; blood pressure regulation.

Welch, Sandra P. Assistant Professor Ph.D., Virginia Commonwealth University; measurement of free intracellular calcium adenylate cyclase and other second messengers in the development of tolerance and physical dependance.

Weston, Eric H. Associate Professor Medicine Microbiology and Immunology M.D., Albany Medical College; molecular biology of proto-oncogenes in control of cell growth and differentiation, role of c-myc and c-myb in human hematopoiesis.

White, Kimber Associate Professor Biostatistics Industrial Hygiene Pharmacology and Toxicology Ph.D., Virginia Commonwealth University; immunotoxicology of polycyclic aromatic and chlorinated hydrocarbons, statistical methods in toxicology, complement, risk assessment.

Woods, Lauren A. Professor Emeritus Ph.D., Iowa State University; M.D. University of Michigan Medical School; narcotic metabolism and distribution.

Woodward, John J. Assistant Professor Ph.D., University of Washington; central nervous system pharmacology, effects of ethanol and other drugs of abuse on voltage and receptor-operated ion channels.

515 Pharmacology for Nurse Anesthetists. 3 lecture hours. 3 credits. I. The basic principles of pharmacology including mechanisms of absorption, distribution, biotransformation, elimination, dose-response relationships, drug and receptor interactions are presented followed by a detailed discussion of autonomic, cardiovascular, and renal pharmacology as it relates to nurse anesthesia.

516 Pharmacology for Nurse Anesthetists. 3 lecture hours. 3 credits. II. A detailed presentation of the pharmacology of classes of drugs used by nurse anesthetics including agents with primary therapeutic effect on the brain and endocrine glands. General and regional anesthetics will be emphasized.

535 Introduction to Toxicology. 4 lecture hours. 4 credits. I. The basic principles of toxicology and toxicological evaluations; correlations of toxicological responses with biochemical, functional and morphological changes; environmental (including occupational and public health), forensic and regulatory concerns; and risk assessment and management are presented for graduate students in the biomedical sciences.

1Department in parenthesis indicates primary appointment.

2Department in brackets indicates affiliate appointment.
536 Principles of Pharmacology and Toxicology. 5 lecture hours. 5 credits. I. Prerequisites: PIO 501 and BIC 503 or permission of instructor. A comprehensive course in pharmacology for graduate students. The mechanisms of action of major classes of pharmacologically active agents and basic principles of pharmacology are discussed. Topics include drug absorption, distribution, and metabolism; receptor theory; chemotherapeutics and endocrine pharmacology.

537 Principles of Pharmacology. 5 lecture hours. 5 credits. II. (Continuation of PMC 536) Prerequisites: PMC 536 or with permission of instructor. Topics covered in the second semester include autonomic, cardiovascular, and central nervous system pharmacology.

539 Principles of Toxicology. 5 lecture hours. 5 credits. Prerequisite: PMC 536 or permission of instructor. A comprehensive course in toxicology for graduate students in PMC and advanced graduate students from other programs. A target organ approach is used to correlate toxicological lesions with biochemical, functional and/or morphological changes. Approaches to toxicological problems are covered from aspects of experimental design to occupational/environmental concerns and legislative/regulatory actions.

548 Drug Dependence. 3 lecture hours. 3 credits. Prerequisite: graduate or post-baccalaureate standing. A broad survey course in problems of drug and alcohol use and abuse. It will focus on the pharmacology of abused drugs as well as a study of the psychological and sociological factors in drug-taking behavior, rehabilitation methods, and prevention. This course may not be taken in lieu of any pharmacology offerings in the professional schools on the MCV Campus.

597 Introduction to Pharmacological Research. 1-12 credits. I, II. Prerequisite: permission of instructor. Rotation research in pharmacology and toxicology laboratories for beginning graduate students.

609 General Pharmacology and Pain Control. 2 lecture hours per week for 2 semesters. One grade for 4 credits at end of second semester. I, II. The basic principles of pharmacology, including mechanisms of absorption, distribution, biotransformation, elimination; dose-response relationships, drug-receptor interactions are presented followed by detailed discussions of the various classes of drugs, with special consideration given to mechanisms of action and toward effects of drugs used in dentistry to control pain and related symptoms.

611 General Pharmacology and Pain Control. 2 lecture hours. 2 credits. I. A continuation of PMC 609.

625 Biochemical Pharmacology. 3 lecture hours. 3 credits. I. (Alt. yrs. fall '92) Prerequisite: PMC 536 or consent of instructor. Covers biomedical and molecular biology approaches to pharmacological problems. Emphasizes signal transduction, oncogenes, protein kinases and the control of cellular proliferation. Examines uptake, metabolism and intracellular effects of anticancer drugs, particularly the interaction with DNA.

632 Neurochemical Pharmacology. 3 lecture hours. 3 credits. II. (Alt. yrs. spring '93) Prerequisite: PMC 536 or consent of instructor. Investigates the mechanisms of drugs acting on the central nervous system in relation to their effects on endogenous neurochemical systems. Examines the milieu in which drugs act upon the central nervous system, experimental techniques frequently used in neuropharmacology, specific neurotransmitter systems, as well as the mechanisms of action of specific drugs.

633 Behavioral Pharmacology. 3 lecture hours. 3 credits. I. (Alt. yrs. fall '91) This is a survey course covering research on the effects of drugs on behavior. The major emphasis will be on schedule-controlled learned behavior. Additional topics will include drug self-administration, drug discrimination, and conditioned drug effects and behavioral toxicology. The course focuses primarily on laboratory research in animals although human research will also be covered. The relevance of this research literature to drug treatment of behavioral disorders and substance abuse will be discussed.

637 Cellular Pharmacology. 3 lecture hours. 3 credits. (Alt. yrs. spring '94.) Prerequisite: PMC 536 or consent of instructor. The principles governing the interactions of drugs and hormones with their cellular receptors are presented followed by a discussion of the biochemical mechanisms by which the interactions are transduced into specific cellular responses. Lectures are supplemented with demonstrations and student presentations of current literature in the area.

638 Cellular Mechanisms of Toxicology. 3 lecture hours. 3 credits. (Alt. yrs. fall '93.) Prerequisite: PMC 536 or consent of course director. A holistic approach is taken to describe and analyze toxicological information. Intact animal, organ, cellular, and biochemical responses to toxic agents are presented. Immunologic, genetic, endocrine, and central nervous system paradigms and their relationship to the mechanism of action of toxic agents as well as the predictive value of tests of these systems are presented. Kinetics and metabolism of toxic agents as well as statistical and analytical procedures are integrated into the discussions.

639 Drug Development. 1 lecture and 4 laboratory hours. 3 credits. I. (Alt. yrs. fall '92) Prerequisites: PMC 536 and 537 or their equivalents. The principles of drug screening, advanced testing, and procedures necessary prior to the clinical evaluation of new products are described. An emphasis is placed on physiological type procedures used in pharmacology.

641 Pharmacology Review (Dentistry). 1 lecture hour. 1 credit. A review course in pharmacology for senior dental students.

642 Patients, Drugs, Diseases, and Dentists. 1 lecture hour. 1 credit. II. Discussion of patients, their diseases, drugs used to treat these diseases, and how they relate to the practice of dentistry.

644 Forensic Toxicology. 2 lecture hours and 2 laboratory hours. 3 credits. II. (Alt. yrs. spring '92) Lecture and demonstrations in which common poisons and groups of poisons are discussed as to detection, diagnosis, and treatment of poisoning. Demonstrations include basic principles of analytical toxicology, forensic science, and courtroom testimony.

646 Immunopharmacology/Immunotoxicology. 3 lecture hours. 3 credits. (Alt. years. Spring 1992). An advanced course to give students the basic knowledge and concepts needed to critically assess the research being conducted into cytokines, receptor expression, signal transduction, therapeutic intervention, and toxicity as it relates to the immune system. Includes biochemical, molecular, genetic, clinical
therapeutic and regulatory perspectives of this rapidly advancing field in addition to immunological, pharmacological and toxicological ones.

**690 Pharmacology Research Seminar.** 1 lecture hour. 1 credit. I, II. Members of the departmental staff, students, and visiting lecturers participate in discussions on topics of current and historical interest.

**691 Special Topics in Pharmacology.** 1-4 credits. I, II. Prerequisite: permission of instructor. Special topics in pharmacology or toxicology covered in less detail in other courses will be studied in depth in this course.

**697 Directed Research in Pharmacology.** 1-15 credits. I, II. Projects for other students. (PIO)

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**Department of Physiology (PIO)**

**FACULTY**

Archert, Phillip W. *Assistant Professor (Virginia State University)* Ph.D., Howard University; sensory physiology.

Bhatnager, Ajay S. *Associate Professor (Ciba-Geigy Ag, Switzerland)* Ph.D., University of Basel, Switzerland; endocrine physiology.

Baumgarten, Clive Marc *Professor Ph.D., Northwestern University; cardiac electrophysiology.*

Biber, Thomas U. L. *Professor Ph.D., University of Berne; epithelial transport.*

Boadle-Biber, Margaret C. *Professor and Chair Ph.D., University of Oxford; neurotransmitters.*

Briggs, F. Norman *Distinguished Professor Ph.D., University of California at Berkeley; cardiac physiology.*

Brunjes, Peter C. *Associate Professor (University of Virginia)* Ph.D., Indiana University; sensory physiology, chemical senses.

Cleary, Stephen F. *Professor Ph.D., New York University; radiation biophysics.*

Clemo, S. Henry *Assistant Professor (Cardiology)* M.D., Ph.D., University of Virginia; cell volume regulation.

Corley, Karl C. *Associate Professor Ph.D., University of Rochester; autonomic physiology.*

Costanzo, Linda S. *Associate Professor Ph.D., State University of New York Upstate Medical Center; renal physiology.*

Costanzo, Richard M. *Professor Ph.D., State University of New York Upstate Medical Center; sensory physiology-chemical senses.*

Coulter, Douglas A. *Associate Professor (Neurology)* Ph.D., Boston University; biology.

DeSimone, John A. *Professor Ph.D., Harvard University; sensory physiology-chemical senses.*

Dilts, Roger P., Jr. *Assistant Professor Ph.D., Washington State University; chemical neuroanatomy and transcriptional regulation.*

Eckberg, Dwain L. *Professor (Cardiology)* M.D., Northwestern University; cardiovascular physiology.

Ennis, Daniel *Associate Professor (Philip Morris)* Ph.D., University of Maryland; sensory physiology, chemical senses.

Fabiato, Alexandre *Professor M.D., Ph.D., University of Paris; cardiac physiology.*

Feher, Joseph J. *Associate Professor Ph.D., Cornell University; muscle physiology.*

Feldman, George *Associate Professor (Medicine)* M.D., New York University; epithelial transport in the kidney and gut.

Fine, Michael L. *Associate Professor (Biology)* Ph.D., University of Rhode Island; behavior of marine fishes.

Ford, George D. *Professor Ph.D., West Virginia University; vascular muscle physiology.*

Grider, John R. *Associate Professor Ph.D., Hahnenmann University; gastrointestinal motility.*

Heck, Gerald D. *Assistant Professor Ph.D., Duke University; biophysics and neurophysiology of chemoreception in taste.*

Hess, Michael L. *Professor (Medicine)* M.D., University of Pittsburgh School of Medicine; cardiac muscle physiology.

Hill, David L. *Associate Professor (University of Virginia)* Ph.D., Ohio University; sensory physiology, chemical senses.

Jakoi, Emma *Associate Professor (Neurology)* Ph.D., Duke University; cell and electrophysiology.

Kalimi, Mohammed Y. *Professor Ph.D., Bombay University; endocrinology.*

Kukreja, Rakesh *Assistant Professor (Internal Medicine/Cardiology)* Ph.D., Kurukshetra University (India); molecular-cardiology.

Liu, L. M. *Assistant Professor Sc.D., Washington University; radiation physics.*

Lyall, Vijay *Assistant Professor Ph.D., P.G.I.M.E.R., Chandigarh; membrane transport.*

Marmarou, Anthony *Professor (Neurosurgery)* Ph.D., Drexel University; neurosciences.

Mayer, David J. *Professor (Anesthesiology)* Ph.D., University of California, Los Angeles; sensory physiology-pain.

McHaffie, John *Associate Professor Ph.D., Virginia Commonwealth University; physiology of sensory systems.*

Meredith, Alex *Associate Professor (Anatomy)* Ph.D., Virginia Commonwealth University; sensory processing and sensorimotor transformation.

Mikulecky, Donald C. *Professor Ph.D., University of Chicago; theoretical biology.*

Pittman, Roland N. *Professor Ph.D., State University of New York at Stony Brook; circulatory physiology.*

Poland, Imaes L. *Associate Professor Ph.D., West Virginia University; muscle physiology.*

Price, Donald D. *Professor (Anesthesiology)* Ph.D., University of California, Davis; sensory physiology, pain.

Price, Steven *Professor Ph.D., Princeton University; sensory physiology-chemical senses.*

Qureshi, Ghulam D. *Associate Professor (Director, Cancer Center, Humana St. Lukes Hospital)* M.D., FACP, Royal College of Physicians and Surgeons of England; oncology.

Ridgway, Ellis B. *Professor Ph.D., University of Oregon; muscle physiology.*

Schoolwerth, Anton C. *Professor (Internal Medicine; Chairman, Division of Nephrology)* M.D., Harvard Medical School; nephrology.

Stein, Barry F. *Professor Ph.D., City University of New York, Queens College; sensory physiology-vision.*

Stewart, Jennifer K. *Associate Professor (Biology)* Ph.D., Emory University; endocrine physiology, particularly the physiological regulation of hormone secretion by amino acids and neurotransmitters.

Walsh, Scott W. *Professor (Obstetrics and Gynecology)* Ph.D., University of Wisconsin; endocrinology, reproductive physiology.

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*Department in parenthesis indicates primary appointment.*
501 Mammalian Physiology. 5 lecture hours 5 credits. I. Prerequisites: biology, chemistry, and physics. A comprehensive study of the function of mammalian organ systems, designed primarily for graduate students.

502 Mammalian Physiology. 5 lecture hours. 5 credits. II. Prerequisites: same as for PIO 501. A comprehensive study of the function of mammalian organ systems, designed primarily for dental students.

504 Mammalian Physiology. 3 lecture hours. 3 credits. A comprehensive study of the function of mammalian organ systems, designed primarily for high school science teachers.

505 Mammalian Physiology. 3 lecture hours. 3 credits. A comprehensive study of the function of mammalian organ systems, designed primarily for graduate students in the Industrial Hygiene curriculum.

591C90 Selected Topics in Nutrition. 2 lecture hours. 2 or 3 credits. Weekly discussion of selected topics in nutrition. Topics change yearly. Topics range from biochemical aspects of nutrition to International Nutrition. Past topics have included nutrition and exercise, diet and cancer, total parenteral nutrition, alcohol nutrition, food safety, drug-nutrient interactions, nutrition and immunological response, cholesterol nutrition, nutrition in Czechoslovakia, salty taste mechanisms, vitamin A, vitamin D.

604 Cell Physiology. 4 lecture hours. 4 credits. II. A description of the functional properties of cells in terms of physics and chemistry. Topics discussed include cell structure and cytochemistry, bioenergetics, secretion, transport of material across membranes, excitation, and contractility.


606 Physical Principles in Physiology. 4 lecture hours. 4 credits. II. Prerequisite: PIO 605 or permission of instructor. A survey of some of the principles of physics and physical chemistry underlying physiological processes. Topics include energetics of equilibrium and nonequilibrium systems, electrode processes, reaction-diffusion systems, kinetics, photochemistry, physical techniques in physiological research.

612 Cardiovascular Physiology. 3 lecture hours. 3 credits. II. Prerequisite: permission of instructor. An in-depth study of the original literature in selected areas of cardiovascular physiology.

614 Membrane Transport. 2 lecture hours. 2 credits. I. Advanced description of membrane transport processes.

615 Neurophysiology. 3 lecture hours. 3 credits. I. Prerequisite: permission of instructor. An in-depth study of the original literature in selected areas of neurophysiology.

617 Endocrine Physiology. 3 lecture hours. 3 credits. I. Prerequisites: courses in mammalian physiology and biochemistry, or permission of instructor. An in-depth study of the original literature in selected areas of endocrine physiology.

618 Renal and Epithelial Physiology. 3 lecture hours. 3 credits. II. Prerequisite: permission of instructor. An in-depth study of selected areas of renal and epithelial physiology. Topics include mechanisms of salt and water transport in the nephron, urinary concentrating mechanisms, hormonal regulation of ion transport, role of the kidney in acid-base homeostasis, diuretics, ion transport in amphibian epithelia, water and solute transport in gastrointestinal epithelia and lingual epithelia.

630 The Application of Network Thermodynamics to the Analysis and Computer Simulation of Life Processes. 3 lecture hours and 4 laboratory hours. 5 credits. I. Prerequisite: consent of instructor. Network thermodynamics applied to organization in living systems. Relations between biological and electrical networks. Simulation of nonlinear, complex, dynamic, physiological, pharmacological, and biochemical systems with applications to diffusion, blood flow, reaction kinetics, membrane transport (cellular and epithelial), endocrine effects, cellular and whole body pharmacokinetics, model design and verification, metabolic regulation and control, reaction-diffusion systems, morphogenesis, others.

690 Physiology Research Seminar. I lecture hour. 1 credit. I. II. Presentation and discussion of research reports and topics of current interest to the departmental seminar or special group seminar.

691 Special Topics in Physiology. 1-4 credits. I. or II. Lectures, tutorial studies and/or library assignments in selected areas of advanced study not available in other courses or as part of the research training.

697 Directed Research in Physiology. 1-15 credits. I, II, S. Research leading to the M.S. or Ph.D. degree and elective research projects for other students.

Department of Pathology (PAT)

FACULTY

Dalton, Harry P. Professor [Microbiology and Immunology] Ph.D., University of Massachusetts; mycoplasma, L-forms and chlamydia, antibiotic action.

Fariss, Marc W. Assistant Professor Ph.D., Medical College of Virginia of Virginia Commonwealth University; biochemical and environmental toxicology.

Garrett, C. T. Professor Ph.D., University of Wisconsin, M.D. Johns Hopkins; molecular diagnostics.

Hadfield, M. Gary Professor M.D., University of Utah; neurotransmitter responses to aggressive behavior, stress, and psychoactive drugs, electron microscopy.

Miller, W. Gregory, Jr. Professor Ph.D., University of Arizona; mechanism of complement activation, in-vivo quantitative monitoring, clinical laboratory standardization.

Poklis, Alphonse Associate Professor Ph.D., University of Maryland; forensic toxicology drug metabolism.

1Department in parenthesis indicates primary appointment.

2Department in brackets indicates affiliate appointment.
Rosenblum, William I. Professor and Vice-Chair. M.D., New York University; cerebral microcirculation, blood substitutes, endothelial injury.

Saady, Joseph J. Assistant Professor [Industrial Hygiene] Ph.D., Virginia Commonwealth University; characterization and measurement of toxic substances and their metabolites; glucuronic acid metabolites; pesticides.

Sirica, Alphonse E. Professor and Division Chair Ph.D., University of Connecticut; hepatocarcinogenesis, pathobiology of liver neoplasms and biliary epithelium, intrahepatic biliary epithelial cell function, proliferation and differentiation, neoplastic transformation of biliary cells, hepatocyte and biliary ductal cell culture.

Ware, J. L. Associate Professor and Director of Graduate Education Ph.D., University of North Carolina; cancer cell biology.

Weymouth, L. A. Assistant Professor Ph.D., University of Pennsylvania; application of molecular biology to virology.

Wilkinson, David S. Professor and Chair Ph.D., University of Wisconsin, M.D. University of Miami; experimental oncology and pathology.

The Department of Pathology of the School of Medicine offers the Master of Science and Doctor of Philosophy degrees. Requirements for admission and academic performance are the same as for the School of Basic Health Sciences.

509 Basic Immunohematology. 3 lecture hours. 3 credits. II. A study of the blood groups in man, their mode of inheritance, and clinical significance. Pertinent laboratory exercises will be carried out in the blood bank.

510 Basic Clinical Immunohematology. 4 lecture hours. 4 credits. I. Prerequisite: PAT 509 or permission of instructor. Indications for the transfusion of blood, blood components, and derivatives. Laboratory experience related to the collection and storage of blood, blood components, and blood derivatives.

513 Blood Banking Laboratory. 8 laboratory hours. 4 credits. I, II. Prerequisite: PAT 509. The laboratory is devoted to exercises in blood grouping, typing, genotyping, antibody screening, antibody identification, detection of Australia antigen (HBsAg), and the collection of blood from normal donors.

515 Problems in Neuroscience. 3 lecture hours. 3 credits. I. This multidisciplinary pathology/neuroscience course is designed to provide graduate students, residents, and others with a broad, updated, and integrated overview of neuropathology and the other neurosciences. Basic molecular and cellular principles of neurobiology are brought to life by selected clinical correlations and applications. The lectures introduce major CNS pathways and systems in conjunction with basic and advanced neuropathological principles. The disease topics are cohesively taught from several points of view by specialized faculty drawn from many departments, clinical and basic.

521 Laboratory Techniques in Diagnostic Pathology. 3 lecture hours. 3 credits. I. This team taught course includes principles of automated and non-automated testing, diagnostic testing, and an active laboratory demonstration of each method.

522 Clinical Chemistry. 3 lecture hours. 3 credits. II. Prerequisite: permission of instructor. The metabolic basis of disease and the interpretation of laboratory data for diagnosis and patient management. May be repeated up to 12 credits.

530 Clinical Immunopathology. 2 lecture and 6 laboratory hours. I. Prerequisite: MIC 506 or equivalent. Application of immunologic methods to disease diagnosis and management with emphasis on immunopathogenetic mechanisms of organ systems: endocrine, lympho-reticuloendothelial, renal, gastrointestinal, cardio-pulmonary, skin, neurologic, etc. Technical aspects of testing, test interpretation, and clinical case presentations will be intermingled to provide a comprehensive understanding of clinical immunopathology and its role in patient care.

570 Experimental Approaches to Tumor Biology. 3 lecture/discussion hours. 3 credits. Introduces central problems in tumor biology and the methods available for their study. Develops through lectures and presentations skills in critical review and interpretation of research reports.

590 Experimental Pathology Seminar. 1 lecture hour. 1 credit. I, II, S.

601 General Pathology (Dentistry). 3 lecture and 6 laboratory hours. 6 credits. Instruction in the basic principles regarding alteration of structure and function in disease and in the pathogenesis and effect of disease in the various organ systems.

602 Experimental Pathology of Infectious Diseases. 2 lecture and 6 laboratory hours. 5 credits. II. Autopsies and histopathology are studied to acquaint the graduate student with infectious disease pathology. Various animal and other models are used to demonstrate pathogenesis of some infections and other inflammatory mechanisms.

606 Biochemistry of Disease. 2 lecture hours. 2 credits. I. Prerequisite: BIC 503. A detailed study of the biochemical mechanisms involved in the pathogenesis of certain diseases. 610 Physiology of Blood Coagulation. 1 lecture and 4 laboratory hours. 3 credits. II. Prerequisites: BIC 503 and P10 502. The historical development of bleeding and clotting disorders with current diagnostic methodology and treatment.

612 Viral Immunohistopathology and Serodiagnosis. 3 lecture and 4 laboratory hours. 5 credits. I. In-depth treatise of immunologic and immunopathologic mechanisms of viral diseases, focusing on organ systems: neurologic, immunologic, hematopoietic and lymphatic, gastrointestinal, cardiopulmonary, dermatologic, genitourinary, etc. Findings based on histopathology and immunocytochemistry, using the latest clinical laboratory methods, will be applied to diagnosis and management of the patient with acute, latent or chronic viral infection. Technical aspects of methodology, test interpretation on the basis of clinical information and clinical case presentations in the actual hospital setting will be intermingled to provide a comprehensive understanding of diagnostic virology and its role in patient care.

614 Pathogenesis of Infectious Disease (Bacterial Agents). 2 lecture and 4 laboratory hours. 4 credits. II. Prerequisite:
MIC 515 or equivalent. Emphasis is on the pathogenesis and epidemiology of infectious disease. The dynamic interaction among the host, microorganism, and environment are documented using data obtained from MCV Hospitals. Students have the opportunity to apply laboratory data and techniques to present microbiological problems in clinical areas.

615 The Pathobiology of Experimental Animal and Human Neoplasia. 2 lecture hours and 4 laboratory hours. 4 credits. I. An advanced lecture/laboratory course covering relevant topics in chemical, viral, and radiation carcinogenesis, genetic aspects of neoplastic disease, the biochemistry and molecular biology of cancer, and the pathological features of neoplastic disease. The laboratory provides a background in recognizing the appearance and characteristics of various types of neoplasms in experimental animals and in man.

690 Clinical Chemistry Seminar. 1 lecture hour. 1 credit. I, II. Graduate students, residents, and staff present topics of current interest in clinical chemistry.

691 Special Topics in Modern Instrumental Methods. 1 lecture and 2 laboratory hours. 2 credits. I, II, S. A study of some of the modern research methods of molecular biology. The student gains experience with the technique concomitant with discussions with faculty. The student writes a comprehensive review of the technique studied.

697 Research in Pathology. 1-15 credits. I, II, S. Research leading to M.S. or Ph.D. degree and elective research projects for other students.
PART VII

SCHOOL OF BUSINESS

ADMINISTRATIVE OFFICERS
HOWARD P. TUCKMAN, B.S., M.A., Ph.D.
Dean
EDWARD L. MILLNER, B.A., Ph.D.
Associate Dean for Graduate Studies
IRIS W. JOHNSON, B.S., M.S., Ed.D.
Associate Dean for Undergraduate Studies
E. G. MILLER, B.S., Ph.D.
Associate Dean for Administration
CHARLES J. GALLAGHER, B.S., Ph.D.
Associate Dean for External Affairs
BILL N. SCHWARTZ, B.B.A., M.A., Ph.D., CPA
Chairman, Department of Accounting
DON M. MILLER, B.S., Ph.D.
Chairman, Department of Decision Sciences and Business Law
NEIL B. MURPHY, B.S., M.S., Ph.D., CCM
Chairman, Department of Finance and Insurance
DARREL R. BROWN, B.S., M.B.A., Ph.D.
Chairman, Department of Management
MICHAEL D. PRATT, B.S., M.A., Ph.D.
Chairman, Department of Economics
A. JAMES WYNNE, B.S., M.S., Ph.D.
Chairman, Department of Information Systems
DENNIS R. McDERMOTT, B.B.A., M.B.A., Ph.D.
Chairman, Department of Marketing and Real Estate

Virginia Commonwealth University School of Business and its graduate program can be traced back to 1917 when a board of private citizens organized the Richmond School of Social Economy for Social Workers and Public Health Nurses. The school was first headed by Dr. Henry H. Hibbs and held its first classes in a converted residence at 112 Capitol Street in Richmond, Virginia. For the next 20 years, the school underwent changes in name, physical plant, affiliation, and curriculum. By 1937 the school was called the Richmond Professional Institute, was affiliated with the College of William and Mary, and had added business courses to the curriculum.

The graduate program in business at VCU is a successor to a long tradition of meeting the needs of an urban community and an urban student body. From the halting starts of the past, the program has continued to develop and mature to meet the needs of the future.

DEGREE PROGRAMS
The School of Business offers degree programs leading to the Master of Accountancy, Master of Arts in economics, Master of Business Administration, Master of Science in business, Master of Taxation, and the Ph.D. in business.

CERTIFICATE PROGRAMS
The School of Business offers the post-baccalaureate certificate in accounting, the post-baccalaureate certificate in information systems, and the post-baccalaureate certificate in real estate and urban land development.

ADMISSION TO MASTER’S DEGREE PROGRAMS
Students who have earned a bachelor’s degree or its equivalent may be admitted to the graduate programs. Selection is made on the basis of undergraduate performance, Graduate Management Admissions Test (GMAT), or Graduate...
Record Examination (GRE) for the M.A. in economics only, depending upon the graduate program desired, intellectual capacity, character, experience, and other indicators of the ability to pursue graduate study profitably. To be accepted in the graduate program, in addition to other requirements, applicants must be in good standing at the college or university they previously attended.

Satisfactory subject matter scores on the College Level Examination Program (CLEP) may, on a limited basis and at the discretion of the Associate Dean for Graduate Studies in business, be substituted for some foundation courses. The CLEP Bulletin of Information and a registration form may be obtained from the College-Level Examination Program, Box 1824, Princeton, NJ 08540, or from Graduate Studies in Business at VCU, 1015 Floyd Avenue, Richmond, VA 23284-4000, (804) 367-1741.

Foreign students should see the section on international students in Part I of this bulletin.

Applicants to the Master of Accountancy, Master of Business Administration, Master of Science, and Master of Taxation programs must submit scores on the Graduate Management Admissions Test (GMAT). The School of Graduate Studies of VCU administers the testing for the GMAT. This test should be taken as far as possible in advance of the time of desired entry. The GMAT Bulletin of Information and a registration form may be obtained from the School of Graduate Studies, Graduate Studies in Business, or the Graduate Management Admissions Test, Educational Testing Service, Box 966-R, Princeton, NJ 08541.

Applicants to the Master of Arts degree program in economics must submit scores on the Graduate Record Examination (GRE). The School of Education at VCU is a testing center for this examination. This test should be taken as far as possible in advance of the time of desired entry. The GRE Bulletin of Information and a registration form may be obtained from the School of Graduate Studies, the Office of Student Services, School of Education, 2087 Oliver Hall, (804) 367-1296 on the Academic Campus, or Educational Testing Service, Princeton, NJ 08540, U.S.A.

General Information about admission to graduate study and application procedures may be found in Part I of this bulletin.

**MASTER’S APPLICATION DEADLINE**

Applications should be completed at least eight weeks prior to the beginning of the semester or summer session desired.

**COURSES TAKEN PRIOR TO ACCEPTANCE**

No credit will be given for graduate classes taken prior to acceptance into a graduate degree program in business or economics.

**ENROLLMENT IN GRADUATE COURSES**

Students may not enroll in any graduate business or economics courses (except BUS 600) for credit without first being admitted formally to the graduate programs.

**TRANSFER CREDIT TO MASTER’S DEGREE PROGRAMS**

A maximum of six semester hours of acceptable graduate credit earned in a degree program at an AACSB-accredited institution may be transferred and applied toward the graduate degree. Such credits will be evaluated for acceptance purposes at the completion of nine semester hours of work at this institution.

Acceptance of transfer credit is made at the discretion of the Associate Dean for Graduate Studies in business.

All transfer work must be at the “A” or “B” grade level. Students must be in good standing both at VCU and at the institution from which the credits were earned. Additionally, students must have had full admission during the time these credits were earned at that college or university. Transfer credit shall not be older than seven years at the time the master’s degree is awarded.

Credit to be earned at other institutions after acceptance in the graduate program must be approved in advance, and approval is granted at the discretion of the Associate Dean for Graduate Studies in business. Such work is approved only under unusual circumstances such as job transfers or other extenuating circumstances.

A “graduate transient” classification may be granted to a student in good standing in any recognized graduate school who desires to enroll in the School of Business for any one semester or summer session. Students will be required to present certificates of graduate standing but will not have to submit the data normally required for admission decision. A special form is available to facilitate enrollment.

**ADVISING PROGRAM**

All students admitted to graduate programs are
assigned advisors. Students are expected to work with their advisors to plan their graduate programs. Each graduate program or changes thereto must be approved by both the advisor and the Associate Dean for Graduate Studies in business. Courses taken without approval are taken at the student’s own risk. Except for the general option in the M.B.A. program, each student is required to complete an approved program form and file it with the office of the Associate Dean for Graduate Studies in business 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.

Students are responsible for knowing and fulfilling all general and specific requirements relating to the completion of their degree programs. Answers to specific questions may be obtained from the Associate Dean for Graduate Studies in Business, (804) 367-1741.

Students admitted to the post-baccalaureate certificate programs in accounting, information systems, and real estate and urban land development also will be assigned advisors.

GENERAL REQUIREMENTS FOR MASTER’S DEGREES

1. Degree recipients must have received an overall grade-point average of 3.0 ("B") on credit hours attempted at VCU. All grades received in courses required in student programs, whether graduate or undergraduate, will be included in computing the average. Excluded from this are BUS 600 and courses taken by students for their own benefit but not required in the program. The grades of "D" and "F" are counted in computing the overall grade-point average but carry no graduate credit.

2. Students who fail to register for at least one course per year 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 degree program. Students who do not wish to register in any given semester must notify in writing the Associate Dean for Business, Virginia Commonwealth University, Richmond, VA 23284-4000 of their intent to not register and their plans for continuation in the program.

3. Grades of “A,” “B,” and “C” are passing grades; “D” is not a passing grade. Students who receive a grade of “C” or below on more than 20 percent of the credit hours attempted for the degree program will be dropped from their programs. Also, students accepted conditionally are required to satisfy the requirements stated in their letters of acceptance. Courses required in the program regardless of their level (undergraduate, graduate-foundation, or graduate-advanced) are included under this rule.

4. Courses in which students have earned a grade of “D” or “F” must be repeated if these courses are needed for graduation. Courses for which a passing grade was received cannot be repeated without prior written permission of the Associate Dean for Graduate Studies in business. An appeal to the School of Business Graduate Studies Committee is required.

5. Students who satisfy all the requirements but the 3.0 average may be allowed to take a maximum of six additional credit hours to raise the average. Students are required to appeal to the School of Business Graduate Studies Committee to seek permission.

6. A foundation course may be waived by the Associate Dean for Graduate Studies in business, based on satisfactory completion of equivalent undergraduate work prior to acceptance in the program. CLEP credit at the “B” or higher level may be accepted in lieu of foundation courses with permission. Waiving courses is at the discretion of the School of Business.

7. Full-time graduate status shall consist of a minimum of nine and a maximum of 16 graduate credits per semester. A maximum of 12 credits may be earned in summer sessions each summer.

8. Students must continually demonstrate acceptable professional behavior to be retained in a program of graduate studies.

9. A maximum of two courses in the master’s programs may be taken with prior approval in areas other than the major area of concentration in especially designated 400-level courses (courses not designated exclusively for graduate students). These courses are not acceptable in the M.B.A., Master of Accountancy, Master of Taxation, or in the personnel and industrial relations concentration of the M.S. in business program. The advisor and Associate Dean for Graduate Studies in business may restrict even further the number of 400-level courses that may be taken in a specific program.
10. All requirements for the degree must be completed within five years from the date of admission and enrollment in graduate study. This time limitation applies to both full- and part-time students. A maximum of two one-year extensions may be granted by the Associate Dean for Graduate Studies in business if satisfactory progress was demonstrated on the part of students requesting extensions. For extensions, write to the Associate Dean for Graduate Studies in business.

11. Students are not permitted to take undergraduate courses equivalent to foundation courses once they are admitted to the graduate program without the written permission of the Associate Dean for Graduate Studies in business.

12. The records of students who receive grades of “D” or “F” may be reviewed by the Associate Dean for Graduate Studies in business to determine whether they should continue or should be dropped from the program.

13. Student may not use the same course(s) for two graduate degrees.

14. The maximum time allowed to change a grade of incomplete is the semester following the semester or summer session in which the grade of incomplete was given. An incomplete grade not changed by that time will be converted to a grade of “F.”

QUANTITATIVE BACKGROUND

Master’s students with inadequate quantitative background will be required to take additional classes.

CHANGE IN PROGRAM OR CONCENTRATIONS

Students who desire to change their graduate programs or areas of concentration within the school must make that request in writing to the Associate Dean for Graduate Studies in business. He will advise them of the necessary requirements and whether the change is possible. The student must be in good standing at the time of change.

CHANGE OF ADDRESS

The student should notify in writing both University Enrollment Services/Records and Registration and Graduate Studies in Business, 1015 Floyd Avenue, Richmond, VA 23284-4000, of any address changes.

GRADUATION

Students must apply to be graduated. For specific instructions related to the School of Business, contact the Associate Dean for Graduate Studies in business.

STUDENT APPEALS

Appeals for exceptions to policies or academic standards may be made in writing to the School of Business Graduate Studies Committee, School of Business, Virginia Commonwealth University, 1015 Floyd Avenue, Richmond, VA 23284-4000, or by calling (804) 367-1741.

INDIVIDUAL RESEARCH PROJECTS

Various opportunities exist for students in the M.S., M.A. in economics, Master of Taxation and Master of Accountancy programs to work closely with faculty on individual research projects. BUS 690, 693, 697, 798-799, and ECO 798-799 are suitable for this purpose.

Unless students select the thesis option, no more than one research course may be taken as part of a program.

Research courses, except in the Master of Accountancy, must be taken at the end of the student’s program. Registration in all research courses requires approval of the Associate Dean for Graduate Studies in business. The written research report is required to be filed at the office of the Associate Dean for Graduate Studies in business no later than the last day of classes of the semester or summer session in which the course is taken. Forms are available upon request from the Graduate Studies in Business Office. Students are expected to seek permission to register in research courses by the end of the semester or summer session preceding the semester or summer session for which registration is desired.

FINANCIAL AID

The School of Business offers a limited number of graduate assistantships to full-time students for the academic year. For further information, write to the Associate Dean for Graduate Studies in business.

Graduate students also are eligible for funds administered under the National Defense Loan and college work-study programs. For further information, write to Director of Financial Aid, Virginia Commonwealth University, Richmond, VA 23284-2526.
FACULTY

Ackley, Richard J. Associate Professor Ed.D., Utah State University; administrative systems management and organizational communication.

Aiken, Peter Assistant Professor Ph.D., George Mason; Information Systems.

Andrews, Robert L. Associate Professor Ph.D., Virginia Polytechnic Institute and State University; decision sciences.

Barker, Randolph T. Associate Professor Ph.D., Florida State University; management.

Beall, Larry G. Associate Professor Ph.D., Duke University; economics.

Berry, Sam G. Associate Professor D.B.A., Florida State University; finance.

Blanks, Edwin E. Associate Professor and Associate Provost M.S., Virginia Commonwealth University; information systems.

Bowman, John H. Professor Ph.D., Ohio State University; economics.

Boykin, James H. Professor and holder of Alfred L. Blake Chair Ph.D., American University, M.A.I., S.R.E.A., real estate.

Brown, Darrel R. Professor and Chairman Ph.D., University of Oregon; management.

Byles, Charles M. Assistant Professor D.B.A., Kent State University; management.

Canavos, George C. Professor Ph.D., Virginia Polytechnic Institute and State University; decision sciences.


Coppins, Richard J. Associate Professor Ph.D., North Carolina State University; information systems.

Cowles, Deborah L. Associate Professor Ph.D., Arizona State University; marketing.

Dalton, Amy H. Associate Professor Emerita Ph.D., University of Virginia; economics.

Daniels, Kenneth N. Assistant Professor Ph.D., University of Connecticut; finance.

Daughtrey, William H., Jr. Professor J.D., University of Richmond; business law.

Davis, Douglas D. Associate Professor Ph.D., Indiana University; economics.

DeGenaro, Guy J. Professor Ph.D., University of Florida; management.

Edmunds, Wayne L. Associate Professor M.L. and T., College of William and Mary, C.P.A.; accounting.

Elliott, Clifford J. Professor Ph.D., Ohio State University; marketing management and international marketing.

Epps, Ruth W. Associate Professor Ph.D., Virginia Commonwealth University; C.P.A.; accounting.

Everett, John O. Professor Ph.D., Oklahoma State University, C.P.A.; accounting.

Ferguson, Jerry T. Professor Ph.D., University of Florida; real estate.

Franzak, Frank J. Associate Professor Ph.D., University of Maryland; marketing.

Fuhs, F. Paul Assistant Professor Ph.D., University of Massachusetts; information systems.

Gallagher, Charles J. Associate Professor and Associate Dean for External Affairs Ph.D., West Virginia University; economics.

Gasen, Jean B Associate Professor Ph.D., University of Wisconsin at Madison; information systems.

Gilbreath, Glenn H. Professor Ph.D., University of Alabama; decision sciences.

Goyal, Amita Assistant Professor Ph.D., University of Maryland; information science.

Gray, George R. Associate Professor Ph.D., University of Alabama; human resource management and industrial relations.

Griggs, Walter S., Jr. Associate Professor J.D., University of Richmond; business law.

Hall, J. Curtis Professor Ed.D., Columbia University; basic business.

Harless, David W. Assistant Professor Ph.D., Indiana University; economics.

Harrison, William B., III Associate Professor Ph.D., University of Maryland; economics.

Hine, Michael Assistant Professor Ph.D., Arizona State University; information systems.

Hodge, Bartow Professor Ph.D., Louisiana State University; information systems.

Hoffer, George E. Professor Ph.D., University of Virginia, economics.

Holley, Charles L. Professor D.B.A., University of Tennessee, C.P.A.; accounting.

Holmes, Raymond T., Jr. Professor M.S., Virginia Commonwealth University, C.P.A.; accounting.

Hubbard, Elbert Associate Professor Ph.D., University of Cincinnati; finance.

Hull, Rita P. Professor Ph.D., Oklahoma State University, C.P.A., C.I.A.; accounting.

Hunt, Eugene H. Professor Ed.D., University of Maryland; management.

Jackson, J. Howard Professor Ph.D., Ohio State University; business education and administrative systems management.

Johnson, Iris W. Associate Professor and Associate Dean for Undergraduate Studies Ed.D., Virginia Polytechnic Institute and State University; office automation management.

Johnston, Wallace R. Associate Professor D.B.A., George Washington University; human resources management.

Kiecker, Pamela Associate Professor Ph.D., University of Colorado; marketing.

Kurtulus, Ibrahim S. Associate Professor Ph.D., University of North Carolina; decision sciences.

Lambert, John D. Professor Ph.D., University of Michigan; management.

Little, Michael W. Associate Professor Ph.D., Michigan State University; marketing.

McDermott, Dennis R. Associate Professor and Chairman, Department of Marketing and Real Estate Ph.D., Ohio State University; marketing.

McEwen, Ruth Ann Associate Professor Ph.D., Georgia Institute of Technology, C.P.A.; accounting.

Mead, Howard R., Jr. Assistant Professor Ph.D., University of South Carolina; management.

Melton, Kim I. Assistant Professor Ph.D., University of Tennessee; management science.

Miller, Don M. Associate Professor and Chairman Ph.D., Virginia Polytechnic Institute and State University; decision sciences.

Miller, Elbert G., Jr. Associate Professor and Associate Dean for Administration Ph.D., University of Alabama, C.L.U., C.P.C.U.; management science and insurance.

Miller, Marianne Assistant Professor Ph.D., University of Oregon; human resource management.

Millner, Edward L. Associate Professor and Associate Dean for Graduate Studies Ph.D., University of North Carolina; economics.

Minor, Elliott D., III Associate Professor Ph.D., University of South Carolina; decision sciences.

Mitchell, Shannon K. Assistant Professor Ph.D., University of Virginia; economics.
Staples, Catherine
Spade, Edward
O'Toole, Dennis M.
Olds, Philip
Myers, Riehl, Julian William
Pearce, Morecroft, Josephine F. G.
Sharshar, Abdelaleem M.
Salandro, Daniel
Reilly, Robert J.
Pitts, Michael W.
Pratt, Michael D.
Rasnic, Carol
Redmond, Richard T.
Reilley, Robert J.
Kriege, Julian William
Rimler, George W.
Salandro, Daniel P.
Schwartz, Bill N.
Sharshar, Abdelaleem M.
Shin, Tai S.
Sleeth, Randall G.
Smith, Alfred L.
Smith, Charles H.
Snellings, Eleanor C.
Sommer, David W.
Spade, Edward C.
Sperry, John B.
Spinelli, Roxanne
Spindle, Roxanne
Spinelli, Michael A.
Staples, Catherine
Sutherland, John W.
Tondkar, Rasoul H.
Trumble, Robert R.
Tuckman, Howard P.
Tucker, Woodie L.
Upton, David E.
Urban, David J.
Weistroffer, Heinz R.
Wier, Benson
Wetzel, James N.
Wilson, Howard B.
Wynne, A.

MASTER OF ACCOUNTANCY

The Master of Accountancy program is designed to enhance students' abilities to perform and progress in careers in public practice, industry, and government. The body of knowledge for accounting professionals has grown rapidly in recent years, and the program provides greater depth and breadth in accounting and other business courses than would be encountered in baccalaureate programs.

The Master of Accountancy program emphasizes the examination of options and theory rather than learning accepted solutions to problems. Students are exposed to financial and managerial accounting theory, as well as studying the concepts of auditing, systems, and taxation. The current environment of accounting, including international and not-for-profit areas, are examined.

The degree requires a minimum of 30 semester credits distributed over core courses and restricted electives. Foundation courses represent prerequisites for the advanced courses. Some or all of the foundation courses may be waived for students having satisfactory equivalent preparation.

DEGREE REQUIREMENTS

<table>
<thead>
<tr>
<th>Foundation Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 607 Fundamentals of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 303-304 Financial Accounting I and II (Intermediate)</td>
<td>6</td>
</tr>
<tr>
<td>BUS 306 Cost Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 307 Accounting Systems</td>
<td>3</td>
</tr>
<tr>
<td>BUS 405 Tax Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 406 Auditing</td>
<td>3</td>
</tr>
<tr>
<td>BUS 630 Fundamentals of the Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 660 Business Information Systems</td>
<td>3</td>
</tr>
</tbody>
</table>
The program provides both a thesis and a nonthesis option. Both options require 30 semester hours of work. Each student’s program must be approved by both the advisor and the Associate Dean for Graduate Studies in business.

Under the THESIS option 30 hours are to be distributed over the following areas:

1. CORE AREA (15 credits)

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ECO 604 Advanced Microeconomic Theory</td>
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</tr>
<tr>
<td>ECO 798-799 Thesis</td>
<td>6</td>
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2. ELECTIVES (15 credits)

The additional 15 credits, at least nine of which must be in the Department of Economics, must be elected from graduate-level courses.

Under the NONTHESIS option the 30 required hours are to be distributed over the following areas:

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2. ELECTIVES (18 credits)

The additional 18 credits, at least 12 of which must be in the Department of Economics, must be elected from graduate-level courses.

Students admitted to the Master of Arts program must have completed 12 semester credits of economics courses or their equivalent in quarter credits, including principles of economics, microeconomic theory, and macroeconomic theory. A knowledge of mathematics and statistics sufficient for the study of econometrics and the advanced theory courses must be acquired before those courses may be attempted. The student’s advisor will review the student's economics and mathematical background and will determine the necessary prerequisites.

MASTER OF BUSINESS ADMINISTRATION PROGRAM

The Master of Business Administration program prepares students primarily for careers in management. The program develops both the essential skills of business and the perspectives needed to lead complex organizations. The program provides students an understanding of the relationship of modern business performance to innovation and technology, ethics, and global issues. While students will demonstrate proficiency in the traditional functional areas of the business curriculum, the program emphasizes applying basic principles of decision making to complex business situations.

Primary educational objectives for the program include proficiency in the following skill

BUS 624 Statistical Elements of Quantitative Management
ECO 600 Concepts in Economics
BUS 620 Financial Concepts of Management
BUS 670 Concepts and Issues in Marketing
BUS 640 Management Theory and Practice

The above courses must be taken prior to taking the advanced courses.

Advanced Courses

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<th>Course Area</th>
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<td>Core Area</td>
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<td>BUS 682 Corporate Taxation</td>
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B. RESTRICTED ELECTIVES (9 credits must be taken from the following courses) BUS 603, BUS 605, BUS 606, BUS 679

C. OTHER ELECTIVES (select 6 credits) Approved 600-Level Business or Economics Courses

MASTER OF ARTS DEGREE IN ECONOMICS

Master of Arts students are expected to demonstrate competence over a rigorous and current core curriculum in microeconomic and macroeconomic theory and in econometrics. Preparation in these areas encompasses much of the material to which first-year doctoral students would be exposed. Using these core courses as a foundation, it is the role of a challenging set of graduate level electives to demonstrate how economic analysis has been and can be used to develop solutions to a wide variety of both theoretical and applied problems.

Graduates of the program should be well-qualified to conduct applied economic analysis in either a government or corporate research setting or to teach a range of courses at the undergraduate level. Those graduates with an interest in graduate teaching and/or in research on theoretical problems should find their masters level preparation an excellent bridge to a solid doctoral program in economics.

The program provides both a thesis and a nonthesis option. Both options require 30 semester hours of work. Each student’s program must be approved by both the advisor and the Associate Dean for Graduate Studies in business.

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<tr>
<td>ECO 612 Econometrics</td>
<td>3</td>
</tr>
<tr>
<td>ECO 798-799 Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

2. ELECTIVES (15 credits)

The additional 15 credits, at least nine of which must be in the Department of Economics, must be elected from graduate-level courses.

Under the NONTHESIS option the 30 required hours are to be distributed over the following areas:

1. CORE AREA (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO 604 Advanced Microeconomic Theory</td>
<td>3</td>
</tr>
<tr>
<td>ECO 607 Advanced Macroeconomic Theory</td>
<td>3</td>
</tr>
<tr>
<td>ECO 612 Econometrics</td>
<td>3</td>
</tr>
<tr>
<td>ECO 690 Seminar in Economic Methodology and Research</td>
<td>3</td>
</tr>
</tbody>
</table>

2. ELECTIVES (18 credits)

The additional 18 credits, at least 12 of which must be in the Department of Economics, must be elected from graduate-level courses.

Students admitted to the Master of Arts program must have completed 12 semester credits of economics courses or their equivalent in quarter credits, including principles of economics, microeconomic theory, and macroeconomic theory. A knowledge of mathematics and statistics sufficient for the study of econometrics and the advanced theory courses must be acquired before those courses may be attempted. The student’s advisor will review the student's economics and mathematical background and will determine the necessary prerequisites.
areas: analytical reasoning, communication, creative problem solving, information technology, leadership, negotiation, strategic thinking, and teamwork. These skills will be developed by learning experiences throughout the curriculum. The student may elect a general M.B.A., or an M.B.A with a concentration, or an M.B.A. with a double concentration.

A. GENERAL M.B.A. REQUIREMENTS
Students who have had no undergraduate work in business must earn 54 semester credits to fulfill requirements for the degree. Included are 24 credits of foundation courses designed to provide preparation comparable to the professional core in the undergraduate curriculum of the School of Business in addition to a two semester sequence of statistics. Some or all of these foundation courses may be waived for students who present satisfactory, equivalent preparation. A minimum of 30 credits of advanced graduate courses will be required of all students. All courses must be at the 600 level or higher.

DEGREE REQUIREMENTS

<table>
<thead>
<tr>
<th>Foundation Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 660 Business Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>BUS 624 Statistical Elements of Quantitative Management</td>
<td>3</td>
</tr>
<tr>
<td>ECO 600 Concepts in Economics</td>
<td>3</td>
</tr>
<tr>
<td>BUS 607 Fundamentals of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 620 Financial Concepts of Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 630 Fundamentals of the Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 670 Concepts and Issues in Marketing</td>
<td>3</td>
</tr>
<tr>
<td>BUS 640 Management Theory and Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

Advanced Courses

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
</tr>
</tbody>
</table>

Approved Business or Economics Electives | 6 |

Total | 30 |

B. M.B.A. WITH CONCENTRATION

The M.B.A. with concentrations is designed to combine both features of the M.B.A. and the M.S. The student will have the broad coverage feature of the M.B.A. with the specialization feature of the M.S. program.

Required foundation courses are the same as those for the general M.B.A. Additionally, some concentrations (e.g., information systems, real estate and urban land development, and economics) have additional undergraduate prerequisites. Some or all of these foundation courses may be waived for students who present satisfactory, equivalent preparation.

Students may elect one of the following concentrations:
- Decision Sciences
- Economics
- Finance
- Human Resources Management and Industrial Relations
- Information Systems
- Marketing
- Real Estate and Urban Land Development
- Risk Management and Insurance

A minimum of 33 credits of advanced graduate courses will be required of all students. All courses must be at the 600 level or higher.

DEGREE REQUIREMENTS

<table>
<thead>
<tr>
<th>Advanced Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 608 Managerial Accounting Concepts</td>
<td>3</td>
</tr>
<tr>
<td>BUS 645 Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>ECO 610 Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>BUS 641 Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BUS 621 Cases in Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 671 Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 661 Management Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>BUS 642 Business Policy</td>
<td>3</td>
</tr>
<tr>
<td>Approved Business or Economics Electives</td>
<td>6</td>
</tr>
</tbody>
</table>

| Total | 36 |

Students seeking two concentrations are required to take a minimum of four additional

1 These foundation courses may not be included in the 30 semester credits of advanced work required for any of the master’s degrees offered by the School of Business.

2 These foundation courses may not be included in the 33 semester credits of advanced work required for any of the master’s degrees offered by the School of Business.

3 Information Systems concentration will take ISY 668 Management and Decision Support in lieu of ISY 661.
advanced courses (12 semester hours) plus any prerequisites usually required for the concentration. Each student must complete a planned program to be approved by both the advisor and the Associate Dean for Graduate Studies in business.

**PROFESSIONAL MASTER OF BUSINESS ADMINISTRATION**

The Professional Master of Business Administration (PMBA) program provides an opportunity for rising executives and professionals with five or more years of management-level work experience to obtain a Masters degree in Business Administration. Participants gain a wide range of new skills and knowledge by combining coursework with day-to-day business activities.

The PMBA is targeted to rising business executives, entrepreneurs, non-profit managers and health care professionals. The program differs from other Masters of Business programs at VCU as a result of its unique modular curriculum which integrates components of communication, technology, service/quality, globalism and strategy. The modules include 1) organizational culture; 2) analysis and decisions; 3) team building and leadership; 4) productivity and innovation; 5) strategic management; and 6) global challenges.

The program meets alternating Fridays and Saturdays and can be completed in fewer than two years. For more information contact the Graduate Studies in Business Office by telephone (804) 367-1741 or FAX (804) 367-8884.

**MASTER OF SCIENCE**

The Master of Science program provides students with specialized skills and knowledge in functional areas of business. The focus is on developing an understanding of the relationship of modern organizational performance to innovation and technology, ethics, and global issues.

The educational objective for the program is to develop technical skills and knowledge more specific than could be obtained in the MBA program. Concentrations are available in the following functional areas:

- Decision Sciences
- Economics
- Finance
- Human Resources Management and Industrial Relations
- Information Systems
- Marketing
- Real Estate and Urban Land Development
- Risk Management and Insurance

Proficiency in the following skill areas are also integrated into the program: analytical reasoning, communication, creative problem solving, information technology, leadership, negotiation, strategic thinking, and teamwork.

**Decision Sciences**

This concentration provides students with both a conceptual understanding of quantitative methods used successfully in many business environments and also skills in applying them. In addition to statistics, operations research, and production/operations management courses, a restricted number of approved quantitative courses can be selected from the Department of Economics, Biostatistics, or Mathematical Sciences.

**Economics**

The concentration in economics requires at least 12 credits in economics, including ECO 604 Advanced Microeconomics and ECO 607 Advanced Macroeconomics. Students may do general work in economics; or they may choose a limited concentration, such as public policy, finance, applied microeconomics, or mathematical economics. Students are encouraged to elect some related courses in other fields. They must have approval of their academic program in advance from the graduate student advisor in the Department of Economics and from the Associate Dean for Graduate Studies, School of Business.

**Finance**

The finance concentration is designed to prepare students for numerous positions in financial management in commercial, industrial, financial, and governmental institutions.

It consists of courses in advanced financial management, advanced financial theory, funds management in financial institutions, security analysis, and portfolio management. Supporting courses may be taken in accounting and economics.

**Human Resources Management and Industrial Relations**

The Master of Science with a human resources management and industrial relations concentration is designed to prepare students to deal with the ever changing personnel and industrial relations problems in various organizations. It allows flexibility for inclusion of courses in business, economics, psychology, or sociology, as well as other courses.

**Information Systems**

Master of Science students may concentrate in the information systems area by taking courses at
the graduate level within the particular area of concentration desired; for example, computer programming, systems analysis and design, hardware/software, and information systems administration.

Depending upon academic background and work experience, additional undergraduate course work in the field of information systems may be required up to a maximum of 15 hours.

**Marketing**

The marketing concentration is intended for those who wish to practice management with a strong emphasis on marketing. Specializations are available in consumer behavior, marketing research, and the strategic aspects of marketing.

**Real Estate and Urban Land Development**

Tomorrow’s leaders in the complex and challenging field of real estate must obtain a clear understanding of the effects of interrelated land use activities and how these activities are best developed, coordinated, analyzed, financed, and marketed. Providing this knowledge is a major objective of this concentration which integrates studies with actual contemporary urban real estate and land development issues. VCU’s urban environment provides an excellent “real world” laboratory for student research.

**Risk Management and Insurance**

This concentration is designed to increase one’s effectiveness in establishing policies and making decisions concerning risk management and insurance in organizational and individual settings. Advanced courses utilize an applied management approach, covering technical aspects of risk management and insurance, internal management of insurance organizations, and cases on consumer uses of insurance.

**MASTER OF SCIENCE DEGREE REQUIREMENTS**

Students who have had no undergraduate work in business or economics must earn a minimum of 54 credits to fulfill requirements for the degree. Included are 24 credits of foundation courses designed to provide preparation comparable to the professional core in the undergraduate curriculum of the School of Business. Some or all of these foundation courses may be waived for students who present satisfactory equivalent preparation. A minimum of 30 credits of advanced graduate courses will be required of all students.

**DEGREE REQUIREMENTS**

<table>
<thead>
<tr>
<th>Foundation Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 660 Business Information Systems</td>
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<tr>
<td>BUS 624 Statistical Elements of Quantitative Management</td>
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<tr>
<td>ECO 600 Concepts in Economics</td>
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</tr>
<tr>
<td>BUS 607 Fundamentals of Accounting</td>
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</tr>
<tr>
<td>BUS 620 Financial Concepts of Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 630 Fundamentals of the Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 670 Concepts and Issues in Marketing</td>
<td>3</td>
</tr>
<tr>
<td>BUS 640 Management Theory and Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

Unless circumstances beyond the control of the student warrant it, the above courses must be taken prior to taking advanced courses and in the order given above.

Each student must complete an M.S. program form to be approved by both the advisor and the Associate Dean for Graduate Studies in business. A minimum of 12 hours and a maximum of 18 hours must be taken in the area of concentration. The 30 semester credits of advanced work must be distributed over the following three areas:

1. **CORE AREA** (nine credits)

   All students must complete a minimum of three semester credits in each of the following areas, with one exception noted under THESIS OPTION. The specific courses to be taken in these areas will be determined by each student’s background and professional objectives: economics, quantitative techniques, and research.

2. **RESTRICTED ELECTIVES** (nine credits)

   All students must complete three semester credits in each of three of the following fields: accounting, economics, finance, human resource management and industrial relations, information systems, insurance, international business, management, marketing, quantitative techniques, real estate and urban land development, and taxation.

3. **ELECTIVES** (12 credits)

   With the approval of their advisors and the Associate Dean for Graduate Studies in business,

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*aSome concentrations (e.g., economics, information systems, and real estate and urban land development) have additional special prerequisites. Please consult the Office of Graduate Studies in Business.

*bThese foundation courses may not be included in the 30 semester credits of advanced work required for any of the master’s degrees offered by the School of Business.
students must concentrate these 12 credits in the area of concentration.

**THESIS OPTION.** Students interested in writing a thesis may take six course credits in Area 3 plus BUS 798-799 Thesis. If a student elects to write a thesis and has acquired already an adequate knowledge of research techniques, the student may, with the permission of the advisor and the director of graduate studies in business, omit the research requirement in Area 1 and replace it with an additional three-credit elective.

**MASTER OF TAXATION**

The Master of Taxation program is designed 1) to offer an opportunity for existing tax professionals to update and expand existing tax knowledge, and 2) to prepare students for entry level positions in the field of taxation.

The program includes a comprehensive study of tax laws and regulations, administrative practice and procedure, and tax research fundamentals. It is designed to develop both technical knowledge and conceptual understanding within the field of taxation. Ethical considerations are stressed within the framework of individual courses.

The program offers two admission options—the professional and academic tracks. The professional track is designed for existing tax professionals who desire to enhance existing skills. Admission under the professional track requires a minimum undergraduate GPA of 3.0 (on a 4.0 scale), CPA, CMA, or JD designation, a minimum of two years relevant work experience which should include independent tax research and supervisory experience, letters of recommendation, and a personal interview. The academic track is designed primarily for students seeking entry into the tax field. Admission under the academic track is based on traditional academic indicators designed to reflect an individual’s ability to complete graduate study, and include the undergraduate record, GMAT score, letters of recommendation, and a personal interview (preferred). Once admitted to the program, all students must satisfy the same requirements for award of the Master of Taxation degree.

The degree requires a minimum of 30 semester credits distributed over core courses, restricted electives, and individual electives. Foundation courses represent prerequisites for the advanced courses. Some or all of the foundation courses may be waived for students having satisfactory equivalent preparation.

### DEGREE REQUIREMENTS

<table>
<thead>
<tr>
<th>Foundation Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 607 Fundamentals of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 303-304 Financial Accounting I and II (Intermediate)</td>
<td>6</td>
</tr>
<tr>
<td>BUS 405 Tax Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 660 Business Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>BUS 624 Statistical Elements of Quantitative Management</td>
<td>3</td>
</tr>
<tr>
<td>ECO 600 Concepts in Economics</td>
<td>3</td>
</tr>
<tr>
<td>BUS 620 Financial Concepts of Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 630 Fundamentals of the Legal Environment of Business</td>
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<tr>
<td>BUS 670 Concepts and Issues in Marketing</td>
<td>3</td>
</tr>
<tr>
<td>BUS 640 Management Theory and Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

The above courses must be taken prior to taking the advanced courses.

<table>
<thead>
<tr>
<th>Advanced Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Area</td>
<td>15</td>
</tr>
<tr>
<td>Taxation Electives</td>
<td>9</td>
</tr>
<tr>
<td>Approved Electives</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
</tr>
</tbody>
</table>

#### A. Core Area

- BUS 680 Tax Research
- BUS 681 Tax Administration
- BUS 682 Corporate Taxation
- BUS 685 Taxation of Property Transactions
- BUS 688 Estate and Gift Taxation

#### B. Taxation Electives (Select nine credits)

- BUS 609 State and Local Taxation
- BUS 679 International Taxation
- BUS 683 Taxation of Reorganizations
- BUS 684 Partnership Taxation
- BUS 686 Taxation of Pension/Deferred Compensation
- BUS 687 Fiduciary Income Taxation
- BUS 689 Estate Planning

#### C. Approved Electives (Select six credits)

- Any 600-Level Taxation course not selected in Part A or Part B (maximum of three credits)
- Any 600-Level Accounting Course except BUS 607, 608, and 678.
- Any BUS 600 level Accounting course (with certain limitations).
- Any approved 600 level Advanced Business or Economics course.

### PH.D. IN BUSINESS

The Ph.D. program is designed to develop the intellectual capabilities necessary for careers in teaching and research and for leadership in business, government, education, consulting, or research organizations. The program offers a research degree designed to provide the graduates with in-depth research experience in dealing with theoretical and applied business topics.

In addition to completing required course work, students must pass a written comprehensive ex-
amination and complete an acceptable dissertation. Scholarship, innovation, and academic excellence are expected of all Ph.D. students.

**Admission**

Admission will be restricted to those who are considered by the School of Business Graduate Studies Committee to possess academic and professional qualifications necessary to succeed in the program and to make a contribution to the profession. Criteria considered will include, among other things, performance at the bachelor’s and graduate levels, GMAT scores, letters of recommendation, academic and business experience, and personal interviews, where appropriate. Each student is required to have a master’s degree from an accredited institution or a bachelor’s degree with the basic foundation courses in business.

Enrollment in the program is open to qualified persons without regard to age, race, sex, religion, physical handicap, or national origin; and admission requirements are in compliance with all applicable federal and state statutes, orders, and regulations. Admission to the doctoral program is limited by the number of places available. Consequently, qualified applicants may be denied admission because of insufficient space and resources. Admission is highly competitive; and preference is given to qualified applicants who demonstrate serious purpose, scholastic excellence, superior preparation, and appropriate experience for the program.

**Course Work**

Each student will be required to have completed, prior to acceptance, a minimum of one course that covers intermediate algebra and calculus. Each student’s previous course work and preparation will be taken into consideration. A specific program will be developed based upon the student’s needs. Qualifying examinations will be used, when appropriate, to determine the extent of the student’s competency in various subject areas.

In addition to the initial admission requirements, students are required to have had at least one course at the master’s level in each of the following areas: accounting, information systems, organization behavior, quantitative management, financial management, marketing, and economics. This requirement is waived with an M.B.A. degree from an AACSB-accredited institution.

The following courses beyond those required at the master’s level will be required for the Ph.D. degree.

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research tools determined by each area</td>
<td>12</td>
</tr>
<tr>
<td>Seven courses in the major area</td>
<td>21</td>
</tr>
<tr>
<td>Four courses (12 semester credits) in the minor area</td>
<td>12</td>
</tr>
<tr>
<td>BUS 898 Dissertation (Minimum of 12 credits)</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
</tr>
</tbody>
</table>

Students who select a major area other than that in which they have received their bachelor’s or master’s degree may be required to take additional courses to cover any deficiencies. Accounting and information systems are fields where such deficiencies are most likely to occur.

A minimum of 12 semester credits in the major area and six credits in each of the minor areas must be completed at VCU after entry into the Ph.D. programs.

**Specialty Tracks**

Each student must select a major in one of the following specialties:

1. Accounting/Taxation
2. Decision Science
3. Finance
4. Information Systems
5. Management

Additionally, students must select one different minor from the specialties listed above or the following:

1. International Business
2. Marketing
3. An approved field outside the School of Business in a school or a department that offers a doctoral program. This option must have the approval of the Graduate Studies Committee and the Associate Dean for Graduate Studies in business.

**Advising and Evaluation**

Each student will be assigned an advisory committee. The student’s original program and any subsequent changes must be approved by the committee and the Associate Dean for Graduate Studies in business. A file will be maintained on all students in the Graduate Studies Business Office where their progress will be monitored and coordinated. Each student is required to complete an approved program form and file it with the office of the Associate Dean for Graduate Studies in business 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.
Comprehensive Examinations and Admission to Candidacy

Written examinations are required in the major and minor field upon completion of course work. Students are admitted to candidacy for the degree after passing the written examinations and successfully defending a dissertation proposal.

The graduate faculty of a major or minor field in the Ph.D. in business is responsible for the philosophy, content, structure, and grading of the comprehensive examinations in their fields. The Associate Dean for Graduate Studies, School of Business, in consultation with the chairmen of the departments involved in giving examinations, is responsible for making the physical arrangements and developing the specific schedule of examinations on the dates and in the rooms published.

Written examinations normally will be offered twice each year, during a one-to-two week period in the middle (approximately) of each semester. The Associate Dean for Graduate Studies, School of Business, in coordination with the chairmen and Ph.D. coordinators of the departments involved, will determine the specific dates of administration. Departures from the normal schedule may be granted by the Associate Dean for Graduate Studies if the student obtains the consent of the chairman and Ph.D. coordinator of the department involved.

Doctoral students will be permitted to take written comprehensive examinations after the completion of program prerequisite courses, doctoral core courses, and any required course work for that particular field examination. Students must notify in writing the graduate studies in business office of their intentions to take the comprehensive examinations no later than the last day of withdrawal from classes in the semester preceding the one in which the students intend to take the examination(s).

Students may be allowed to withdraw their registrations for the comprehensive examinations without penalty upon submission of written requests to that effect to the Associate Dean for Graduate Studies, School of Business, no later than the end of the first week of classes in the semester in which an examination is given. After that time, a grade of “F” will be given for failure to take any test after registering for it.

A student must complete successfully all written comprehensive examinations within four consecutive regular semesters. Completed written comprehensive examinations older than the allowed (four semesters) time frame must be re-taken in order to count as a completed written comprehensive examination. (This is not to be construed to mean that the taking of a single examination can be spread out over more than one semester.)

The Associate Dean for Graduate Studies in business will notify the students in writing of their grades on all written comprehensive examinations taken. If an examinee fails a written comprehensive examination, a meeting to discuss the student’s performance may be requested of the department chairman.

In the event of failure, the student may be permitted to retake the comprehensive examination one time only. The re-examination requires the approval of the Graduate Studies Committee. (Contact the Associate Dean for Graduate Studies in the School of Business to obtain the latest detailed comprehensive examination policy.)

Dissertation

Each candidate will write a dissertation involving substantial independent and original research related to the major field. The dissertation committee is responsible for supervising the candidate’s research and for verifying the significance and importance of the work. The candidate will be required to give a successful oral defense of the dissertation.

A dissertation committee will be formally appointed after the student has passed the comprehensive examinations. The committee will have five members, at least four of whom are members of the graduate faculty at VCU. The chairman and the assistant chairman will come from the candidate’s major area. With the consent of the department chairman for the major, the dissertation committee chairman may come from the student’s minor area. The chairman must be a tenured faculty member at the associate professor rank or higher. (The term “area” is used in this document to refer to a specialty track as defined in the VCU Graduate Bulletin.) A third member will be from one of the candidate’s minor areas. The two additional members must include at least one from outside the major area. The candidate, in consultation with the major advisor, will propose the composition of the committee for the approval of the Graduate Studies Committee of the School of Business. The dissertation committee chairman should be designated by the end of the first semester following the passage of all comprehensive examinations. The dissertation committee chairman must be a tenured full-time graduate faculty member.
The oral presentation and defense of the dissertation proposal should be conducted by the end of the second semester following the completion of the comprehensive examinations. The candidate and the dissertation committee chairman shall schedule the presentation through the office of the Associate Dean for Graduate Studies of the School of Business.

The seminar and defense may be held between the dates of October 1 and May 1 on any day that the University is in session, excluding weekends and final examination dates. Public notice of the presentation must be given at least one month in advance.

Copies of the typed proposal must be distributed to the members of the dissertation committee at least two weeks prior to the date of the presentation. Two additional copies are to be deposited in the office of the Associate Dean, Graduate Studies in business, by the same date. These copies will be available for reading by other members of the University graduate faculty.

The oral presentation of the dissertation proposal will be open to all members of the University graduate faculty and Ph.D. students in business.

Following the open oral presentation seminar, there will be a closed meeting of the candidate and the dissertation committee for the purpose of discussion of the acceptability of the proposal. Following that meeting, the committee will reach formal agreement on acceptance of the proposal, acceptance with specified revisions, or rejection. The dissertation committee chairman will prepare a memorandum of the committee’s decision to be signed by the dissertation committee chairman and the candidate as an understanding of the agreement on the result of the committee’s decision. This memorandum will be filed with the Associate Dean, Graduate Studies in business with copies retained by the candidate and committee members.

A copy of the revised, if required, dissertation proposal, signed by all members of the committee and the candidate as indication of acceptance, will be filed with the Associate Dean, Graduate Studies in business. The filing should be done by the end of the semester following approval of the proposal by the committee because it constitutes registration of the topic for the protection of the candidate.

Upon completion of this dissertation, the candidate and the dissertation committee chairman will schedule, through the Associate Dean, Graduate Studies in business, a final oral defense. The date of the oral defense must be established a minimum of two weeks in advance and must be agreed to by all members of the dissertation committee and the candidate. Copies of the dissertation are to be distributed to all members of the committee, with two additional copies being deposited with the Associate Dean, Graduate Studies in business, at least two weeks prior to the date of the oral defense.

The oral defense will be open to all members of the graduate faculty of the University and Ph.D. students in the School of Business.

Following approval of the dissertation, as revised or amended if required, acceptance will be signed by the signatures of a minimum of four members of the committee, including the dissertation committee chairman, on the dissertation acceptance form. The candidate must follow the University’s requirements for the submission of the final approved versions of the dissertation as specified in the University Graduate Council Thesis and Dissertation Manual.

**General Requirements for the Ph.D.**

1. After admission to the Ph.D. program, students must maintain a minimum cumulative grade-point average of 3.0 in all course work attempted at VCU. Students who fall below that minimum will have one semester to make up that deficiency.

2. Students must register each semester (summer sessions excluded) for continuation in the program. Students who fail to register each semester will be dropped automatically from the program and must reapply for reinstatement.

3. a. Any Ph.D. student receiving a grade of “D” or “F” in any course will be automatically reviewed by the School of Business Graduate Advisory Committee to determine if the student’s dismissal from the program is warranted.

b. Any Ph.D. student whose cumulative grade point average falls below 3.0 must raise that average to 3.0 by the end of the following semester or be dismissed from the program.

c. Students who receive a grade of “C” or below (in any course within or outside the program) on more than 20 percent of the total credits required in his/her program will be dropped automatically.

4. The maximum time to complete all the requirements for the degree is seven calendar years from the date of entry into the program. The maximum time to complete the course work, pass the comprehensive examination, and present an acceptable
dissertation proposal is five years from the date of entry.

5. Doctoral study involves a devotion to independent study outside the classroom and interaction with the faculty and other students. During the period of advanced course work, students must complete at least nine credits each semester for a minimum of two consecutive semesters, one of which may be a summer session.

6. A maximum of nine semester credits may be transferred from another AACSB accredited university and applied toward the Ph.D. course requirements. All transfer work must be at the “A” or “B” grade level. Transfer credit shall not be older than seven years at the time the Ph.D. degree is awarded. Transfer credit is given at the discretion of the Associate Dean for Graduate Studies in business after consultation with appropriate departmental or faculty representatives.

GENERAL REQUIREMENTS FOR POST-BACCALAUREATE CERTIFICATES

Minimum requirements for admission and graduation are subject to change without notice. Refer to the Undergraduate Bulletin for course descriptions.

1. Certificate recipients must have received an overall grade-point average 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 grade-point average 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 Associate Dean for Graduate Studies in business 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 dropped.

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 advisor and the Associate Dean for Graduate Studies 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 advisor and the Associate Dean for Graduate Studies 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 Associate Dean for Graduate Studies 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 an other 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 this University. 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 Associate Dean for Graduate Studies in business.

Transfer credit is made at the discretion of the Associate Dean for Graduate Studies in business upon the recommendation of the student’s advisor.

All transfer work must be at the “C” or higher grade levels. 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 Associate Dean for Graduate Studies 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 advisors. Students are required to work with their advisors to plan their certificate programs. Each student program or changes thereto must be approved by both the advisor and the Associate Dean for Graduate Studies 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 office of the Associate Dean for Graduate Studies in business 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 be graduated. For deadlines consult the University calendar. The graduate degree application form is required for the certificate program.

16. Student appeals for exceptions to policies or academic standards may be made in writing to Virginia Commonwealth University, School of Business Graduate Studies Committee, Associate Dean for Graduate Studies in Business, Richmond, VA 23284-4000.

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 beyond the undergraduate level but who do not aspire to a master’s degree. Candidates for the certificate are required to complete a total of 60 hours including the courses presented below, or other equivalents, and to meet other academic standards. For information relating to the Certificate in Accounting Program, please contact the Associate Dean for Graduate Studies in the School of Business.

REQUIREMENTS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 205</td>
<td>Introductory Accounting Survey</td>
<td>3</td>
</tr>
<tr>
<td>BUS 303</td>
<td>Financial Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>BUS 304</td>
<td>Financial Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>BUS 306</td>
<td>Cost Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 307</td>
<td>Accounting Systems</td>
<td>3</td>
</tr>
<tr>
<td>BUS 404</td>
<td>Financial Accounting III (Advanced)</td>
<td>3</td>
</tr>
<tr>
<td>BUS 405</td>
<td>Tax Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 406</td>
<td>Auditing</td>
<td>3</td>
</tr>
<tr>
<td>BUS 407</td>
<td>Auditing Methods</td>
<td>3</td>
</tr>
<tr>
<td>BUS 410</td>
<td>Advanced Tax Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 411</td>
<td>Accounting Opinions and Standards</td>
<td>3</td>
</tr>
<tr>
<td>ECO 210</td>
<td>Principles of Economics</td>
<td>3</td>
</tr>
<tr>
<td>BUS 360</td>
<td>Business Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>BUS 301</td>
<td>Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>BUS 308</td>
<td>Introduction to Marketing</td>
<td>3</td>
</tr>
<tr>
<td>BUS 311</td>
<td>Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 319</td>
<td>Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BUS 434</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 481-482</td>
<td>Law for Accountants I and II</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>60</td>
</tr>
</tbody>
</table>

Total 60

BUS 203-204 may be taken in lieu of BUS 205. Up to 30 credit hours of the courses may be waived if equivalent courses have been completed. All transfer credits and waiver of courses must be approved by the Department of Accounting and the Associate Dean for Graduate Studies in business. A minimum of 30 credit hours beyond the Bachelors degree is required for the certificate.

POST-BACCALAUREATE CERTIFICATE IN INFORMATION SYSTEMS

The post-baccalaureate certificate in information systems (CIS) is designed for students who hold bachelor’s degrees in fields other than information systems and who desire to continue their education beyond the undergraduate level 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 and to meet other academic standards. For information relating to the certificate in information systems program, please contact the Associate Dean for Graduate Studies in the School of Business.
The CIS 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 acquiring these skills should be well received in terms of employment opportunities within the business community and with governmental organizations. Additionally, depending upon the particular mix of required courses and chosen electives, they should be well prepared to sit for the Certificate in Data Processing and Registered Professional Programmer Examinations given under the auspices of the Data Processing Management Association. Presented below are the courses included in the CIS program.

**REQUIREMENTS**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 358 Introduction to Structured Programming</td>
<td>3</td>
</tr>
<tr>
<td>BUS 359 Advanced Program Design Techniques and Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>BUS 360 Business Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>BUS 361 Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td>BUS 362 Computer Hardware and Software Operations</td>
<td>3</td>
</tr>
<tr>
<td>BUS 363 COBOL Programming</td>
<td>3</td>
</tr>
<tr>
<td>BUS 365 Systems Design</td>
<td>3</td>
</tr>
<tr>
<td>BUS 464 Data Base Systems</td>
<td>3</td>
</tr>
<tr>
<td><strong>CIS Electives</strong></td>
<td>6</td>
</tr>
<tr>
<td>Select six credits from the following courses:</td>
<td></td>
</tr>
<tr>
<td>BUS 205 Introduction to Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 366 Computerware Analysis</td>
<td>3</td>
</tr>
<tr>
<td>BUS 461 System Project Planning</td>
<td>3</td>
</tr>
<tr>
<td>BUS 462 Control Programming</td>
<td>3</td>
</tr>
<tr>
<td>BUS 463 Selected Programming Languages</td>
<td>3</td>
</tr>
<tr>
<td>BUS 466 Applications Programming</td>
<td>3</td>
</tr>
<tr>
<td>BUS 467 Distributed Data Processing</td>
<td>3</td>
</tr>
<tr>
<td>BUS 468 Direction and Coordination of IS Organizations</td>
<td>3</td>
</tr>
<tr>
<td>BUS 469 Information and Decision Systems in Organizations</td>
<td>3</td>
</tr>
<tr>
<td>BUS 470 Data Communication Networks</td>
<td>3</td>
</tr>
<tr>
<td>BUS 493 Internship in Information Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

**POST-BACCALAUREATE CERTIFICATE IN REAL ESTATE AND URBAN LAND DEVELOPMENT**

The post-baccalaureate certificate program 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 ten 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 Virginia Commonwealth University. A minimum of a “C” average in a preapproved study program must be achieved in order to receive the certificate.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 317 Real Property Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 318 Real Estate Negotiating</td>
<td>3</td>
</tr>
<tr>
<td>BUS 326 Real Estate Law</td>
<td>3</td>
</tr>
<tr>
<td>BUS 423 Real Estate Brokerage</td>
<td>3</td>
</tr>
<tr>
<td>BUS 425 Real Estate Appraisal</td>
<td>3</td>
</tr>
<tr>
<td>BUS 429 Real Estate Finance</td>
<td>3</td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>30</td>
</tr>
</tbody>
</table>

**Approved Electives**

Select any five of the following courses, being certain that you have satisfied all prerequisites:

- *BUS 160 Computer and Microcomputer Concepts* .................................................. 1
- *BUS 161 Microcomputer Word Processing I* ......................................................... 1
- *BUS 162 Application Packages for Computers* ..................................................... 1
- *BUS 163 BASIC Computer Programming* ............................................................... 1
- BUS 205 Introductory Accounting Survey .......... 3
- BUS 311 Financial Management ................... 3
- BUS 324 Legal Aspects of the Management Process .................................................. 3
- BUS 371 Elements in Advertising Strategy ........ 3
- BUS 421 Small Business Management ................ 3
- BUS 424 Property and Liability Insurance ....... 3
- BUS 431 Advanced Real Estate Appraisal ........... 3
- BUS 437 Funds Management in Financial Institutions ............................................. 3
- ENS 491 Topics in Environmental Studies ........ 1-3
- USP 525 Site Planning ................................. 2

*Any three of these courses count as a 3-credit course.

**GRADUATE COURSES IN BUSINESS (BUS)**

Foundation courses may not be included in the 30 semester credits of advanced work required of any of the master’s degrees offered by the School of Business.

M.S. students in all but the personnel and industrial relations concentration may take, with
prior approval of the advisor and associate dean for graduate studies in business, a maximum of six credits in 400-level courses in areas other than the major area of concentration. (The courses approved for that purpose are: BUS 461, 464, 468, 477, 493, ECO 402, 412, and 432.)

GRADUATE COURSES IN ACCOUNTING (BUS)

DEPARTMENT OF ACCOUNTING

601 Financial Accounting Theory. Semester course; 3 lecture hours. 3 credits. Prerequisite: 21 credits in accounting or permission of instructor, including BUS 304 or equivalent. The historical development of accounting thought and the way it has been influenced by social, political, and economic forces. Analysis of the structure and methodology emphasizes objectives, postulates, and principles. Income determination and asset equity valuation, in both theory and practice.

602 Managerial Accounting: Theory. Semester course; 3 lecture hours. 3 credits. Prerequisite: 21 semester credits in accounting (or permission of instructor) including BUS 306 or equivalent. Advanced aspects of the use of accounting information in the management process. Cost-based decision making and control systems are related to short-and long-term objectives of the firm.

603 Environment of Accounting. Semester course; 3 lecture hours. 3 credits. Prerequisite: 21 credits in accounting, (or permission of instructor). The organization of the profession and accounting standard-setting bodies. Areas covered will include FASB, AICPA, SEC, other governmental regulatory agencies and current and emerging accounting issues and pronouncements.

604 Auditing. Semester course; 3 lecture hours. 3 credits. Prerequisite: 21 semester credits in accounting (or permission of instructor) including BUS 406 or equivalent. Development of auditing theory, special disclosure issues, statistical sampling, ethical, legal, and social responsibilities of external and internal auditors. Emphasis on contemporary topics in auditing.

605 Governmental and Not-for-Profit Accounting. Semester course; 3 lecture hours. 3 credits. Prerequisite: 15 credits in accounting. Budgeting, accounting, reporting, and related issues and pronouncements for governmental and not-for-profit organizations.

606 International Accounting. Semester course; 3 lecture hours. 3 credits. Prerequisite: six credits in accounting or permission of instructor. International dimensions of accounting; national differences in accounting thought and practice; problems and issues.

607 Fundamentals of Accounting. Semester course; 3 lecture hours. 3 credits. Theoretical and technical facets of financial and managerial accounting for business. (This is a foundation course).

608 Managerial Accounting Concepts. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 607 or equivalent. The use of accounting information contained in reports to management. The functions of planning, decision making, and control are studied as accounting data are reported through the firm’s information system and in special analyses.

609 State and Local Taxation. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 405 or equivalent. Examination of the tax problems and planning opportunities inher-
ent in state and local taxation, with emphasis on the problems of interstate business operations.

679 **International Taxation.** Semester course; 3 lecture hours. 3 credits. Prerequisite: 24 semester credits in accounting (or permission of instructor) including BUS 682 or equivalent. Problems of international taxation and business tax planning approaches. Tax implications of exporting and manufacturing abroad, foreign losses, and repatriation of earnings.

680 **Tax Research.** Semester course; 3 lecture hours. 3 credits. Prerequisite: 21 semester credits in accounting (or permission of instructor) including BUS 405 or equivalent. Tax research methodology; the sources of tax law and their relationship to tax research.

681 **Tax Administration.** Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 405 or equivalent. The Internal Revenue Service and the practices and procedures involved and/or available for the settlement of tax controversies and common elections of accounting methods.

682 **Corporate Taxation.** Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 405 or equivalent. Corporate tax laws as related to the corporations involved and to individual shareholders; tax aspects of the creation, operation, reorganization, and partial liquidation of corporations; corporate distributions.

683 **Taxation of Reorganizations.** Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 682. Continuation of the study of corporate taxation, with emphasis on corporate liquidations and reorganizations as well as collapsible corporations.

684 **Partnership Taxation.** Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 405 or equivalent. Tax problems related to organization, operation, and liquidation of a partnership. Also, tax problems of Subchapter S corporations, tax exempt organizations, private foundations and other special corporate forms.

685 **Taxation of Property Transactions.** Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 405. Tax problems and elections relating to acquisition, holding, and disposition of property. Tax planning in relation to comparisons of sales and exchanges as methods of acquiring and disposing of property; study of Section 1245, 1250, and 1231.

686 **Taxation of Pensions/Deferred Compensation.** Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 682. Tax law related to pensions, profit-sharing, and deferred compensation plans, and the tax consequences related thereto for individuals and businesses.

687 **Fiduciary Income Taxation.** Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 405 or equivalent. Tax laws relating to estates and to inter vivos and testamentary trusts. Tax planning will be stressed.

688 **Estate and Gift Taxation.** Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 405 or equivalent. Concepts of gross estate, marital deduction, powers of appointment, gross gifts, exclusions, deductions, and credits; tax aspects of estate planning.

689 **Estate Planning.** Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 688. Estate planning as it encompasses the acquisition, protection, and disposition of property; the role of the accountant in estate planning.

**GRADUATE COURSES IN DECISION SCIENCE (BUS) DEPARTMENT OF DECISION SCIENCE AND BUSINESS LAW**

600 **Quantitative Foundation for Decision Making.** Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 600 or equivalent. Develops an ability to interpret and analyze business data in a managerial decision-making context. Managerial applications are stressed in a coverage of descriptive statistics, probability, sampling, estimation, hypothesis testing, and simple regression and correlation analysis. (This is a foundation course.)

624 **Statistical Elements of Quantitative Management.** Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 624 or equivalent. Business problems in production, inventory, finance, marketing, and transportation translated into mathematical models: strengths and weaknesses of such translations. Solution procedures and their limitations.

645 **Operations Research.** Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 624 or equivalent. Business problems in production, inventory, finance, marketing, and transportation translated into mathematical models: strengths and weaknesses of such translations. Solution procedures and their limitations.

648 **Managerial Decision Making.** Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 624 or equivalent. Formal analytical techniques used by organizations in reaching decisions. The concepts of both classical and Bayesian decision methods will be examined. The emphasis is on the application of a decision-theoretic approach to solving problems in contemporary organizations.

669 **Forecasting Methods for Business.** Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 624 or equivalent that includes simple regression. A presentation of forecasting methods and applications for managerial decision making in business and other organizations. Coverage includes selection of appropriate methods and issues involved in developing and implementing forecasting models. Techniques covered include smoothing, seasonal adjustment, time series (Box-Jenkins) and judgmental methods.

674 **Cases in Operations Research.** Semester course; 3 lecture hours. 3 credits. Prerequisites: BUS 608, 645, and
completion of foundation courses or equivalent. Integrates and applies prior instruction in operations research. Provides experience in the use of operations research techniques for solving organizational problems through the analyses of cases and management simulations. Use of computer packages will be emphasized.

675 Operations Management. Semester course; 3 lecture hours. 3 credits. Prerequisites: BUS 640 and 645 or equivalent. A systematic investigation of the concepts and issues in designing, operating, and controlling productive systems in both manufacturing and services. Emphasis is placed on modeling for problems in location and layout, scheduling, production and inventory control, quality control, work design, and maintenance.

677 Quality. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 624 or equivalent. Provides a foundation in current concepts of quality management and the tools/techniques used in a quality improvement process. Philosophies of quality management and statistical tools/techniques for continuous improvement are presented. Applications for manufacturing and service industries included.

732 Applied Multivariate Methods. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 632 or equivalent. Study of multivariate statistical methods frequently used in business and administrative problems including principal components, factor analysis, discriminant analysis, MANOVA, and cluster analysis. The focus is on applying these techniques through the use of a computer package.

745 Advanced Operations Research. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 645 or equivalent. Advanced discussion of topics in mathematical programming and network analysis as applied to organizational decision making. Includes network flows, integer, nonlinear, and dynamic programming, and multicriteria optimization. Emphasis on applications and the use of the computer for problem solving.

GRADUATE COURSES IN ECONOMICS (ECO)

600 Concepts in Economics. Semester course; 3 lecture hours. 3 credits. Essential economic concepts including the price system, price determination in imperfectly competitive markets, employment theory, and monetary theory. Not open to students who have completed ECO 210 and 211 or the equivalent. (This is a foundation course.)

601 Contemporary Economic Problems. Semester course; 3 lecture hours. 3 credits. Prerequisite: ECO 210-211 or 600 or equivalent. An analysis of current economic issues. Not open to economic majors.

602 Comparative Economic Systems. Semester course; 3 lecture hours. 3 credits. Prerequisite: nine semester hours of economics. Surveys the organization, operation, and performance of capitalism, socialism, and the centrally-planned economy.

603 History of Economic Thought. Semester course; 3 lecture hours. 3 credits. Prerequisite: six semester hours of intermediate microeconomics. A survey of the principal contributions to the development of economic theory by leading economists from medieval times to the present.

604 Advanced Microeconomic Theory. Semester course; 3 lecture hours. 3 credits. Prerequisite: undergraduate course in intermediate microeconomic theory or theory of the firm. Theory of prices and markets; value and distribution. Partial and general equilibrium analysis.

605 Economic Development. Semester course; 3 lecture hours. 3 credits. Prerequisite: 12 semester hours of economics. Examination of problems of poverty and economic policies in developing countries. Areas considered are Southeast Asia, Middle East, Africa, and Latin America.

606 Urban Economic Problems. Semester course; 3 lecture hours. 3 credits. Prerequisite: ECO 600 or equivalent. A study of the location of economic activity, zoning, blight and unemployment, urban renewal, and redevelopment programs.

607 Advanced Macroeconomic Theory. Semester course; 3 lecture hours. 3 credits. Prerequisite: undergraduate course in macroeconomic theory. National income analysis, monetary and fiscal theory and policy, and general equilibrium analysis.

609 Advanced International Economics. Semester course; 3 lecture hours. 3 credits. Prerequisite: ECO 600 or equivalent. An advanced-level examination of why trade occurs, balance of payments concept and adjustment, international equilibrium, forward exchange, markets, international investment, and international organizations.

621 Topics in Economics. Semester course; 3 lecture hours. 3 credits. Prerequisite: ECO 600 or equivalent and permission of instructor. Study of specialized topic(s) in economics.

624/HAD 624 Health Economics. Semester course; 3 lecture hours. 3 credits. Prerequisite: ECO 600 or equivalent. Develops an understanding of (1) economics as a managerial tool in making choices or decisions that will provide for an optimum allocation of limited health care resources and (2) economics as a way of thinking about and approaching issues
of public policy in financing and organizing health and medical services. Individual research on crucial or controversial economic issues in the health field.

631 Labor Market Theory and Analysis. Semester course; 3 lecture hours. 3 credits. Prerequisite: ECO 600 or one year undergraduate principles of economics. The study of theories and applications designed to analyze wage rate, wage structure, and employment patterns. Studies exploring specific labor markets and problems will be examined.

682 An Economic Approach to Environmental Issues. Semester course; 3 lecture hours. 3 credits. Prerequisite: ECO 600 or equivalent. The effect of externalities in terms of efficiency and equity considerations. The role and problems of benefit-cost analysis in decision making is developed. The interrelationship of air, water, and land quality issues is analyzed. The use rate of natural resources, energy consumption, and the steady-state economy and their impacts are evaluated.

690 Seminar in Economic Methodology and Research. Semester course; 3 lecture hours. 3 credits. Prerequisites: ECO 604, 607, and 612. Familiarizes students with various research methodologies and research techniques, and provides in an elected field of economics, research experience and a survey of the literature.

798-799 Thesis in Economics. Year course; 6 credits. Graduate students will work under supervision in outlining a graduate thesis and in carrying out the thesis. Prior to enrollment, approval of the proposed work is required by the graduate advisor and the proposed thesis advisor.

GRADUATE COURSES IN FINANCE
(BUS)

DEPARTMENT OF FINANCE AND INSURANCE

620 Financial Concepts of Management. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 607 or equivalent. A study of the essential concepts of financial management including working capital management, capital budgeting, capital structure planning, and dividend policy. Not open to students who have completed BUS 311 or the equivalent. (This is a foundation course.)

621 Cases in Financial Management. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 620 or equivalent. Analysis of financial problems and policies of nonfinancial firms, including capital management, capital rationing and cost of capital, and capital structure.

622 Financial Management of Financial Institutions. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 620 or equivalent. Understanding and application of concepts relevant to the financial management of financial institutions.

623 Financial Management. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 620 or equivalent. Analyzes the theory and practice of corporate finance. Detailed investigation of the investment and financing decision of the firm in an environment of uncertainty.

635 Investments and Security Analysis. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 620 and 624 or equivalent. The process of investing in stocks and bonds, from the analysis of individual securities to portfolio formation and evaluation.

639 International Finance. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 620 or equivalent. A study of financial management of multinational enterprises, banks, firms with foreign subsidiaries, exporters, and service industries. Additionally, financing trade and investments, international money and capital markets, foreign exchange risks, and governmental policies will be covered.

654 Short Term Financial Management. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 620 or equivalent. Techniques of short term financial management (or working capital management) for business firms, including efficient cash management of accounts receivable, management if inventory, management of accounts payable, and short term borrowing from banks and other suppliers of short term credit.

758 Theory of Finance. Semester course; 3 lecture hours. 3 credits. Prerequisites: All foundation courses, 12 hours of graduate business courses, and two advanced finance courses including BUS 623 or permission of chair. Advanced discussion of the theoretical underpinnings of modern financial theory as applied to choice under uncertainty and efficient capital markets. Includes a detailed analysis of state-preference theory, mean-variance uncertainty and market equilibrium. In depth investigation of the seminal empirical findings as pertains to capital structure and dividend policy.

759 Portfolio Theory and Management. Semester course; 3 lecture hours. 3 credits. Prerequisites: BUS 624 or equivalent. A study of current theory of valuation and performance of portfolios, focusing on models to express the risk/return characteristics of the portfolio. Will include models for portfolio selection and for evaluation of managed portfolios.

790 Doctoral Seminar. Semester course; 3 lecture hours. 3 credits. Prerequisite: open only to Ph.D. students in business. An advanced course dealing with general theories, practices, and functions of the student’s area of specialization.

GRADUATE COURSES IN INSURANCE
(BUS)

DEPARTMENT OF FINANCE AND INSURANCE

*625 Group Insurance and Pension Planning. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 620 and 630 or equivalents. Analysis of major elements of employee benefit plans including: life, health and disability benefits, pension, and profit-sharing plans. Design principles, financing, legal, and tax considerations are examined. Major issues and new developments.

*626 Risk Management. Semester course; 3 lecture hours. 3 credits. Prerequisites: BUS 620, BUS 630, and BUS 624 or equivalent. Property and liability risks faced by businesses and public institutions are studied. Insurance and alternative methods of controlling and financing these risks are analyzed and compared.

Courses directly related to risk, insurance and employee benefits are approved for Virginia Insurance Continuing
Education 42 credits for insurance agents. Contact the Director of Insurance Studies for further information.

GRADUATE COURSES IN INFORMATION SYSTEMS (BUS)

DEPARTMENT OF INFORMATION SYSTEMS

612 Intelligent Systems. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 660 or equivalent. Designed to acquaint students with the principles and practice of intelligent systems design and analysis. Specific topics to be addressed are artificial intelligence, knowledge engineering, discovery systems, next generation system facilities, and robotics concepts.

619 Computer Assisted Simulation. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 363 or equivalent programming skills and BUS 624. Investigates and examines the principles and methodologies of applying the digital computer to the simulation of information systems and digital computer/communication networks. Exercises the concepts and techniques of simulation modeling within the framework of formal experimental design.

636 Analysis and Design of Database Systems. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 464 or equivalent. Designed to prepare students for the development of information systems using databases and database management techniques.

659 Human-Machine Interface Systems. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 660 or equivalent. Analyzes factors important in designing information systems from an end-user perspective. Discusses theoretical issues in the human-machine interface design process; analyzes man/machine capabilities, and applied interface design concepts to the system development life cycle.

660 Business Information Systems. Semester course; 3 lecture hours. 3 credits. Introduces computer organization, programming, computers in management decision making, and systems analysis and design. Not open to students who have completed BUS 360 or the equivalent. (This is a foundation course.)

661 Management Information Systems. Semester course; 3 lecture hours. 3 credits. Prerequisite: computer literacy, i.e., the equivalence of BUS 660, or BUS 161, 162, and 163. (Not open to those concentrating in information systems.) Provides an understanding of the importance and place of computer-based information systems in the success of data management, management support systems, information systems, and resource management.

663 Direction and Control of Information Systems Organizations. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 640 and BUS 660 or equivalents. A study of management concepts, tools, and techniques as applied to information systems personnel and organizations. Emphasis will be placed on techniques and tools for efficient control and utilization of data processing resources to include use of feasibility studies, standards, cost/benefit analyses, and acquisition methods for both hardware and software systems.

665 Advanced Systems Analysis and Design. Semester course; 3 lecture hours. 3 credits. A required course for those concentrating in information systems. Prerequisites: BUS 362, 363, 365, and 645 or 648 or equivalent.

666 Systems Performance Evaluation. Semester course; 3 lecture hours. 3 credits. Prerequisites: BUS 665 and either BUS 632 or 645. Methodology and use of hardware and software tools for the evaluation of computer-based information systems including people and machine productivity.

667 Distributed and Teleprocessing Systems. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 661 or equivalent. Computer network design, communication line control, and communication hardware and software.

668 Management and Decision Support Systems. Semester course; 3 lecture hours. 3 credits. Prerequisites: BUS 365 and 645 or equivalent. Familiarity with programming languages. Use of computers in modeling and solution of managerial decision-making problems.

691 Topics in Information Systems. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Study of current topics of concern to administrators of information systems organizations. Covers technical, management, and policy subjects.

767 Information Systems Network Design. Semester course; 3 lecture hours. 3 credits. Prerequisites: BUS 467 or BUS 667. Introduction to the concepts of data communication network design. Wide area, local, and distributed networks are studied together with their interrelationship to business information systems. Case study orientation throughout.

790 Doctoral Seminar. Semester course; 3 lecture hours. 3 credits. Prerequisite: open only to Ph.D. students in business. An advanced course dealing with general theories, practices, and functions of the student's area of specialization.

GRADUATE COURSES IN MARKETING (BUS)

DEPARTMENT OF MARKETING AND REAL ESTATE

656 International Marketing. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 670 or equivalent. Orientation to the international market place. Formulation of international marketing strategies for firms participating in global trade. Emphasis on international environment, multinational economic blocs, international competition, and development of international marketing strategies.

670 Concepts and Issues in Marketing. Semester course; 3 lecture hours. 3 credits. Designed for graduate students with little or no undergraduate education in marketing. A study of the philosophy, environment, and practice of contemporary marketing. (This is a foundation course.)

671 Marketing Management. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 670 or equivalent. Detailed study of concepts and procedural alternatives in the delineation of the market target, the development and implementation of the marketing mix, and the control and analysis of the total marketing effort.

672 Concepts in Consumer Behavior. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 670 or equivalent.
A study of the pertinent psychological, sociological, and anthropological variables that influence consumer activity and motivation.

673 Marketing Research. Semester course; 3 lecture hours. 3 credits. Prerequisites: BUS 624 and 670 or equivalents. A discussion of the techniques of marketing research. Special emphasis will be given to marketing problem definition, determination of information needs, and current methods of analysis of marketing data.

674 Service Quality Management. Semester course; 3 lecture hours. 3 credits. Prerequisite: student in good standing in VCU Masters program. This course enables marketing students to develop a better understanding of service offerings from both a theoretical and practical perspective. Learning will focus on both private and public-sector service organizations. Students will learn how to analyze the design of service offerings, including operations, environment, and people, and make recommendations for improving the offerings. The importance of internal and external customer feedback and continually measuring customer satisfaction/dissatisfaction will be highlighted as an integral part of managing service quality.

676 Marketing Strategy. Semester course; 3 lecture hours. 3 credits. Prerequisites: all foundation courses, BUS 671 and 673 or equivalents. Application of marketing concepts and techniques to real-world situations. Development of a marketing plan designed to effectively market a new or existing product or service.

GRADUATE COURSES IN REAL ESTATE (BUS)

627 Urban Land Development. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. A study of the development process; considering planning, financing, management, and marketing of real property.

628 Issues in Land Development. Semester course; 3 lecture hours. 3 credits. Considers spatial growth and the impact of regulations upon land use decisions.

629 Real Estate Feasibility Analysis. Semester course; 3 lecture hours. 3 credits. Housing demand forecasting, commercial site selection, and real estate investment analysis.

638 Real Property Investment Law. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 323 or equivalent, or permission of instructor. Covers legal aspects of real property development from acquisition through disposition; emphasizes selection of appropriate ownership form, financing, operation, and tax considerations.

658 Commercial Mortgage Lending. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 431 or permission of instructor. Emphasizes financial decision-making mathematics, underwriting criteria, financing methods, project feasibility and value, and loan processing and administration.

GRADUATE COURSES IN MANAGEMENT (BUS)

DEPARTMENT OF MANAGEMENT


611 Improvement of Instruction in Typewriting. Semester course; 3 lecture hours. 3 credits. This course is designed for experienced teachers and prospective teachers specializing in typewriting. It deals with the aims of the typewriting course, the relationship of typewriting to vocational and general education, available instructional materials, teaching aids and devices, current writings and developments, techniques for improving instruction, and practical application and demonstration at the typewriter.

614 Issues and Trends in Business Teaching. Semester course; 3 lecture hours. 3 credits. Offers the student an opportunity to become conversant with current literature on business teaching. Involves critical evaluation of a bibliography representative of the issues and trends found in the research and other writings in the field.

616 Advanced Office Administration. Semester course; 3 lecture hours. 3 credits. Designed to acquaint teachers with innovations in business offices. Includes methods, materials, and demonstrations related to the latest word processing and calculation techniques and equipment in up-to-date office systems.

640 Management Theory and Practice. Semester course; 3 lecture hours. 3 credits. Theories, principles, and fundamentals applicable to contemporary management thought and productive activities. (This is a foundation course.)

641 Organizational Behavior. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 640 or equivalent, or permission of instructor. An advanced course in management, involving theories and models aimed at developing the managerial competencies needed to analyze, understand, predict, and guide individual, group, and organizational behavior.

642 Business Policy. Semester course; 3 lecture hours. 3 credits. Must be taken after completion of all foundation courses plus 15 credits of advanced courses. Integration of principles and policies of business management from the fields of accounting, economics, marketing, finance, statistics, and management in the solution of broad company problems and in the establishment of company policy. Emphasis on interaction of disciplines in efficient administration of a business. Course employs case analysis approach.

644 International Business Management. Semester course; 3 lecture hours. 3 credits. Prerequisite: completion of foundation courses. Survey course for students interested in international and multinational management. Review of historical, governmental, monetary, and cultural issues affecting the transfer of resources and management knowledge across national boundaries; multinational business and management strategies; study of management practices in selected countries.

651 Organizational Communication. Semester course; 3 lecture hours. 3 credits. Study of theoretical constructs of the communication process in organizations. Application of communication principles to managerial functions, training, telecommunications, and other organizational situations.
652 Advanced Business Communication. Semester course; 3 lecture hours. 3 credits. Development of skill in planning and writing business reports and other shorter written communications, conducting business research, delivering oral presentation, and using business communication media.

655 Entrepreneurship. Semester course; 3 lecture hours. 3 credits. Individual and corporate entrepreneurship in high and low technology enterprises. Develops an understanding of the role of entrepreneurship in management theories and practices. Students will develop comprehensive venture analysis plans for presentation.

743 Organization Theory. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 640 and 641 or equivalent, or permission of instructor. Uses the organization and its major subunits as primary units of analyses. Involves description, design and analysis of contemporary organizational structures, systems, and processes.

749 History of Management Thought. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 640. Traces the history of management from its beginnings to current approaches and theories.

750 Theories and Research in Motivation and Leadership. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 641 or equivalent. Critical examination of significant research and application of motivation and leadership concepts in the organization context.

757 Corporate Strategy and Long-Range Planning. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 642 or equivalent. Analysis and evaluation of current methods and research in the areas of corporate strategy and long-range planning.

790 Doctoral Seminar. Semester course; 3 lecture hours. 3 credits. Prerequisite: open only to Ph.D. students in business. An advanced course dealing with general theories, practices, and functions of the student’s area of specialization.

GRADUATE COURSES IN MANAGEMENT (BUS) DEPARTMENT OF MANAGEMENT HUMAN RESOURCE MANAGEMENT

631 Advanced Labor Law and Legislation. Semester course; 3 lecture hours. 3 credits. Prerequisite: BUS 323 or permission of instructor. Advanced labor law and legislation with pertinent causal factors; administrative and judicial determination to date. Not open to students who have completed BUS 427.

633 Issues in Labor Relations. Semester course; 3 lecture hours. 3 credits. The conceptual framework of labor relations; the interconnection between labor-management relations and the sociopolitical environment.

634 Collective Bargaining and Labor Arbitration. Semester course; 3 lecture hours. 3 credits. The negotiation and administration of collective bargaining contracts; the handling of grievances.

637 Advanced Human Resource Management. Semester course; 3 lecture hours. 3 credits. A critical analysis of the functions and problem areas related to human resource management in a large organization; philosophy of human resource management; employee recruiting, testing, and wage and salary administration and supplemental compensation systems; manpower, training, and development; employee services; the legal environment of human resource management.

647 Public Sector Collective Bargaining. Semester course; 3 lecture hours. 3 credits. This course examines the development, practices, and extent of collective bargaining in the public sector. Analysis of labor issues at federal, state, and local government levels with emphasis on public sector policy issues.

649 Compensation Policy and Administration. Semester course; 3 lecture hours. 3 credits. Analysis of the concepts and processes involved in compensation systems. Includes evaluation of the internal and external dimensions of compensation, policy issues involved, concepts, and forms of compensation, administration of compensation systems, and current and future issues.

700 Principles of Scientific Inquiry in Business. 3 lecture hours. 3 credits. A seminar on the philosophical and epistemological foundations of scientific inquiry as they relate to research in business and its allied disciplines. The focus will be on the underlying logic, elements, reach and limits of alternative frameworks such as positivism, empiricism, and Bayesian analysis and the conditions under which each is the preferred method of inquiry.

701 Research Methods in Business. Semester course; 3 lecture hours. 3 credits. Prerequisite: acceptance in the doctoral program. Study of the scientific method as currently applied in business and organizational research, with emphasis on philosophy, design, execution, and presentation of empirically-based knowledge.
798-799 Thesis. Year course; 6 credits. Graduate students will work under supervision in outlining a graduate thesis and in carrying out the thesis.

898 Dissertation Research. 1-12 credits. Limited to Ph.D. in business candidates.
The School of Community Services was established in 1969 in recognition of the need for interdepartmental and interdisciplinary approaches to solving human problems resulting from a rapidly urbanizing society. In 1981, the school changed its name to the School of Community and Public Affairs in order to reflect more accurately the nature and scope of its academic and professional activities. Its mission entails education of high-quality public policy and human service professionals for work in public and private institutions at the community, state, national and international levels, and the conduct of important and useful research and service pertaining to the school’s academic and professional specialization.

THE ACADEMIC PROGRAMS IN THE SCHOOL

The School of Community and Public Affairs offers the following degrees:
- Administration of Justice (M.S.)
- Public Administration (M.P.A.)
- Recreation, Parks, and Tourism (M.S.)
- Urban and Regional Planning (M.U.R.P.)
- Doctor of Public Administration (D.P.A.)

The Commission of the Future of the University, in its report approved by the Board of Visitors of the University on September 9, 1993, recommended that the Department of Rehabilitation Counseling be transferred from the School of Community and Public Affairs to the School of Allied Health Professions. Anticipating that this change will take place in July 1, 1994, the activities of the Department of Rehabilitation Counseling are described in this bulletin in Part IV — School of Allied Health Professions.

ADMISSION PROCEDURES

Applicants are responsible for submitting all required admission documents to the School of Graduate Studies, Graduate Admissions, Virginia Commonwealth University, 901 West Franklin Street, Room B1, Richmond, VA 23284-3051. These documents include:
1. the graduate application form
2. all official transcripts
3. three letters of recommendation
4. a personal statement regarding graduate education goals
5. standardized test scores, as designated by academic departments
6. the application fee

Unless otherwise specified by the department, the application deadline for degree seekers for the fall semester is August 1; the deadline for the spring semester is December 1. However, all applicants—especially those seeking financial aid—are urged to apply before March 1 in order to have the best chance of being accepted and
receiving an award of financial assistance for the following academic year.

All applications will be considered in terms of specific requirements for admission noted in the description of the departmental programs and of the applicants' ability to perform satisfactorily in the program for which they have applied. The judgment of that ability will be based on the supporting material submitted by the applicant. Final action on admission is taken by the dean of the School of Graduate Studies in consultation with the School of Community and Public Affairs and the department concerned.

FULL ACCEPTANCE

Applicants who meet all requirements for admission to a degree program and who have been recommended by the department in which they propose to study, may be admitted as degree-seeking students. Fully-admitted students may be eligible for graduate assistantships, scholarships, and other financial aid.

PROVISIONAL ACCEPTANCE

Applicants who do not fully meet the requirements for admission may be accepted provisionally upon recommendation of the department. The provisions for earning full acceptance are stated in the provisional acceptance letter sent to students by the dean of the School of Graduate Studies. Students must remove, within a specified time period, any and all conditions of the provisional admission. Students admitted provisionally may not be eligible for some forms of financial assistance.

SPECIAL STUDENTS

A special student in the School of Community and Public Affairs may not take more than a total of six semester hours of course work. For more than six semester hours, the student must have the approval of the chairman of the department and the dean of the school. Courses taken as a special student may not necessarily apply toward departmental degree requirements.

TRANSFER CREDIT

Graduate credits earned at other institutions must be approved by the department. See departmental descriptions for specific transfer provisions and procedures.

PART-TIME STUDY

Degree-seeking students may complete requirements for the degree by studying as full- or part-time students during the regular academic year and summer sessions. University regulations regarding continuous enrollment, length of time and requested extensions apply to both full- and part-time students.

CONTINUANCE IN THE GRADUATE PROGRAM

Once admitted to a graduate program in Community and Public Affairs, a student is expected to enroll each semester in order to maintain continuous enrollment. Summer registration is encouraged but is not necessary to maintain continuous enrollment.

EFFECTIVE BULLETIN

Students complete the degree programs listed in the bulletin effective at the time of admission to a graduate program, if they maintain continuous enrollment. Students in continuous enrollment may choose to stay with their original bulletin or change to a later issue, at their option, but must satisfy all requirements of either.

ADVISING PROGRAM

Students admitted to any department in the School of Community and Public Affairs are assigned an advisor from the departmental faculty. In addition to academic counseling, the advisor is available for advice on other matters whenever students perceive a need.

Doctor of Public Administration Program

Ralph S. Hambrick, Jr.
Program Director

FACULTY

The graduate faculty of the School of Community and Public Affairs and participating faculty from other schools.

DPA PROGRAM COMMITTEE

Alimard, Amin Associate Professor of Public Administration DPA, University of Southern California; personnel administration, decision-making, comparative public administration.

Chapman, Regis L. Alumni Member DPA, Virginia Commonwealth University; planning theory and public budgeting.

Clement, Mary J. Associate Professor Ph.D., Washington State University, J.D./M.S.W., T.C. Williams School of Law and Virginia Commonwealth University; administration, law and juvenile justice.

Farmer, David J. Professor Department of Public Administration Ph.D., University of Virginia; criminal justice
management and police management, and public choice economics.

Gandy, Gerald L. Professor of Rehabilitation Counseling Ph.D., University of South Carolina; individual counseling approaches, group rational emotive techniques.

Hambrick, Ralph S., Jr. ex-officio, Professor of Public Administration Ph.D., Syracuse University; public policy analysis, strategic planning, organization design.

Holsworth, Robert D. Chair and Associate Professor, Department of Political Science Ph.D., University of North Carolina; electoral politics, political theory and behavior.

Johnson, Gary T. Associate Professor of Urban Studies and Planning D.E.D., Texas A & M University; transportation, housing, social policy.

Mills, Allen S. Associate Professor of Recreation, Parks, and Tourism Ph.D., University of Minnesota; travel and tourism, outdoor recreation, leisure behavior.

Pelfrey, William P. Chair and Professor, Department of Criminal Justice Ph.D., Florida State University; criminology.

Peterson, Carol A. Interim Dean and Professor of Recreation, Parks, and Tourism Ed.D., Columbia University; therapeutic recreation and leisure behavior.

Woolridge, Blue E. Associate Professor of Public Administration DPA, University of Southern California; financial management, personnel management, and budgeting.

Langhorst, Scott A. Student Representative.

The Doctor of Public Administration (D.P.A.) program is a degree program of the School of Community and Public Affairs. The teaching faculty is drawn primarily from the graduate faculty of the School of Community and Public Affairs, but also includes the graduate faculty members of other professional and academic schools at VCU. The multidisciplinary nature of the program enables students to utilize the talents of the entire VCU faculty as needed in individual programs.

As an advanced professional degree for public executives, the goal of the Doctor of Public Administration program is to provide a quality education to a limited number of individuals who have demonstrated administrative and executive abilities, strong intellectual capabilities, and a commitment to public service. Those who complete the degree program will be prepared educationally to assume positions of executive and policy leadership in a variety of governmental and public-oriented organizations, to conduct research on administrative and policy issues, and to teach in institutions of higher education.

REQUIREMENTS FOR ADMISSION

Applicants to the program must hold a master’s degree or a recognized post-baccalaureate degree in one of the professions such as law or medicine from an accredited institution of higher education. In addition, applicants are expected to have had an appropriate public, private, or non-profit management/professional experience for a period of five years.

The Graduate Record Examination, the Graduate Management Admissions Test, the Law School Admissions Test, or other standardized test that best reflects the abilities of the applicant is required of all applicants.

There is no full-time study requirement. Students are required to enroll for a minimum of nine semester hours each year. This includes enrollment during completion of the dissertation. It is expected that during the period of required course work students may continue to be employed fully. Many core courses will be scheduled on an intensive weekend basis.

Application forms may be obtained from the School of Graduate Studies, Virginia Commonwealth University, 901 West Franklin Street, Room B1, Richmond, VA 23284-3051. Completed applications are due by March 15 for fall admission and October 15 for spring admission.

REQUIREMENTS FOR THE DOCTOR OF PUBLIC ADMINISTRATION DEGREE

A minimum of 37 semester credit hours past the master’s or professional degree is required. Up to nine semester hours of credit may be granted for appropriate course work completed in a doctoral program at an institution of higher education which is accredited for doctoral studies. There is no foreign language requirement, but competency in analytical methods and computer use must be demonstrated. Methods courses are not included in the 37 semester-hour minimum requirement.

Of the required 37 credit hours, 19 are in the core curriculum, and 18 are in a specialty area selected by the individual student.

1. Core Curriculum. The core curriculum listed below must be completed by all students. These courses should be taken in the order listed.

DPA 705 Foundations of Public Affairs and Administration (four credits)
DPA 706 Administrative Theory I (three credits)
DPA 745 Administrative Theory II (three credits)
DPA 713 Ethics and Public Policy (three credits)
DPA 720 Public Organization Design and Behavior (three credits)
DPA 725 Advanced Public Policy Design and Evaluation (three credits; requires methods competency)

2. Methods Competency. Competency in analytical methods will be demonstrated by the successful completion of a minimum of nine
semester hours in graduate methods courses and by a competency examination. Methods courses taken in a master’s degree program will count toward this requirement if the courses were graduate-level offerings. The precise configuration of courses taken will be decided by the student in consultation with an advisor.

3. **Computer Competency.** For those students admitted to the DPA Program after 1986, computer competency shall consist of the ability to utilize word processing, spreadsheet applications, and data base or statistical programming in research applications. The demonstration of competency is by examination “project” or the successful completion of an appropriate course in computer applications.

4. **Specialty Curriculum.** Students may choose among several subject matter tracks in completing specialty course work for the D.P.A. degree. There are three established specialty tracks and, with the consultation and approval of a faculty advisor, the opportunity to develop an individually tailored track.
   a. **The Public Management Track.** Those who choose this option will complete at least 18 graduate-credit hours of an approved program, including the following two courses:
      (1) PAD 670 Advanced Public Financial Management (three credit hours)
      (2) PAD 682 Advanced Public Personnel Management (three credit hours)
      Students who have offered either or both of these courses, or their equivalents, for a master’s degree, will substitute two other appropriate advanced courses in general management from the graduate offerings of the School of Community and Public Affairs or another of the schools that offer such advanced courses; or, in consultation with an advisor, will engage in independent studies supporting the Administrative Management Track. All prerequisites for enrolling in these courses must be met. Students who feel qualified by experience or previous study may take competency examinations to fulfill prerequisite course requirements.
   b. **The Justice and Risk Administration Program Track.** Students who choose this option shall complete the following required courses:
      (1) JRA 616 Justice Policies and Administration (3 credit hours)
      (2) JRA 622 Criminal Justice Systems; or JRA 773 Justice and Risk Administration Interventions (three credit hours)
      (3) JRA 641 Jurisprudence (three credit hours)
      (4) JRA 684 Directed Individual Writing in the Administration of Justice (three credit hours)
      (5) JRA 763 Seminar in Social Justice and Risk Administration (three credit hours)
      The remaining three credit hours will be taken from courses approved by a JRA faculty advisor that are consistent with the interests of the student and which form a coherent examination field. Substitute courses in this track may be approved by the faculty advisor when special circumstances warrant.
   c. **Policy, Evaluation, and Management Analytics Track.** Qualification under this option will include a minimum of 18 graduate hours covering two disciplinary areas. This specialty is designed to serve those individuals who have a professional interest in methods of analysis. The exact course configuration will be decided upon in conjunction with a faculty advisor.
   d. **Other Specialty Tracks.** In consultation with appropriate faculty, students may develop specialty tracks that best fit their intellectual interests. A personally developed track must constitute a coherent program of study and receive advanced approval of the faculty member responsible for the academic area in which the specialty is to be taken.

5. **Comprehensive Written Examinations.** After the successful completion of all the courses required in the core curriculum, the establishment of methods competency, computer competency, and the completion of the required courses in the selected track, students may present themselves for written examinations in the core and selected track. Those who fail to demonstrate doctoral-level competence on these examinations will be allowed to retake them once. Clarifying oral examinations may be required. Completion of this phase of the program will admit the student to doctoral candidacy. Enrollment in DPA 898, Dissertation Research, is required during the semester in which the comprehensive written examination is attempted.

6. **Preliminary Oral Examination.** This is a defense of the dissertation proposal which
will occur when the candidate has developed a theory base, completed a review of the literature, and has settled on a methodological approach.

7. Dissertation Preparation. Under the guidance of an advisor, and with the assistance of a faculty committee, the candidate for the D.P.A. degree will prepare an appropriate dissertation. During the period of this preparation the student will continuously enroll in DPA 898 Dissertation Research (1-12 credits).

8. Dissertation Defense. After completion of the dissertation, the candidate will defend the dissertation before the dissertation committee and any other interested faculty or professionals. Acceptance of the dissertation will conclude the degree program and result in the awarding of the Doctor of Public Administration degree.

GRADUATE COURSES IN DOCTOR OF PUBLIC ADMINISTRATION PROGRAM D.P.A.

705 Foundations of Public Affairs and Administration. Semester course. 4 credits. Provides a foundation for doctoral-level study in public affairs and administration. A critical review of the development of public organizations and career public services and the research approaches used in their study (doctoral students only).

706 Administrative Theory I. Semester course. 3 credits. Examines theory construction and intellectual paradigms in American public administration. Includes the review and analysis of the major paradigms that have dominated public administration thought and application and the theories that have contributed to each of the major paradigms.

713/PHI 713 Ethics and Public Policy. Semester course. 3 credits. An examination of the role of ethics and ethical reasoning within the American public policy system. Special emphasis is given to the personal and professional ethical structures of the public executive and how these impact upon public policy. Topics include obligations, values, constitutionalism, distributive justice, equity, equality, secrecy, and lying (doctoral students only).

720 Public Organization Design and Behavior. Semester course. 3 credits. An intensive examination of public sector organization design and behavior. Reviews theories, models, and the latest research findings as vehicles for understanding the design of effective public organizations (doctoral students only).

725 Advanced Public Policy Design and Evaluation. Semester course. 3 credits. A comprehensive examination of the theory and practice of public policy decision-making, analysis, and evaluation. The course is designed to provide students with an awareness of the range of decision tools available for prospective analysis and program evaluation (Methods competency required; doctoral students only).

740 Theory and Practice in Public Administration. Semester course. 3 credits. The application of theory to public policy operational problems. Students will select major theoretical and operational perspectives for critical analysis from an administrative and management standpoint (doctoral students only).

745 Administrative Theory II. Semester course. 3 credits. Continuation of Administrative Theory I. Explores contemporary theoretical frameworks that shape thinking, research, and theorizing about public affairs and administration (doctoral students only).

791 Topical Seminar. Semester course. 1-3 credits. May be repeated for a maximum of six credits. Prerequisite: doctoral standing and permission of program director. An in-depth study of a selected topic in public affairs, policy, or administration.

792 Independent Study. Semester course; 1, 2, or 3 credits. May be repeated for a maximum of six credits. Prerequisite: doctoral standing and permission of program director. Independent study and research in selected areas of public affairs, policy and administration under the guidance of a graduate faculty member.

898 Dissertation Research. Semester course; 1-12 hours. May be repeated for credit. Prerequisite: admittance to doctoral candidacy. Research on an approved dissertation subject.

Department of Justice and Risk Administration

FACULTY

Clement, Mary J. Associate Professor Ph.D., Washington State University; J.D./M.S.W. T.C. Williams School of Law and Virginia Commonwealth University; administration, law and juvenile justice.

Geary, David P. Associate Professor Ph.D., Marquette University; justice administration and comparative justice systems.

Hague, James L. Professor J.D., LL.M. University of Virginia School of Law; criminal law and procedure, courts and judicial process.

Hooker, James E. Associate Professor M.A., Washington State University; criminal justice management and forensic science.

Keve, Paul W. Professor Emeritus M.S.W., Richmond Professional Institute; corrections and social work.

Moriarty, Laura J. Assistant Professor Ph.D., Sam Houston State University; criminal justice.

Pelfrey, William V. Chair Ph.D., Florida State University; criminology.

Tower, Donna B. Assistant Professor Ed.D., Virginia Polytechnic Institute and State University; counselor education and sociology.

The graduate program in administration of justice is designed to provide advanced educational preparation for practitioners and students pursuing careers in the field of criminal justice or juvenile justice. Such preparation includes understanding appropriate theoretical positions and developing appropriate professional skills. The curriculum is directed especially toward assist-
ing students in developing the advanced knowledge, skills, and abilities required by a middle management or highly specialized criminal justice professional.

The Master of Science in Administration of Justice (M.S.) requires 36 or 39 semester hours of course work and may be completed by a full-time student in one calendar year.

The curriculum provides for the group of core courses and skills options noted on the charts that follow. Among the elective options is the Forensic Science Option for those choosing that particular specialty.

The post-baccalaureate Certificate in Criminal Justice Administration (CCJA) program offers an abbreviated graduate-level course sequence of 15 credit hours for individuals with an academic and/or professional background in criminal justice.

The program is designed to accommodate both full- and part-time students. Nearly all courses are available in the evenings after 4 pm; weekend courses are offered also. Field placement opportunities will be available for students without field experience.

M.S. in Administration of Justice

All new students are required to begin with AJP 501 Criminal Justice Assessment providing them with an opportunity to examine the criminal justice system, the criminal justice literature, and their career and educational goals in that system. It enables students to plan their graduate learning experience so that it is compatible with their interests and capabilities within the field of criminal justice. A product of this course is an individual plan of study which is used as a general "contract" to complete learning objectives.

The pattern of subsequent courses can be followed in the chart that follows. No sequencing of courses is set beyond the requirement that students must register for AJP 501 as one of their first courses. AJP 601, 622, and 641 are then required — as are AJP 616, 660, and 763.

Two further general decisions are required of the student. One choice is between the thesis research and the comprehensive examination tracks. The former is essentially for those with an interest in research or wish to increase their chances of acceptance for (later) doctoral work. The latter is for those seeking overall mastery of the field through the comprehensive track.

Another choice is which one of the six skills options appeals to the student — counseling, administration, research, planning, information systems, legal analysis, or generalist. Within a selected skill option, students may select two generic courses from lists of appropriate courses maintained by advisors; and these may be courses offered by other departments in the University. For example, the list will contain courses offered by public administration, business, social work, and urban studies and planning. A third course, offered by AJP, usually will examine the "skill" in the criminal justice setting.

Forensic Science in M.S. Degree

The objectives of the Forensic Science Option in the Master of Science in the administration of justice program are to advance the education and training of men and women working in the forensic science field, to prepare appropriately people who want to enter the forensic science field as a career, and to develop the knowledge of persons whose professional careers would be enhanced by sophistication in the forensic sciences (i.e., medical examiners, pathologists, industrial hygienists, lawyers, investigators, etc.).

This program is flexible enough to provide for a master's degree education for persons whose career objectives are in any of several specialty areas, such as trace evidence, serology, drug analysis, industrial hygiene, questioned documents, firearms, and toolmarks examinations; or in some relatively new specialty such as arson and bomb residue examination; or in some of the very new areas that have not been identified fully yet but are implicit in the newest definition of criminalistics and physical evidence.

All new students in this option also are required to begin with AJP 501. At that time, in consultation with an advisor, an appropriate program of studies is developed to meet the individual student's needs in the forensic science area. The pattern of choice available is indicated in the chart that follows in a later section.

Post-baccalaureate Certificate in Criminal Justice Administration (CCJA)

This certificate program offers specialization for individuals interested or involved in law enforcement, corrections, or the courts. It combines survey, comparative, and theory courses with those addressing research and management principles and problems in the justice system. The courses are the same as the master's-level courses, and are fully transferable to the M.S. program.

Five courses are required for the certificate (CCJA), as specified in the chart below.

To receive the certificate, the student must receive a grade of "B" or better in each of the five
courses and complete the 15-hours certificate program within three years.

ADMISSIONS

Beyond the general School of Graduate Studies standards listed in Part I of this bulletin, admissions will be based on

A. Full Admission

1. An undergraduate grade-point average of at least 2.7 overall or in the last 60 hours.
2. A satisfactory score on either the Graduate Record Examination or the Miller Analogy Test (MAT) or Law School Aptitude Test (LSAT). The MAT is offered by the Department of Psychology twice each month, (804) 367-1179.
3. Previous evidence of ability to perform graduate-level work (such as graduate-level course work with a grade of "B" or above).
4. Assessment of prior experience or potential in criminal justice and related areas.
5. In addition applicants will be evaluated by the department Admissions Committee in two general areas: evidence of the ability to perform satisfactorily at the graduate level and evidence of commitment and potential for contribution to the field.

B. Provisional Admission

Applicants who do not meet the requirements for admission may be accepted provisionally upon recommendation of the department. The provisions for earning full admission are stated in the provisional acceptance letter sent by the Dean of the School of Graduate Studies. Provisions usually include requirement that the student complete the first nine hours of departmental graduate courses, including AJP 501, with a grade of "B" or better in each. Provisional admission does not constitute a waiver of the requirement related to standardized tests.

For admission to the Forensic Science Option, students are required to possess a bachelor's degree in a physical, biological, or other appropriate science. Students admitted provisionally with undergraduate science deficiencies will be required to complete appropriate undergraduate courses before they will be permitted to enroll in the forensic science courses.

Applicants for the post-baccalaureate Certificate in Criminal Justice Administration (CCJA) program are not required to take the Graduate Record Examination for admission.

TRANSFER CREDIT

At the time of a student's acceptance into the program, a maximum of six semester hours of appropriate graduate credit may be applied toward a Master of Science degree in the Department of Justice and Risk Administration.

FINANCIAL INFORMATION

Information and application forms for the State Law Enforcement Officers Educational Program (SLEOEP) and financial aid information may be secured from the VCU Financial Aid Counseling and Information Services Center, 901 W. Franklin Street, Rm. 107, Richmond, VA 23284-3026, (804) 367-9312.

State of Virginia graduate scholarships may be available. Applications are accepted in April, and awards are made in May for the following academic year.

REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN ADMINISTRATION OF JUSTICE

(In addition to general graduation requirements)

1. Students must complete a minimum of 36 or 39 graduate semester credits, approved by the chairman, with an overall grade-point average of 3.0 or above. Students electing the thesis track are required to complete 36 hours. Students choosing the comprehensive examination track are required to complete 39 hours.
2. Students without acceptable experience in administration of justice must complete a supervised field placement under the direction of the department and the immediate supervision of a qualified person in an approved agency or facility.

CORRESPONDENCE AND INFORMATION

Further information and appropriate forms may be obtained by writing to the Chair, Department of Justice and Risk Administration, Virginia Commonwealth University, 816 West Franklin Street, Richmond, VA 23284-2017, (804) 367-1050.

Application forms and other material may be obtained from the School of Graduate Studies, Virginia Commonwealth University, 901 West Franklin Street, Room B1, Richmond, VA 23284-3051, (804) 828-6916.

Program Alternatives

M.S. IN ADMINISTRATION OF JUSTICE

Core Credits
AJP 501 Criminal Justice Assessment .................. 3
AJP 616 Justice Policies and Administration .......... 3
AJP 622 Criminal Justice Systems ..................... 3
AJP 641 Jurisprudence .................................... 3
SCHOOL OF COMMUNITY AND PUBLIC AFFAIRS

AJP 660 Seminar in Legal Process ......................... 3
AJP 601 Research Basis of Criminal Justice ........... 3
AJP 763 Seminar in Social Justice and Risk Administration ........................................ 3

Skills Option Course
(Choose one skill option, as shown below) ........ 9

Either Thesis Research Track or Comprehensive Examination Track
AJP 796 Thesis Research .................................. 3
AJP 799 Thesis ............................................. 3

OR
AJP 684 Directed Individual Writing in the Administration of Justice ................................. 3
AJP 685 Directed Comprehensive Reading in the Administration of Justice ................................. 3
One Elective ................................................ 3

NOTE: Those opting for the Thesis Research Track will be required to complete 36 credits in total; those choosing the Comprehensive Examination Track would complete 39 credits.

Skills Options
JUSTICE/GENERALIST
AJP 631 Criminal Justice: Administrative Trends and Issues ........................................ 3
Two skills option electives approved by advisor ... 6

JUSTICE/COUNSELING
AJP 650 Criminal Justice Applications of Counseling Theory and Practice ................................ 3
Two skills option electives approved by advisor ... 6

JUSTICE/ADMINISTRATION
AJP 631 Criminal Justice: Administrative Trends and Issues ........................................ 3
Two skills option electives approved by advisor ... 6

JUSTICE/RESEARCH
AJP 692 Independent Study/Directed Readings ...... 3
Two skills option electives approved by advisor ... 6

JUSTICE/PLANNING
AJP 612 Criminal Justice Politics and Planning ...... 3
Two skills option electives approved by advisor ... 6

JUSTICE/INFORMATION SYSTEMS
AJP 603 Criminal Justice Information Systems ...... 3
Two skills option electives approved by advisor ... 6

JUSTICE/LEGAL ANALYSIS
AJP 640 Legal Research .................................... 3
Two skills option electives approved by advisor ... 6

M.S. IN ADMINISTRATION WITH FORENSIC SCIENCE OPTION:
AJP 501 Criminal Justice Assessment ................. 3
AJP 571 Scientific Research and Crime Analysis ... 3
AJP 671 Forensic Science: Drug Analysis I ......... 3

AJP 673 Forensic Science: Trace Evidence I .......... 3
AJP 675 Forensic Science: Serology I ............... 3
AJP 677 Laws of Forensic Evidence .................... 3

Science Courses and Electives
At least four courses from an approved list of graduate courses in chemistry, pathology, toxicology, computer science, management, etc. Selection of courses will depend on the student's previous education and career needs and/or aspirations, and will be subject to the approval of the student's advisor ... 12

Internship
AJP 693 Internship (supervised work in a forensic science laboratory) ............................. 3 or 6

Advanced study in Specialty
AJP 672 Forensic Science: Drug Analysis II ........ 3
AJP 674 Criminal Justice: Trace Evidence II ........ 3
AJP 676 Forensic Science: Serology II ............... 3

Directed Research
AJP 692 Independent Study/Directed Readings (satisfactory completion of an analytical problem in the laboratory or a study project on the application of forensic science knowledge in criminal justice) ............................................ 3
Total .................................................................. 36 or 39

POST-BACCALAUREATE CERTIFICATE IN CRIMINAL JUSTICE ADMINISTRATION (CCJA)
The five courses required are as follows:
AJP 501 Criminal Justice Assessment .................. 3

Two of the following three:
AJP 603 Criminal Justice: Information Systems .... 3
AJP 622 Criminal Justice Systems ....................... 3
AJP 641 Jurisprudence ..................................... 3

One of the following four:
AJP 613 Law Enforcement Policies and Administration ....................................................... 3
AJP 614 Correctional Policies and Administration .. 3
AJP 615 Courts Policies and Administration ......... 3
AJP 616 Justice Policies and Administration .......... 3

AJP 631 Criminal Justice: Administrative Trends and Issues ........................................... 3
Total .................................................................. 15

NOTE: With the permission of the chairman, other appropriate AJP courses may be substituted for those listed.

GRADUATE COURSES IN ADMINISTRATION OF JUSTICE (AJP)

501 Criminal Justice Assessment. Semester course; 3 lecture hours. 3 credits. A survey of the American Criminal Justice System, the interrelationships of its components and overall system functioning; an examination of factors leading to delinquency and criminal behavior; a review of contemporary criminal justice literature. On the basis of foundations built in this required entry course, students will be assisted in assessing their own personal and professional interests and capabilities in relation to the criminal justice system.
571 Scientific Research and Crime Analysis. Semester course; 3 lecture hours. 3 credits. A comprehensive review of the historical development of the forensic science field including laboratory instrumentation, and laboratory technology utilized to detect, identify, analyze, and compare physical evidence. Evaluation of current research and discussions of the capabilities and roles of the sections of a modern forensic science laboratory. An overview of forensic pathology will also be presented.

591 Topic Seminar. Semester course; 1-3 lecture hours. 1-3 credits. Seminar in contemporary administration of justice topics. May be repeated for a maximum of 6 credits.

601 Research Basis of Criminal Justice. Semester course; 3 lecture hours. 3 credits. Examination of criminal justice research and evaluation, emphasizing principles of design, methodology, analysis, and interpretation of data. The reliability, validity, applicability, and trends of justice system research will be assessed.

603 Criminal Justice Information Systems. Semester course; 3 lecture hours. 3 credits. Laboratory hours individually scheduled. Course objectives are to provide students with knowledge of computer usage in the criminal justice field.

612 Criminal Justice Politics and Planning. Semester course; 3 lecture hours. 3 credits. Examines political and public policy issues as they relate to administration of justice planning. Emphasizes planning implications of interagency relationships, the impact of social change in the criminal justice process, and community involvement in the control and prevention of crime.

613 Law Enforcement Policies and Administration. Semester course; 3 lecture hours. 3 credits. Analyzes contemporary and innovative practices in the delivery of law enforcement services with emphasis on administrative, organizational, and management principles. Examines long-range planning, policy development, implementation, and evaluation; and the police manager’s unique role in the administration of justice.

614 Correctional Policies and Administration. Semester course; 3 lecture hours. 3 credits. This course is designed to analyze the current legal, philosophical, and political factors which impact upon the correctional systems. It will study the effects of new trends in shaping the formulation and implementation of organization policy. Examples will be reviewed of patterns of statewide organization for efficient delivery of field services and efficient management of adult and juvenile correctional institutions. Relevant to this will be analysis of the problems of adjusting corrections operations to the expectations and demands of the public and the need to maintain appropriate coordination with other components of the criminal justice system.

615 Courts Policies and Administration. Semester course; 3 lecture hours. 3 credits. This course examines the principles and practices of court administration, its impact on the legal process, interrelationships with other agencies, and skills necessary in court administration. New directions in modernizing the courts are stressed with methods and techniques needed to supply leadership in improving the effectiveness of the justice system.

616 Justice Policies and Administration. Semester course; 3 lecture hours. Analyzes the legal, philosophical, and political factors that impact the justice system and the effects of trends that shape organizational policy. Examines in depth administration, organization and management principles as they apply to the justice system with emphasis on leadership and human resource development.

620/SOC 620 Seminar in Criminology. Semester course; 3 lecture hours. 3 credits. Discussion and investigation of contemporary issues in criminology. Special emphasis on research problems in, and theories of, crime causation.

622 Criminal Justice Systems. Semester course; 3 lecture hours. 3 credits. Study of contemporary local, national, and international criminal justice systems, emphasizing their comparative aspects.

631 Criminal Justice: Administrative Trends and Issues. Semester course; 3 lecture hours. 3 credits. Examines administrative behavior and organizational theory in criminal justice agencies. Analyzes substantive administrative concepts, program planning and development, and innovative management practices.

640 Legal Research. Semester course; 3 lecture hours. 3 credits. Serves as an introduction to the principles and practices of legal research as related to criminal justice. Exercises include explaining basic tools of legal research, using a law library, and presenting the results of legal research.

641 Jurisprudence. Semester course; 3 lecture hours. 3 credits. Examines the theoretical underpinnings of law and justice. Studies the evolution of jurisprudential theories within the context of evolving concepts of responsibility and law. Systems of law will be contrasted and emphasis will be placed on contemporary developments in substantive laws.

650 Criminal Justice Applications of Counseling Theory and Practice. Semester course; 3 lecture hours. 3 credits. Considers application of basic counseling principles to criminal justice settings, including juvenile justice programs, adult correctional institutions, and post-release and probationary counseling situations. Special emphasis will be given to contemporary rehabilitation research and innovative methods and programs.

660 Seminar in Legal Process. Semester course; 3 lecture hours. 3 credits. Studies the formal and informal procedures of various criminal justice systems. Examines the major constraints and authorizations of the legal and judicial systems on arrest, prosecution, trial, sentencing, and appeal.

671 Forensic Science: Drug Analysis. Semester course; 2 lecture and 3 laboratory hours. 3 credits. This course will introduce students to the chemical, legal, and pharmacological aspects of commonly abused drugs including narcotics, hallucinogens, stimulants, and cannabis preparations. Basic analytical techniques such as color tests, thin layer chromatography, and gas chromatography will be examined. The student will have the opportunity to conduct examinations on several unknown samples to test his or her ability in simulated case situations.

672 Forensic Science: Drug Analysis II. Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: AJP 671 or permission of instructor. Continues the examination of the theory and techniques of the isolation and identification of abused drug substances with emphasis on the development of
a logical approach to the solution of problems in drug analysis encountered in a modern laboratory. Emphasizes the analysis of unknowns, rules relating to chain of custody, preparation of reports, and expert testimony in court.

673 Forensic Science: Trace Evidence. Semester course; 2 lecture and 3 laboratory hours. 3 credits. The physical and chemical properties of items of trace evidence will be examined. Analytical approaches and techniques employed in the examination of paint, glass, synthetic fibers, arson residue, explosive residue, and soil will be discussed.

674 Forensic Science: Trace Evidence II. Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: AJP 673 or permission of instructor. Examines in detail gas chromatography, arson extracts, paints, instrumental analysis of trace evidence, explosives, and microscopy.

675 Forensic Science: Serology I. Semester course; 2 lecture and 3 laboratory hours. 3 credits. Presents comprehensive lectures and laboratories dealing with the concepts of immunology and hematology as they are applied to blood identification and individualization. Special attention is given to identification of blood, specie origin, and the ABO system. Other physiological fluids such as semen and saliva are discussed with emphasis on their identification and individualization potential. Discussion will be devoted also to basic polymorphic enzyme systems.

676 Forensic Science: Serology II. Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: AJP 675 or permission of instructor. Investigates additional forensically important genetic markers found in human blood and physiological fluids, polymorphic proteins that lend themselves to individualization, the principles of human biochemical genetics, and electrophoresis.

677 Laws of Forensic Evidence and Moot Court. Semester course; 3 lecture hours. 3 credits. Examines in detail the nature and purpose of expert evidence and testimony, the basic elements in the selection and preparation of expert testimony, disclosure and discovery rights and obligations, trial aids, the expert at trial, and court procedure.

684 Directed Individual Writing in the Administration of Justice. Semester course; 3 credits or 1 credit extension. Students will extensively research a chosen criminal justice topic and will write an analytical paper to be judged against standards for journal articles.

685 Directed Comprehensive Readings in Administration of Justice. 3 credits or 1 credit extension. An extensive and comprehensive reading list will be provided to the student. Upon completion of the reading, a comprehensive examination will be given. Graded on a “pass/fail” basis.

692 Independent Study/Directed Readings. Semester course; 1-3 credits. Provides student an opportunity to pursue an independent research project or extensive literature review under the supervision of an instructor. Independent work by student must be preceded by the instructor’s review and approval of the proposal. May be repeated for a maximum of 6 credits.

693 Internship. Semester course; 3 credits. Provides student an opportunity to relate theory to practice through observation in an experience in an approved agency, and to develop or refine professional skills under the supervision of an instructor.

763 Seminar in Social Justice and Risk Administration. Semester course; 3 lecture hours. 3 credits. Evaluates historical and theoretical concepts of social justice and the management of public risk. Considers implications for contemporary justice and risk administration practices and evaluates future policy alternatives (doctoral students only).

773 Justice and Risk Administration Interventions. Semester course; 3 lecture hours. 3 credits. Reviews and evaluates theoretical underpinnings of management and administrative interventions useful to administrators in the justice and risk professions. Requires in-depth review of selected cases, application of intervention strategies and techniques, and evaluation of intervention impacts on policy outcomes (doctoral students only).

798 Thesis Research. Semester course. 3 credits (credit extension available). Prerequisite: AJP 601. An advanced examination of the research process including problem identification, literature review, research design, and methodology. Under the supervision of the instructor, the student will prepare a research prospectus for approval by the student’s three-member faculty committee. Graded on a “S, U or F” basis.

799 Thesis. Semester course; 1-3 credits. Prerequisite: permission of instructor and appropriate research course. An original research project proposed in AJP 798 will be submitted as a master’s thesis to the student’s three-member faculty committee. Graded on a “S, U, or F” basis.

Department of Public Administration

FACULTY

Alimard, Amin Associate Professor D.P.A., University of Southern California; human resource management, comparative administration.

Fairholm, Gilbert W. Associate Professor D.P.A., State University of New York; organizational behavior, executive leadership.

Farmer, David J. Professor Ph.D., University of London; Ph.D., University of Virginia; criminal justice and police management and public choice economics.

Grosenick, Leigh E. Professor Ph.D., University of Minnesota; administrative law, ethics, public finance.

Hambrick, Ralph S. Professor Ph.D., Syracuse University; public management, policy analysis.

Heiss, F. William Professor Ph.D., University of Colorado; public management, policy analysis, theory, and philosophy.

Henry, Laurin L. Professor Emeritus and Former Dean Ph.D., University of Chicago; public bureaucracy and American Presidency.

Hutchinson, Janet Assistant Professor Ph.D., University of Pittsburgh; analytic methods, policy analysis, and evaluation.

Schexnider, Alvin J. Professor and Associate Vice-President for Academic Affairs Ph.D., Northwestern University; political science.

Woolridge, Blue E. Associate Professor D.P.A., University of Southern California; finance and human resource management.
The Master of Public Administration (M.P.A.) program is designed to meet the graduate educational needs of pre-service and in-service professionals for careers in public management and administration in the public, nonprofit and private sectors. The program emphasizes public management, administrative theory and practice, and policy analysis.

Students complete 45 semester hours for the M.P.A. degree. The 27 semester hours of core courses provide students with theoretical and practical foundations in public management, human resources management and financial administration, quantitative and qualitative analyses, policy and program evaluation, leadership, political systems, and policy analysis. Students will use a minimum of nine hours to pursue an area of concentration. A three-credit practicum is required for those students without significant professional experience in a public agency.

CORE CURRICULUM
Six major emphases are offered:
1. The political, social, legal, and economic context of public administration.
2. Public organization management processes and behavior.
3. Quantitative and qualitative analysis.
4. Human resource, personnel and financial administration.
5. Policy analysis and program evaluation.
6. Local government administration.

ADMISSIONS
In addition to the general requirements, selection is made on the basis of undergraduate academic performance, intellectual capacity, accomplishments, experience, and other indicators of the ability to pursue successfully graduate studies and a professional career in public management.

Interview
A personal interview with the public administration faculty is suggested. For out-of-state students, the chair will designate an alternate method for the pre-acceptance interview.

Full Acceptance
As a general guide, students accepted in full standing will have a 3.0 grade-point average on a 4.0 scale in their last 60 (semester) hours of undergraduate work and a total score of 1,000 on the verbal and quantitative sections of the Graduate Record Examination (GRE), or 550-575 on the Graduate Management Admissions Test, or 500/32 on the Law School Admissions Test. Scores from one of the above examinations must be received prior to application review.

Individuals with Advanced Degrees
Persons holding advanced degrees from fully accredited institutions of higher education may be accepted as degree students without submitting Graduate Record Examination or other scores.

TRANSFER CREDIT
A maximum of nine semester hours of graduate credit from an accredited institution may be applied toward the M.P.A. degree. Such transfer credits will be evaluated at the completion of nine semester hours of work in VCU’s graduate program in public administration. These hours will not have been credited toward another degree. For special programs, additional hours may be transferred and applied to the M.P.A. degree with department approval.

FINANCIAL INFORMATION
Potential students are urged to apply by March 15 for fellowships and scholarships. Paid on-the-job internships are encouraged. The Senator Edward E. Willey Scholarship and the Virginia City Management Association/University Dr. T. Edward Temple Scholarship are available to outstanding students; preference for these two scholarships is given to those who plan public careers in Virginia. VCU graduates have a successful record in obtaining presidential management internships in the federal government, state government professional positions and local government positions.

REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC ADMINISTRATION
1. A student must complete a minimum of 45 semester hours, as approved, with an overall grade-point average of 3.0 or above.
2. Internship and Practicum. Each student who does not have at least one year of professional-level experience in the public sector or in a nonprofit agency will be required to earn three hours of credit in a public service practicum. The practicum usually will be taken during the summer between the first and second years or during the last semester of course work. The internship shall last a minimum of ten weeks as required by the National Association of Schools of Public Affairs and Administra-
tion. The scheduling of the practicum will be flexible enough to accommodate the needs of those students who pursue the degree on a part-time basis.

All practicums will be negotiated between VCU and the host agency in terms of the scope of work to be performed by the students, the type and extent of supervision both within the agency and from the University, and the stipend. A learning contract will be executed among the department, the agency, and the student. A student “academic/experiential paper” is required to complete the internship.

CONTINUOUS ENROLLMENT REQUIREMENTS
Students who fail to register for two consecutive semesters (summer sessions included) will be dropped automatically from the program and must reapply for admission in order to continue. Exceptions to this policy will be made on an individual basis by petition. Students who reapply after having been dropped for failure to register continuously will be evaluated under the bulletin requirements in effect at the time of readmittance. Courses completed prior to the reapplication may not be accepted toward completion of the degree.

CORRESPONDENCE AND FURTHER INFORMATION
Further information and appropriate forms may be obtained by writing to Chair, Department of Public Administration, 816 West Franklin Street, Richmond, VA 23284-2031, (804) 367-1046; FAX (804) 367-8228.

CORE CURRICULUM (REQUIRED COURSES)

<table>
<thead>
<tr>
<th>First Place</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PAD 601 Principles of Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>PAD 607 Human Resource Administration in Governmental Organizations</td>
<td>3</td>
</tr>
<tr>
<td>PAD 609 Financial Management in Government</td>
<td>3</td>
</tr>
<tr>
<td>PAD 621 Organizational Behavior and Management in Government</td>
<td>3</td>
</tr>
<tr>
<td>PAD 623/624 Analytical and Evaluation Methods in Public Administration I &amp; II</td>
<td>6</td>
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<tr>
<td>PAD 625 Policy Formulation and Implementation</td>
<td>3</td>
</tr>
<tr>
<td>PAD 682 Advanced Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>PAD 637 Organic Public Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 646 Personnel Law</td>
<td>3</td>
</tr>
<tr>
<td>ECO 616 Advanced Public Finance</td>
<td>3</td>
</tr>
<tr>
<td>PAD 691 Public Sector Economics</td>
<td>3</td>
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<tr>
<td>PAD 662 Taxation and Revenue</td>
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Students may be required to take PAD 693 Public Administration Practicum for three credit hours. (See Requirements for the Degree in a previous section).

CONCENTRATION OPTIONS
As approved, the remaining course work will be devoted primarily to one of the concentrations:

Human Resource Management
Public Financial Management
Executive Management
Public Policy Analysis and Evaluation
Local Government Management

Individualized concentrations may be developed in other fields. These concentrations may require agreement between the Department of Public Administration and other departments or schools at VCU such as Justice and Risk Administration, Economics, Gerontology, Social Work, Urban Studies and Planning, Business and Health Administration.

Public Human Resources Management
This concentration is designed to give students the knowledge, skills, and abilities to manage public personnel administration.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PAD 637 Organic Public Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 646 Personnel Law</td>
<td>3</td>
</tr>
<tr>
<td>PAD 682 Advanced Human Resource Management</td>
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</table>

Public Financial Management
This concentration is designed to afford the student professional and theoretical competence in public financial management and administration. Technical, supervisory, and general financial management theory and practice are emphasized.

<table>
<thead>
<tr>
<th>Required Courses</th>
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<tbody>
<tr>
<td>PAD 622 Public Sector Budgeting</td>
<td>3</td>
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<tr>
<td>PAD 670 Advanced Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>ECO 616 Advanced Public Finance</td>
<td>3</td>
</tr>
<tr>
<td>PAD 691 Public Sector Economics</td>
<td>3</td>
</tr>
<tr>
<td>PAD 662 Taxation and Revenue</td>
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Executive Management
This concentration is designed to develop effective leadership styles, decision-making abilities,
and consideration and integration of values and ethics in public service delivery and management.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tr>
<td>PAD 680 Executive Leadership</td>
<td>3</td>
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<tr>
<td>PAD 681 Governmental Decision Making</td>
<td>3</td>
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<tr>
<td>PAD 683 Administrative Ethics</td>
<td>3</td>
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**Evaluation And Public Policy Analysis**

This concentration provides students with the statistical, research, methodological, and policy program foundations to become public policy analysts and program evaluators.

**Required Courses**

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
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<tr>
<td>PAD 627 Evaluation Research</td>
<td>3</td>
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<tr>
<td>PAD 629 Workshop in Policy Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PAD 691/697 Topics/Research</td>
<td>3</td>
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**CERTIFICATE PROGRAM IN PUBLIC ADMINISTRATION (C.P.M.)**

The Certificate in Public Management (C.P.M.) is a program to enable practitioners to acquire contemporary and additional knowledge and skills in public administration without pursuing a regular master’s degree course of study.

The C.P.M. program requires students to complete a total of 18 credit hours in a sequence of management development and public service oriented courses. These courses are at the graduate level and the same as those offered to M.P.A. students. The student in the C.P.M. program is required to take a specific set of five core courses which includes a three credit hour management institute along with one elective. The elective may be in a specialty area.

**Admissions to the Master’s Program from C.P.M.**

The C.P.M. is designed for persons in management positions or who will shortly accept management responsibilities and who need a limited number of selected courses in contemporary methods, skills and models of management. On occasion, however, a person may pursue the C.P.M. and then decide that it would be desirable to pursue the M.P.A. degree. The person holding the Certificate may be considered for admission to the M.P.A. within one of the following options:

1. A student may seek admission to the M.P.A. program before the completion of 12 hours in the C.P.M. so long as the student’s record meets the regular admission standards of the M.P.A. program. If so admitted, the student will forego the Certificate.

2. After completion of the C.P.M. program, a student may seek admission to the M.P.A. program if the G.P.A. for the courses taken during the C.P.M. is 3.5 or better and a graduate level methods course was taken. The C.P.M. must be completed before an application for the M.P.A. is submitted. Courses taken during the C.P.M. program may be approved as core or elective courses as part of the M.P.A. degree plan.

3. Test scores on the GRE, or other standardized test, must be included with the application.

**GRADUATE COURSES IN PUBLIC ADMINISTRATION (PAD)**

**583 Effective Managerial Communications.** Semester course; 1 lecture hour. 1 credit. Describes and explains the communications process as it applies in public organizations. Acquaints students with the theoretical basis of interpersonal communications and with applied methodologies from a managerial perspective.

**584 Planned Organizational Change.** Semester course; 1 lecture hour. 1 credit. Describes and explains strategies and tactics of planned organizational change. Emphasis is placed on the change process in organized situations and on various strategies and tactics the manager may employ to achieve desired change in his/her organization.

**585 Power, Influence, and Organizational Competence.** Semester course; 1 lecture hour. 1 credit. This course will explore the strategies and tactics of power and influence use in large-scale public organizations. A framework for use of influence strategies will be presented and tactical methodologies will be examined through case study and simulation.

**591 Topic Seminar.** Semester course; 3 lecture hours. 3 credits. Seminar in contemporary public administration issues.

**601 Principles of Public Administration.** Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of the department. Dynamics of governmental administration including administrative principles, decision making, communication, leadership, organizational models, and the social, economic, legal, and political milieu of administration.

**606 Government Management Models.** Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of the department. An examination of current thought and research on government theory and organizational design in government. Theory and research from diverse sources, i.e., political science, sociology, industrial psychology, and administrative science will be explored to provide each student with the macro conceptual framework necessary for development or refinement of effective public management skills.

**607 Public Human Resource Management.** Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of the department. The general concepts, principles, and techniques of personnel administration and employee relations as applied in governmental units and agencies.
609 Financial Management in Government. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of the department. The general concepts, principles, and techniques of financial management as they are applied in governmental units and agencies.

610 The Municipal Property Tax. Semester course; 1 lecture hour. 1 credit. Prerequisite: PAD 609 or permission of the department. An in-depth study of the property tax. The property tax system as administered in Virginia is analyzed. New approaches to ameliorate problems with this tax are proposed.

611 Revenue and Expenditure Forecasting. Semester course; 1 lecture hour. 1 credit. Prerequisite: PAD 609 or permission of the department. Analysis of the methods and techniques of revenue and expenditure forecasting and of their use in budgeting planning and capital programming. Relationships between forecasting, capital improvement, budgeting and overall government budgeting, planning, and managing systems are developed and elaborated.

612 Government Purchasing. Semester course; 1 lecture hour. 1 credit. Prerequisite: PAD 609 or permission of the department. Provides the purchasing agent or the student of finance with working tools to improve public purchasing practices in state and local government agencies including organizing for purchasing processes and practices in government and special problems and emerging concerns in purchasing management.

613 Risk Management for State and Local Government Officials. Semester course; 1 lecture hour. 1 credit. Prerequisite: PAD 609 or permission of the department. Normal and extraordinary hazards associated with public organizational management are defined. Identification of measurement devices of "risk of loss"—and methods of dealing with loss prevention, minimization, and remediation—will be covered.

614 Finance and Accounting for the Nonfinancial Executive. Semester course; 1 lecture hour. 1 credit. Provides orientation to the proper financial tools, ratios, and relationships in accounting for the financial status of the public enterprise. The emphasis is on how to analyze and interpret financial documents.

615 Debt Management for Local Government. Semester course; 1 lecture hour. 1 credit. Prerequisite: PAD 609 or permission of instructor. Analyzes the complex processes involved in managing temporarily idle public funds. Basic and advanced procedures of financial control and planning processes are explained and the use of relevant financial tools used in this field of public finance are taught.

616 Capital Budgeting. Semester course; 1 lecture hour. 1 credit. Prerequisite: PAD 609 or permission of the department. Teaches the tools of capital budget preparation including cost estimation, discounting, debt management, and cost benefit analysis, in the capital programming process.

617 Financial Administration in Virginia State Government. Semester course; 1 lecture hour. 1 credit. Describes and explains the specifics of the Virginia state system of financial administration. Students will be acquainted with both the theoretical and legal bases of financial administration in Virginia. Emphasis will also be on understanding of responsibility of the various organizations in financial administration and the process each carries out.

618 Federal Indirect Costs Administration. Semester course; 1 lecture hour. 1 credit. Prerequisite: PAD 609 or permission of the department. Describes and explains the concept of indirect costs as used in federal grants financing. Federal and state regulations are explained and procedures for recording, analyzing, reporting, and claiming reimbursement will be presented.

619 Management Auditing in Government. Semester course; 1 lecture hour. 1 credit. The methods and approaches used in evaluating the adequacy and appropriateness of management controls and the ways in which they are applied in the public agency are examined from operational, management, and performance measurement perspectives.

621 Organizational Behavior and Management in Government. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of the department. The general concepts, principles, and theories of management and organizational behavior as they relate to the administration of governmental units and agencies are dealt with in lecture, discussion, and workshop formats.

622 Public Sector Budgeting. Semester course; 3 lecture hours. 3 credits. Prerequisite: PAD 609. Advanced theory and practice of public agency budgeting in the decision-making process and its impact on policy making. Topics include alternative budgeting systems, capital planning and budgeting, budget execution, budgeting analysis techniques, and revenue and expenditure forecasting.

623 Analytical and Evaluation Methods in Public Administration I. Two-semester sequence. 3 credit hours. Prerequisite: permission of department. Analysis and evaluation of government programs. Research methods utilized in public sector. The course prepares students to apply the principles of survey and research design and computer technology to the analysis of public administration research data. Policy analysis and evaluation skill development for public management.

624 Analytical and Evaluation Methods in Public Administration II. Two-semester sequence. 3 credit hours. Prerequisite: PAD 623. Analysis and evaluation of government programs. Research methods utilized in public sector. The course prepares students to apply the principles of survey and research design and computer technology to the analysis of public administration research data. Policy analysis and evaluation skill development for public management.

625 Policy Formulation and Implementation. Semester course; 3 lecture hours. 3 credits. The examination of various methods for identifying and structuring public policy problems and issues, formulating and analyzing alternative responses, recommending policy actions for decision making, and designing and evaluating implementation plans and the means to monitor and evaluate the resulting policy outcomes.

627 Workshop in Evaluation Research. Semester course; 3 lecture hours. 3 credits. Prerequisites: PAD 623 and 625. An in-depth analysis of political and methodological issues surrounding evaluation of public programs. The course is project oriented, emphasizing practical experience in the design and implementation of evaluation procedures and the impact of evaluation on public policy.

629 Workshop in Policy Analysis. Semester course; 3 lecture hours. 3 credits. Prerequisite: PAD 623 and PAD 625. The
application of research methodologies for designing and carrying out analysis of the determinants, characteristics, and implications of public policies and programs including the relationships between the intent of policies and programs and the substantive consequences and outcomes they produce. It includes the identification of policy issues, the creative search for alternative solutions, establishing criteria for decision making, recommending optimal courses for action, and designing strategies for implementing and evaluating policy decisions.

630 Strategic Planning and Management in the Public Sector. 3 lecture hours. 3 credits. Prerequisites: None. Explores the benefits and limitations of strategic planning and management in the public sector, examines approaches to strategic management, especially in terms of the role and behavior of top management, and provides an introduction to the analytic and process methods used in strategic planning and management.

632 Public Employee Performance Evaluation. Semester course; 2 lecture hours. 2 credits. An examination of theories, approaches, and legal constraints associated with the evaluation of public employee performance. In-depth treatment is given to approaches which meet Federal Uniform Selection Guidelines standards. Systems based on job-related task analysis, on MBO, and on psychological testing are reviewed. Assessment center approaches are given major treatment.

637 Organic Human Resources Management. Semester course; 3 lecture hours. 3 credits. Prerequisite: PAD 607 or equivalent. An examination of current thought, research, and personnel management theory and practice in government which is person-oriented is presented in this course. Topics include rank-in-the-person personnel systems; career development, executive personnel systems; forecasting human resource needs; individual-based performance evaluation; employee assistance programs; and special emphasis program.

642 Grants Management. Semester course; 3 lecture hours. 3 credits. Principles and practices of managing federal and state funds and implementing a grant-funded program. Topics include federal grant-making process, applying for a grant, developing grant accounting systems, joint funding, disputes, appeals and remedies, and close-out procedures.

644 Human Resource Program Management. Semester course; 3 lecture hours. 3 credits. Advanced analysis of theory and research related to internal and external factors which influence the management and delivery of service in human resource organizations. Topics include functions of human resource managers, factors influencing service delivery interorganizational coordination, and management of change in human resource organizations.

652 Administrative Law. Semester course; 3 lecture hours. 3 credits. The course considers the administrative process from the perspective of rule making and decision making within the framework of public agencies. It will examine the development of the law, the use and control over administrative discretion, legislative and judicial controls over the administrative process, and remedies for improper administrative acts.

660/POS 660 Community Power Dynamics. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of the department. Examination of the location of power in the American community, operational concepts and general methodological approaches defined, empirical findings based on various methodological approaches, conclusions on community political systems and power.

662 Advanced Topics in Revenue and Taxation. Semester course; 3 lecture hours. 3 credits. Prerequisite: ECO 616 or permission of instructor. An advanced examination of governmental revenue and taxation policies, tax incidence, and alternative funding techniques.

664 Local Government Administration. Semester course; 3 lecture hours. 3 credits. Prerequisites: PAD 607 and 609 or permission of the department. An intensive examination of the major functional responsibilities with a special emphasis on the organization, standards, operational imperatives, interrelationship with other functions, and special management problems at the local level, including small and rural jurisdictions.

670 Advanced Public Financial Management. Semester course; 3 lecture hours. 3 credits. Prerequisites: PAD 609, ECO 616, or permission of the department. Brings together specialty aspects of public financial management such as economic and political implications, practical skill building, operational financial administration issues and tactics, and accounting principles and approaches, and integrates these disparate segments of public finance. The emphasis is on policy-level implications and strategies of public financial management strategies of executive planning, analysis, and management of the financial sector of public organizations.

675 Comparative Public Administration. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of the department. Explores methodology, theories, and models used in comparative approach to public administration, functional processes of administration in selected developing and developed countries, and role of bureaucracy in development and nation-building.

680 Executive Leadership Seminar. Semester course; 3 lecture hours. 3 credits. Explores aspects of current interest in leadership style, skills, and roles. This course allows participants to explore areas of personal interest in contemporary public management leadership theory and practice and to share findings in seminar format.

681 Governmental Administrative Decision Making Processes. Semester course; 3 lecture hours. 3 credits. Identification of alternative decision making processes in public sector management environments. Choosing the proper method of the appropriate management-level theory and method of controlling administrative decisions within governmental organizations. Dealing with political, budgetary, and personal constraints in achieving organizational goals.

682 Advanced Public Human Resources Management. Semester course; 3 lecture hours. 3 credits. Prerequisite: PAD 607 or equivalent. Public personnel management is analyzed in process and systems perspectives, with specific emphasis on the interrelatedness of discrete system components with other systems. Attention is given to the integration of personnel elements through the development of feedback systems, positive and negative impacts’ analyses, and personnel policy development and implementation.
The master’s degree in recreation, parks, and tourism requires a minimum of 36 semester hours of graduate study, including a thesis or research requirement. The courses are grouped as follows:

1. A core of departmental courses required of all students in the program. This component of the program includes 15 semester hours of required courses designed to equip students with an advanced knowledge of the historical, philosophical, and scientific basis of the recreation, parks, and tourism fields. The seminar in recreation addresses contemporary issues in the overall field of leisure and in each of the three areas of the concentration within the programs. The research requirement provides additional experience in analysis and problem solving or the generation of new knowledge related to the provision of leisure services in the urban environment. Required courses within the core curriculum are as follows:

   - REC 601 Conceptual Foundations of Recreation, Parks and Tourism (three semester hours)
   - REC 603 Research and Evaluation—Processes in Recreation, Parks, and Tourism (three semester hours)
   - REC 604 Research Practicum (three semester hours)
   - REC 690 Seminar (three semester hours)

The research requirement can be met by one of the following options:

a. REC 604 Research Practicum and REC 797 Research Project
b. REC 604 Research Practicum and REC 798 Thesis
c. REC 604 Research Practicum and an elective course approved by the advisor to complement the student’s research knowledge.

2. In addition to the basic core and the research requirement, students will develop specialized knowledge and professional competence in one of three areas of concentration. A description of each area and its six-semester-hour foundation module is as follows:

A. Leisure Service Management. This area is designed for students who wish to expand their professional preparation for general administration and leadership in public or private leisure service organizations. Required courses include

   - REC 602 Organization and Administration of Recreation and Park Systems (three semester hours)
   - REC 609 Program Development and Management (three semester hours)

B. Therapeutic Recreation. This area of specialization is for students who wish to under take
advanced study in preparation for careers in leadership and supervision of recreation programs for disabled persons in clinical, residential, or community settings. Required courses include

REC 506 Contemporary Issues in Therapeutic Recreation (three semester hours)
REC 605 Program Development in Therapeutic Recreation (three semester hours)

C. Travel and Tourism. The emphasis of this option is on advanced study for students who are interested in travel and tourism. Required courses include

REC 510 Tourism Policy (three semester hours)
REC 608 Analysis and Planning for Travel and Tourism (three semester hours)

3. An integrated and multidisciplinary set of electives is chosen to support the student’s concentration and career interests. Each of the three areas of concentration have been designed to incorporate multidisciplinary preparation utilizing the supportive resources of the School of Community and Public Affairs as well as other units of the University. Fifteen hours of additional elective course work, with a minimum of nine hours in related disciplines, will be selected with the consent of the student’s academic advisor.

ADMISSION REQUIREMENTS

In addition to the formal application package requirements which include a statement of intent and three letters of reference, admission requirements for the Master of Science degree in this department include the following

1. A cumulative grade point of 2.7 (4.0 scale) or better in the applicant’s undergraduate work and/or a 3.0 or better in the last two full years of undergraduate study.
2. Satisfactory scores on each of the three categories of the Graduate Record Examination (GRE).
3. Evidence of adequate undergraduate study in recreation or a closely related area. In the absence of adequate undergraduate preparation in recreation and/or experience, the applicant may be required to enroll in appropriate undergraduate courses in addition to the graduate program course requirements.
4. Students not meeting these requirements may be admitted to the program on a provisional basis. Provisional admission does not constitute a waiver of the requirement related to a standardized test.

Applications for Fall semester (which is the preferred entry point) are accepted and reviewed through the end of June. However, applications received during the preceding Spring semester will have the best chance of being accepted and receiving awards of financial assistance.

SECOND UNDERGRADUATE DEGREE—THERAPEUTIC RECREATION SPECIALIZATION

For individuals who are seeking certification in therapeutic recreation, the second undergraduate degree program may be preferable to obtaining a masters degree in this field. VCU requires a minimum of 30 credits for the second undergraduate degree. An individualized program is developed around the eligibility requirements as established by the National Council on Therapeutic Recreation Certification, using appropriate department and support course offerings. (For further details, see Recreation, Parks and Tourism section in the Undergraduate Bulletin.)

Correspondence and Further Information

For additional information and applications please contact the School of Graduate Studies, Virginia Commonwealth University, 901 West Franklin Street, Room B1, Richmond, VA 23284-3051.

GRADUATE COURSES IN RECREATION, PARKS, AND TOURISM (REC)

506 Contemporary Issues in Therapeutic Recreation. Semester course; 3 lecture hours. 3 credits. Prerequisite: REC 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.

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.

601 Conceptual Foundations of Recreation, Parks, and Tourism. Semester course; 3 lecture hours. 3 credits. A study of the development of the recreation, parks, and tourism services movement in the United States. Attention will be given to the historical, philosophical, and social bases of recreation, parks, and tourism in today’s society. Implications for present and future leisure service delivery planning will be emphasized.

602 Organization and Administration of Recreation and Parks Systems. Semester course; 3 lecture hours. 3 credits. An analysis of administrative theories and patterns of man-
agement appropriate to the establishment and operation of community leisure service programs. Special emphasis will be given to organizational planning, goal setting, financial support, program evaluation, and the role of the administrator in a leisure service setting.

603 Research and Evaluation Processes in Recreation, Parks, and Tourism. Semester course; 3 lecture hours. 3 credits. Familiarizes student with the scientific approach to inquiry as applied to the study of the phenomenon of leisure. Basic research terminology, methodology, procedures, and concepts are explored with particular reference to the application of empirical investigation to topics of interest to professionals in the field of recreation, parks, and tourism.

604 Research Practicum. Semester course; 3 lecture hours. 3 credits. Prerequisite: REC 603. Conceptualizing and writing a professional paper or the first part of a research study (either REC 797 Research Project or REC 798 Thesis) on a topic in recreation, parks, and tourism chosen by the student in consultation with the instructor and advisor. Emphasis will be placed on problem identification, literature review, and research design.

605 Program Development in Therapeutic Recreation. Semester course; 3 lecture hours. 3 credits. This course will provide students with an opportunity to critically examine contemporary models of leisure service programming for disabled persons. Emphasis will be placed upon observation and analysis of medical-clinical custodial, therapeutic community/milieu, and education and training approaches to recreation for persons with disabling conditions.

606 Directed Readings. Semester course; 3 credits. Prerequisite: permission of an instructor. Provides student with the opportunity to pursue an independent research project or extensive literature review under the supervision of an instructor. Independent work by student must be preceded by the instructors review and approval of the proposal. Cannot be used in place of existing courses.

607 Field Instruction. Semester course; 3 semester hours; 150-360 clock hours. 3 credits. Application of theoretical knowledge as a practicing professional in a service delivery agency. Basic knowledge, attitudes, and skills necessary to function as a provider or manager of leisure services will be assessed by a faculty member and field supervisor. Enrollment only by permission of departmental graduate committee.

608 Analysis and Planning for Travel and Tourism. Semester course; 3 lecture hours. 3 credits. Analysis and planning of travel and tourism resources in the development of an effective comprehensive tourism services delivery system.

609 Program Development and Management. Semester course; 3 lecture hours. 3 credits. Analysis of the individual, political, and societal determinants of recreation programming. Covers the factors influencing leisure behavior and the role of the program supervisor in recreational and leisure settings. The course also deals with the evaluation of recreation and park programs and with the research functions in recreation programming.

690 Seminar. Semester course; 3 lecture hours. 3 credits. Restricted to second-semester graduate students who have completed the research methods course. Individual graduate thesis and research topics will be discussed as will topics of current, specialized interest to the recreation, parks, and tourism fields.

722 Recreation Systems Planning. Semester course; 3 lecture hours. 3 credits. General principles of planning and development of local and regional recreation areas and facilities. Investigation of standards relative to size, location, and programs. Review of national and statewide outdoor recreation plans and trends in recreation development. A practical exercise in recreation planning to be completed in the field. Not offered regularly.

797 Research Project. 3 credits, with 1 credit extension. Prerequisites: REC 603 and 604. The research project involves a systematically planned and executed scholarly project utilizing an approved methodology for investigating and reporting on a major issue pertinent to the student’s interest in the recreation, parks, and tourism fields.

798 Thesis. 3 credits, with 1 credit extension. Prerequisites: REC 603 and 604. The master’s thesis involves a carefully planned and executed research study under the supervision of an advisor and thesis committee utilizing the traditional standards for thesis writing.

Department of Rehabilitation Counseling

The Commission of the Future of the University, in its report approved by the Board of Visitors of the University on September 9, 1993, recommended that the Department of Rehabilitation Counseling be transferred from the School of Community and Public Affairs to the School of Allied Health Professions. Anticipating that this change will take place on July 1, 1994, the activities of the Department of Rehabilitation Counseling are described in this bulletin in Part IV — School of Allied Health Professions.

Department of Urban Studies and Planning

FACULTY

Accordino, John Assistant Professor Ph.D., Massachusetts Institute of Technology; economic development and finance, commercial revitalization; strategic planning.

Brooks, Michael Professor Ph.D., University of North Carolina; planning theory, political aspects of planning, planning education.

Garcia, Margot W. Associate Professor Ph.D., University of Arizona; environmental planning, water policy, citizen participation, planning theory.

Gulak, Morton B. Associate Professor Ph.D., University of Pennsylvania; architecture and urban design, urban revitalization and physical planning.

Johnson, Gary Associate Professor D.E.D., Texas A and M University; transportation, housing, social policy.

Mooser, John V. Professor Ph.D., George Washington University; urban politics and public policy.

Roakes, Susan L. Assistant Professor Ph.D., University of Wisconsin, Madison; planning law, land use policy and planning.
The graduate program in urban and regional planning is accredited by the Planning Accreditation Board and provides professional grounding in the theory and methodologies of planning through a curriculum that balances classroom and field experience.

The Master of Urban and Regional Planning (M.U.R.P.) is a two-year degree program requiring 54 semester hours of classwork and internship. A core of required courses, most of which are taken in the first year, includes

- Urban Planning History
- Comprehensive Planning
- Planning for Social Change
- Theories and Problems in Planning
- Planning Methods I: Planning Information Systems and Research Design
- Planning Methods II: Plan Formulation and Implementation Strategies
- Legal and Legislative Foundations of Planning
- Planning Graphics
- Computer Mapping
- Foundations for Development Planning
- Planning Studio I and II

Students may choose a broad program in comprehensive planning, or may elect one of the several concentrations, including

- Physical Land Use Planning
- Economic Development
- Housing and Community Planning
- Environmental Planning
- Urban Revitalization
- Planning Management

The emphasis in physical land use planning is on problems at the interface between social systems and the land. It is expected that students specializing in this sequence will graduate with knowledge and skills necessary to prepare land use plans, taking into account the social, economic and environmental issues of community development.

The concentration in economic development planning is oriented towards students interested in careers ranging from regional and community economic development to fiscal analysis and research planning for metropolitan planning agencies. The focus is on urban and regional economic theory, economic analysis and formulation of strategies and programs for local commercial and residential development.

The housing and community planning concentration focuses on housing issues and neighborhood level planning. Students who follow this concentration will know about housing policy and be able to write a housing plan.

The concentration in environmental planning focuses the student’s attention on issues of waste management, water quality and quantity, air quality and floodplains. Learning about environmental law and policy at the federal, state and local level, as well as techniques of environmental analysis, the student should be prepared to write environmental plans.

The urban revitalization concentration course work is a blend of instruction in planning, urban design, business, and economics. Revitalization planning is presented from the public perspective, emphasizing social and economic investment opportunities. Important topics and techniques include market analyses, the use of governmental incentives, the business decision-making process, new construction, the adaptive reuse of buildings as they relate to revitalization, and the preservation of historic structures. Graduates are prepared to promote a community’s role as a development partner in the revitalization process.

The planning management concentration is to educate managers who work in planning. It focuses on the institutional setting the planning practitioners find themselves in, providing information about how policy is made and teaching skills for managing people.

**DUAL DEGREE PROGRAM IN LAW AND URBAN AND REGIONAL PLANNING**

A cooperative arrangement with the T. C. Williams Law School makes it possible for students to receive a law degree (J.D.) and an urban and regional planning degree (M.U.R.P.) in four years rather than the five years ordinarily required.

The purpose of the program is to integrate the two professional curricula and to provide the expertise necessary to apply legal analytical skills and planning methods and analysis to urban and regional policy issues and problems. The dual degree program is designed to equip graduates for a variety of professional positions, including staff for legislative committees and government agencies and commissions, government legal staff, private consulting, neighborhood advocacy, directorships of planning and related agencies, and executive aides to elected officials.
Interested students must apply separately for and be admitted to the T.C. Williams School of Law, University of Richmond, and the Department of Urban Studies and Planning, VCU. Students will spend their entire first year in either the School of Law or the Department of Urban Studies and Planning, and their second year in the program not selected in the first year. Fifteen credits hours (one semester of course work) of the planning program will be applied toward meeting the graduation requirements of the School of Law, and 12 credit hours (one semester of course work) in the School of Law will be applied toward meeting requirements of the Department of Urban Studies and Planning.

Upon admission to the dual degree program, every student will be assigned an advisor in each program who will assist in planning the course of studies that will include all of the required courses in each program plus such elective courses as will best serve the interests of the individual student.

Students deciding not to complete the dual degree program must meet all of the regular requirements of either the J.D. or M.U.R.P. to receive the degree of their choice.

CERTIFICATE PROGRAM IN PLANNING INFORMATION SYSTEMS (CPI)

The Certificate in Planning Information Systems (CPI) is a program to provide specialized cross-disciplinary training for professionals with either (a) data processing or (b) planning backgrounds, who wish to increase their knowledge and skills in the application of computer methods to urban and regional planning problems. The CPI program consists of 15 hours of required courses in information systems and 15 hours in urban studies and planning.

Admission requirements include an official application; a letter of intent describing objectives in applying for the certificate; three letters of recommendation; two copies of an official transcript from an accredited institution showing (a) undergraduate work and successful completion of an appropriate degree program and (b) graduate course work; a minimum grade-point average of 2.7 (out of 4.0) in the last 60 semester hours of undergraduate study; a minimum score of 400 on each of the categories in the Graduate Record Examination; demonstration of professional experience in planning or data processing. The experience requirement may be waived for candidates who demonstrate professional promise.

CERTIFICATE PROGRAM IN URBAN REVITALIZATION

Revitalization planning is presented from the public perspective, emphasizing social and economic investment opportunities. Important topics and techniques include market analyses, the use of governmental incentives, the business decision-making process, new construction and the adaptive reuse of buildings as they relate to revitalization, and the preservation of historic structures. Certificate program graduates are prepared for a variety of career opportunities with agencies involved in planning and economic development. Graduates are trained also to promote the role of community as a development partner and to bring a high level of professionalism to projects designed to rejuvenate urban neighborhoods and downtown areas.

The Urban Revitalization Certificate Program requires 29 semester hours of course work and can be completed in one academic year. A sequence of introductory courses exposes students to the planning process, theories of urban land use, sample survey methods, and statistical analysis. Course work in the area of urban revitalization is a blend of instruction in planning, urban design, business, and economics.

Admission requirements include an official application; a letter of intent describing objectives in applying for the certificate; three letters of recommendation; two copies of an official transcript from an accredited institution showing (a) undergraduate work and successful completion of an appropriate degree program and (b) graduate course work; a minimum grade-point average of 2.7 (out of 4.0) in the last 60 semester hours of undergraduate study; demonstration of professional experience in planning or work related to the certificate program. The experience requirement may be waived for candidates who demonstrate professional promise. Professional planners may qualify for a partial or complete exemption from introductory course requirements. All credits earned are transferrable to the Master of Urban and Regional Planning degree program.

FACULTY RESEARCH AND RELATED ACTIVITIES

Politics and Planning in Richmond, Public Policy and Blacks in the Urban South, History of Planning, Housing Policy and Homelessness, Air Photo Interpretation, Land Use, and Environmental Management Economic Development Planning; Commercial Revitalization Planning; National, State and
Local Economic Policy  
Urban Revitalization and Adaptive Reuse  
Computerized Planning Information Systems, Spatial Data Transfer Standard  
Social Development, Social Policy, National Development Planning, Citizen Participation  
Fiscal Planning  
Environmental Planning; Water Quality and Quantity Issues

ADMISSION

Beyond the general graduate school admissions standards the following apply:

1. Students must have a minimum of a 2.7 grade-point average (on a 4.0 scale) in their last 60 semester hours of undergraduate work. In addition, a grade-point average of not less than 3.0 must have been maintained in their undergraduate majors. Finally, applicants are expected to receive a minimum score of 400 on each of the categories in the Graduate Record Examination or an equivalent score on the LSAT examination.

2. Students not meeting these requirements may be admitted to the program on a provisional basis. The provisional period shall consist of the first 9 to 12 hours of designated graduate work in which all grades must be no less than “B.” Provisional admission does not constitute a waiver of the requirement related to a standardized test.

3. Generally, two of the three letters of reference should come from former faculty.

4. The latest dates for submitting application materials are April 15 to be considered for the following September and November 15 for the following January. However, all candidates—especially those applying for financial aid—are urged to apply before March 1 in order to have the best chance of being accepted or receiving an award of financial assistance for the following academic year. Applicants who submit materials by March 1 will be notified of the decision of the Admissions Committee by mid-April.

PART-TIME STUDENTS

Because virtually all courses may be taken in the evening, the program accommodates both full- and part-time students. Students also may take advantage of courses offered in the summer. Thus, it is possible for a part-time student taking six credit hours per semester to finish the master’s degree in four years or less.

NON DEGREE SEEKING STUDENTS

Non degree students must have an undergraduate degree from an accredited institution and the written approval of the instructor prior to registering for any graduate level course.

TRANSFER CREDIT

Upon acceptance to the program, up to six hours of graduate credits with grades of “B” or above may be applied to the degree if such work is considered relevant by the Admissions Committee.

Students admitted to the graduate program may register for selected courses offered by the T. C. Williams Law School of the University of Richmond. A list of such courses appears under the title “Law Electives.” No more than nine credit hours of law electives may be transferred, and students must receive a grade of “B” or above in such course work.

FINANCIAL AID

VCU maintains a Financial Aid Office which is discussed in Part I of this bulletin.

There is also a limited amount of financial aid provided by the Department of Urban Studies and Planning. Application forms are available from the department for the following forms of aid:

1. Graduate Assistant Positions. Duties involve helping with the instruction of courses. The level of support varies according to the work level, financial need, and scholarship.

2. Tuition Scholarships. There are a limited number of tuition scholarships for full-time students.

3. Research Assistant Positions. The stipend and number of positions depend upon the level of sponsored research carried out by the department in each year.

4. Department Assistant. There are funds available for work in the department office. Duties include typing, filing, and helping with department projects. The pay is by the hour, from ten to 20 hours a week.

5. T. Edward Temple Memorial Scholarship Award. This award of approximately $500 a year is given to an outstanding graduate student.

REQUIREMENTS FOR THE DEGREE OF MASTER OF URBAN AND REGIONAL PLANNING

(In addition to general requirements)

1. Students must complete a minimum of 54 graduate credits, including an internship.
2. A minimum of at least half of the courses taken in the program shall be those designated as exclusively for graduate students; that is, those at the 600 level or above.
3. Although approval normally is granted, students must acquire the approval of their advisors before enrolling each semester.
4. In USP 762 Planning Studio II or USP 798 Projects students must obtain a grade of “B” or better on this final project to be eligible for the receipt of the M.U.R.P. degree.

INTERNSHIP AND PLACEMENT
The internship is designed to give students practical experience in planning related activities in an institutional context. Normally, the internship is taken during the summer between the first and second year. Permission is necessary from the chair of the Department of Urban Planning before the internship is begun. In those cases where the internship requirement is waived, students are required to complete three additional semester hours of planning course work.

Many opportunities for internship positions, as well as part- and full-time jobs in planning at all levels of government, exist within the Richmond area. Agencies in which students have found employment include the planning departments of the city of Richmond; the Richmond Regional Planning District Commission; other regional planning commissions; and the counties of Henrico, Chesterfield, Goochland, and Prince George. Students have been employed also in state agencies, such as the Department of Housing and Community Development, the Water Control Board, and the Governor’s Council on the Environment.

CORRESPONDENCE AND FURTHER INFORMATION
Further information may be obtained by writing to the chair of the Department of Urban Studies and Planning, Virginia Commonwealth University, Richmond, VA 23284-2008, (804) 828-1134.

CURRICULUM
I. First Year, First Semester
   USP 513 Planning Graphics .............................. 2
   USP 605 Urban Planning History .......................... 2
   USP 620 Comprehensive Planning ........................ 2
   USP 623 Planning Methods I Planning Information Systems and Research Design .......................... 3
   USP 662 Foundations for Development Planning .... 3

II. First Year, Second Semester
   USP 621 Computer Mapping .............................. 2
   USP 624 Planning Methods II: Plan Formulation and

   Implementation Strategies .................................... 3
   USP 632 Theories and Problems in Planning .......... 3
   USP 635 Legal and Legislative Foundations of Planning .................................................. 3
   Elective ................................................................ 3

III. Internship
   USP 793 (Normally taken between the first and second year of work, but other options are available.) .................................................. 3

IV. Second Year, First Semester
   USP 641 Planning for Social Change .................. 2
   USP 761 Planning Studio I ................................. 3
   Electives ................................................................ 8

V. Second Year, Second Semester
   USP 762 Studio II ............................................. 6
   Electives ................................................................ 6

54

OPTIONAL CONCENTRATIONS
The courses in the optional concentrations are taken as electives to the regular curriculum. The specializations taken build upon the planning core. Undertaking a concentration is highly recommended. A concentration consists of three required courses. Other courses are suggested for the three remaining electives. Requiring three classes for a concentration allows the student to focus on a topic and get some depth and still allow three other electives for enhancing a concentration or exploring other fields. On occasion the department will offer a topics course which may be applicable to a concentration. The concentrations with required and suggested classes follow:

PHYSICAL LAND USE PLANNING
Required Courses
   USP 525 Site Planning
   USP 611 Principles of Urban Design
   USP 628 Land Use Planning

Suggested Courses
   USP 521 Cartography and Air Photo Interpretation
   USP 552 Urban Transportation System
   USP 626 GIS for Planners
   USP 650 Environmental Planning

ECONOMIC DEVELOPMENT
Required Courses
   USP 664 Economic Development Planning and Revitalization
   USP 666 Urban Commercial Revitalization
   BUS 655 Entrepreneurship

Suggested Courses
   USP 525 Site Planning
   USP 628 Land Use Planning
   PAD 609 Financial Management in Government
   USP 630 Strategic Planning and Management in the Public Sector
HOUSING AND COMMUNITY DEVELOPMENT

Required Courses
USP 643 Housing Policy
USP 645 Housing Seminar
USP 517 Historic Preservation

Suggested Courses
BUS 629 Real Estate Feasibility
USP 611 Principles of Urban Design
USP 628 Land Use Planning
USP 666 Urban Commercial Revitalization
USP 691 Current Topic: Negotiation

ENVIRONMENTAL PLANNING

Required Courses
USP 650 Environmental Planning
USP 652 Environmental Analysis
USP 691 Current Topic: Negotiation

Suggested Courses
USP 552 Urban Transportation Systems
USP 628 Land Use Planning
INH 541 Waste Management

URBAN REVITALIZATION

Required Courses
USP 647 Adaptive Re-use of Buildings
USP 666 Urban Commercial Revitalization
BUS 629 Real Estate Feasibility Analysis

Suggested Courses
USP 517 Historic Preservation
USP 525 Site Planning
USP 611 Principles of Urban Design
USP 628 Land Use Planning
USP 643 Housing Policy

PLANNING MANAGEMENT

Required Courses
USP 541 Urban Public Policy Making
PAD 609 Financial Management in Government
PAD 583 Effective Managerial Communications
PAD 584 Planned Organizational Change
PAD 585 Power, Influence, and Organization Competence

Suggested Courses
USP 691 Current Topic Negotiation
USP 630 Strategic Planning and Management in the Public Sector
PAD 607 Personnel Administration in Governmental Organizations
PAD 683 Administrative Ethics

Law Electives
Advanced Real Estate Transactions ......................... 3
Consumer Protection ........................................... 3
Employment Discrimination Law ............................ 2
Environmental Law ............................................. 3
Legislation ...................................................... 2
Mortgages and Surveyship ................................... 4
State and Local Taxation ..................................... 3
Community Mental Health Law ............................... 3

GRADUATE COURSES IN URBAN AND REGIONAL PLANNING (USP)

513 Planning Graphics. Semester course; 1 lecture and 2 laboratory hours. 2 credits. Introduction to the use of graphics as an aid in presenting and analyzing planning ideas, data, reports, maps, and plans. Lab fee required—$25.

517 Historic Preservation in Planning. Semester course; 3 lecture hours. 3 credits. The course surveys the process of historic preservation which 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 in 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.

521 Cartography and Air Photo Interpretation. Semester course; 2 lecture and 2 laboratory hours. 3 credits. An introduction to the preparation and interpretation of data in cartographic form. Included is the methodology of map making, introductory photogrammetry, object recognition, stereograms, area measurement, and mapping from aerial photos.

525 Site Planning. Semester course; 1 lecture and 2 laboratory hours; 2 credits. Addresses the environmental impacts and capacity of environmental systems in relation to the site requirements of various urban and rural situations. Describes graphic techniques necessary for applying the principles of site analysis and design. Uses actual site planning exercises so students can develop and evaluate site plans at different scales.

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.

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.

605 Urban Planning History. Semester course; 2 lecture hours. 2 credits. Discusses the historical context of planning solutions to contemporary urban problems by examining the rich planning tradition since the mid-nineteenth century in the U.S.

611 Principles of Urban Design. Semester course; 3 lecture hours. 3 credits. Principles of urban design at the micro- and macro-scale. Expression of planning objectives in physical design, with emphasis on the relationship between urban design at various scales and the needs of individuals and groups. Offered every other year.

620 Comprehensive Planning. Semester course; 2 lecture hours. 2 credits. Describes the process for plan development, the different elements found in a plan, and the tools used to implement a plan.

621 Computer Mapping. Semester course; 1 lecture and 2 laboratory hours. 2 credits. An introduction to the use of computers for map compilation, design, and production. Includes principles of digital cartography and of the use of geographic base files in urban and regional planning. Lab fee required—$5.

623 Planning Methods I—Planning Information Systems and Research Design. Semester course; 2 lectures and 2 laboratory hours. 3 credits. Uses computers to apply statisti-
624 Planning Methods II—Plan Formulation and Implementation Strategies. Semester course; 2 lectures and 2 laboratory hours. 3 credits. Prerequisite: USP 623. Develops specific tools for use in formulating plans, considering alternatives and implementing choices. Employs population projection techniques, survey research methods, and models of land use and service delivery systems.

626 GIS for Planners. Semester course; 2 lecture hours and 2 laboratory hours. 3 credits. Prerequisite: USP 621. Examines and explores in detail Geographic Information Systems.

628 Land Use Planning. Semester course; 2 lecture hours. 2 credits. Prerequisites: USP 620, USP 623, USP 662. Provides practical skills for planners interested in application of economic and comprehensive planning principles to land use.

630 Strategic Planning and Management in the Public Sector. This course is cross-referenced with PAD 630. 3 lecture and 3 credit hours. Prerequisites: none. Explores the benefits and limitations of strategic planning and management in the public sector, examines approaches to strategic management, especially in terms of the role and behavior of top management, and provides an introduction to the analytic and process methods used in strategic planning and management.

632 Theories and Problems in Planning. Semester course; 3 lecture hours. 3 credits. Examines major traditions in the theory of planning in the context of actual planning processes and outcomes. Explores in depth the political economic and institutional constraints to effective planning and plan implementation. Discusses the planners' ethical dilemmas.

635 Legal and Legislative Foundations of Planning. Semester course; 3 lecture hours. 3 credits. Delineates the legal and legislative basis for planning at local, state, and federal levels. Judicial precedents in land use controls are investigated, including private controls, traditional zoning, administration of zoning ordinances, new flexible zoning concepts, development timing and growth controls, exclusionary land use practices, subdivisions controls, and eminent domain.

641 Planning for Social Change. Semester course; 2 lecture hours. 2 credits. Looking at the theory and practice of community organizing, planners learn to work with citizens in a democratic process while practicing respect for differing views and ideologies.

643 Housing Policy. Semester course; 3 lecture hours. 3 credits. Examines federal, state, and local housing policy. Discusses the issues of affordable housing, homelessness and the private sector's contribution to housing.

645 Housing Seminar. Semester course; 3 lecture hours. 3 credits. Examines and evaluates current problems in urban housing within the dynamics of metropolitan development. Conducts primary research on a current housing issue.

647 Adaptive Reuse of Buildings. Semester course; 3 lecture hours. 3 credits. Describes from a public sector perspective identification for new uses, evaluation of benefits and preparation of implementation proposals for recycling older buildings. Discusses methods used to develop the necessary design guidelines as well as analyze these opportunities which can be a catalyst for urban revitalization.

650 Environmental Planning. Semester course; 3 lecture hours. 3 credits. Examines the impact of urban activities on the natural environment. Discusses federal, state, and local laws and policy governing air, water, waste, noise and the natural processes of earthquakes, landslides and floods.

652 Environmental Analysis. Semester course; 1 lecture and 4 laboratory hours. 3 credits. Prerequisite: USP 650. Familiarizes students with methods to carry out an environmental analysis. Provides a deeper understanding of major environmental issues.

662 Foundations for Development Planning. Semester course; 3 lecture hours. 3 credits. Introduces to public planners who have an important role to play in a market economy, the use of economic concepts to understand and solve urban problems. Topics include: urban economic structure and change, poverty, employment, housing, industrial location, national economic policy and global economic restructuring.

664 Economic Development Planning and Revitalization. Semester course; 3 lecture hours. 3 credits. Prerequisite: USP 662. Examines components of the economic development planning process through theory, case studies of urban and rural U.S., exercises and field research. Analyzes an economy's strengths and weaknesses, the labor market, industry targeting, project financing, packing and impacts. Defines development objectives strategies and plans.

666 Urban Commercial Revitalization. Semester course; 3 lecture hours. 3 credits. Examines renewal of declining commercial areas in cities and towns as tools in the planning process. Discusses and applies through field work, market studies and other analysis methods, strategies for revitalization, public and private project financing and development.

691 Topics in Urban and Regional Planning. Semester course. 1, 2, or 3 credits. Students will have an opportunity to examine in detail some questions of significance in the field of urban and/or regional planning. Due to the changing subject matter to be treated in this course, permission of the instructor is required. Consult the Schedule of Classes for the specific topics to be offered each semester.

761 Planning Studio I. Semester course; 1 lecture and 4 laboratory hours. 3 credits. Prerequisites: All core courses except USP 641 which is to be taken concurrently. Involves students as a group in an actual comprehensive planning project.

762 Planning Studio II. Semester course; 1 lecture and 10 laboratory hours. 6 credits. Prerequisite: USP 761. Requires individual students to apply theory and methodology gained from the core courses to solve selected planning problems. With the consent of instructor and department chair, USP 764 Thesis or Projects is acceptable substitute.

763 Planning Internship. Semester course. 3 credits. Prerequisite: approval of department chair. Each credit hour is to represent 60 clock hours of work in a public or private planning-related agency. Grading on a "pass-fail" basis.

764 Thesis or Projects. 2-8 credits. Prerequisites: permission of instructor and appropriate research methods course.
Planning, preparation, completion, and presentation of a thesis or project. USP 764 Projects is an acceptable substitute for USP 762 Planning Studio II. Consent of instructor and chair required for this substitution.

797 Directed Research. 1-3 credits. May be repeated for a total of six credits. Prerequisites: permission of instructor and graduate standing. Independent research into planning problems, issues, and theories.
The School of Education was established officially in 1964 as a part of the Richmond Professional Institute. In 1968, by action of the state legislature, the School of Education became a part of the newly-formed Virginia Commonwealth University. In November 1975, the school moved to its present location in Oliver Hall on the Academic Campus of VCU.

Since the creation of VCU, the central focus of the School of Education has been on services to prospective and experienced educational personnel. The School of Education has a commitment to providing excellent educational programs in urban, suburban, and rural areas.

In 1985, the School of Education accepted, as a University commitment, an invitation to membership in the Holmes Group. This national consortium of 96 research colleges and universities has resolved to improve the quality of teachers and schools across the nation. VCU's School of Education is contributing to this goal through program innovation and research activities.

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. It also holds membership in the American and Virginia Association of Colleges of Teacher Education and in the Holmes Group.

PURPOSES
The School of Education is committed to providing relevant programs responsive to the needs of various educational agencies and, at the same time, enhancing and improving the professional skills of its students. Primary purposes of the School are to provide quality professional education which develops and refines teacher competencies in light of continuous social change; to nurture among faculty and students a deep involvement in educational research and scholarly activity which improves instructional procedures, assists school systems and agencies in identifying and solving educational problems, and enhances and extends knowledge of the field of education; and to provide continuing professional support services to public school systems and agencies in the Richmond metropolitan area and surrounding cities and counties.
GOALS
To carry out its purposes, the School of Education has established the following goals:
1. To provide quality programs of pre-service and continuing professional education at undergraduate and graduate levels;
2. To provide programs of professional support, leadership, and service to schools and agencies of the Commonwealth;
3. To conduct programs of educational research and scholarly activities which seek to improve instructional procedures and outcomes; to assist in identifying and solving educational problems; and to enhance and extend the knowledge base of the field of education.

ORGANIZATION
The chief administrative office for the School of Education is the Office of the Dean. The school is organized for the management of instruction and degree programs into three Divisions:

Educational Studies
Programs in administration and supervision, adult education, and counselor education.

Health and Physical Education
Program in physical education.

Teacher Education
Programs in early, middle, secondary, and special education; curriculum and instruction, including library/media; mathematics education; and reading.

The divisions are led by division heads with faculty assuming responsibility for curriculum and advisement by program cores. Each program core has a faculty member coordinator. Please see Division sections in this Bulletin for details regarding each division.

DEGREE PROGRAMS
The School of Education offers degree programs leading to the following:

Master of Teaching
- Early Education
- Middle Education
- Secondary Education
  - English
  - Foreign Languages
    - French
    - German
    - Spanish
  - Mathematics
  - Sciences
  - Biology

Master of Education
- Administration and Supervision
  - Administration
  - Supervision
  - Dual Major—Administration and Supervision
- Adult Education
- Counselor Education
  - Guidance and Counseling
  - Dual Certification in Counselor Education and Visiting Teacher
- Curriculum and Instruction
  - Early Education
  - Instructional Technology
  - Library/Media
- Middle Education
- Secondary Education
  - English
  - Foreign Languages
    - French
    - German
    - Spanish
  - Mathematics
  - Sciences
    - Biology
    - Chemistry
    - Interdisciplinary Science
  - Physics
- Mathematics
- Reading
- Special Education
  - Early Childhood Special Education
  - Emotional Disturbance
  - Learning Disabilities
  - Mental Retardation
  - Severe and Profound Disabilities

Master of Science
- Physical Education

Ph.D. in Urban Services
- Adult Education and Training
- Educational Leadership
  - Administrative Leadership
  - Instructional Leadership
- Urban Services Leadership

CERTIFICATE PROGRAMS
The School of Education offers the following post-baccalaureate certificates:

- Chemistry
- Interdisciplinary Science
- Physics
- Special Education
  - Dual Endorsement in Emotional Disturbance and Mental Retardation
Post-Baccalaureate Certificate in Teaching
- Early Education
- Middle Education
- Secondary Education
- English
- Foreign Languages
  - French
  - German
  - Spanish
- Mathematics
- Sciences
  - Biology
  - Chemistry
  - Interdisciplinary Science
  - Physics

Post-Masters Certificate
- Principalship
- Supervision
- Principalship and Supervision

EXTENDED TEACHER PREPARATION PROGRAM
Any undergraduate student admitted to the University who declares a major in the College of Humanities and Sciences is also eligible to designate a second major in early, middle, secondary or special education. Once the student has completed 90 credit hours, he or she applies to the School of Graduate Studies to begin graduate study in the School of Education. Upon successful completion of the program, the student receives a Baccalaureate degree and a Master of Teaching degree. Please see the Division of Teacher Education section in this Bulletin for program details.

CERTIFICATION FOR EDUCATION PERSONNEL
Certification and endorsement are based in part on the successful completion of an approved program developed in response to nationally-recognized standards. All degree programs offered by the School of Education are approved by the Virginia Department of Education and the National Association for the Accreditation of Teacher Education (NCATE). The Commonwealth of Virginia is a member of the National Association of State Directors of Teacher Education and Certification (NASDTEC), which has a national reciprocity agreement for teacher certification. Therefore, all graduate programs in the School of Education have approved program status and are a part of the NASDTEC Certification Reciprocity Agreement.

Graduate Programs Leading to Initial Teacher Certification
Individuals often decide to pursue a teaching career after they have completed a baccalaureate degree. Virginia Commonwealth University serves qualified individuals through approved programs leading either to a Master of Education in Teaching or a Post-Baccalaureate Certificate in Teaching. The philosophy underlying the Extended Program provides the context for the approved programs leading either to a masters degree or a post-baccalaureate certificate.

Students seeking initial certification as teachers in Virginia must have earned a liberal arts degree (or its equivalent) and pursue professional studies. Individuals planning to teach at the secondary level must hold the major or its equivalent in the discipline in which they wish to teach and for which VCU offers the approved program teaching specialty.

All students seeking initial certification will need to follow the steps outlined in the Steps to Completing the Extended Program chart in this Bulletin. Students who already hold a baccalaureate should begin with the step "Admission to Teacher Preparation."

Individuals who wish to obtain certification in art education, music education or theater education should see the School of the Arts section of this Bulletin.

FACILITIES
The School of Education is housed primarily in Oliver Hall, where traditional classroom, laboratory and activity centers, and faculty and administrative offices can be found. The Division of Health and Physical Education is located in the Franklin Street Gymnasium, which provides teaching facilities, as well as faculty and administrative offices for the Division.

SUPPORT/RESOURCE OFFICES
Various resource offices have been developed in the School of Education to provide support services for students, faculty, and programs. These support units include the Office of Academic Services, the Office of Graduate Studies, the Office of Continuing Education and Field Services, the Instructional Technology Center, which includes the Teachers’ Resource Workshop, the Computer Laboratory, and the Word Processing Center.

Office of Academic Services
Program and Test Information. The Office of Academic Services provides basic informa-
tion regarding the programs offered by the School of Education. Students may obtain various program forms in this office. Information regarding the National Teacher Examination, Graduate Record Examination, and the Miller Analogies Test also can be obtained in this office.

**Placements.** Placements for students in practica, internships and externships are coordinated through the Office of Academic Services. These placements are primarily in school systems and other educational facilities located in the City of Richmond and the Counties of Chesterfield, Hanover, and Henrico.

**Financial Aid.** Information and applications for certain scholarships that are available to School of Education students (primarily those seeking Teacher Certification) can be obtained in the Office of Academic Services. All require that applicants be admitted to a graduate program in order to be eligible. Information on financial aid administered by the University can be found in Part I of this Bulletin.

**Certification and Endorsement.** The Office of Academic Services serves as the center for information, materials and applications for those students seeking certification and/or endorsement for educational personnel in Virginia.

**Career Files.** The Office of Academic Services maintains career-placement files for graduates with certification. For further information on this service, please contact the office.

**Office of Graduate Studies**

**Program and Test Information.** The Office of Graduate Studies provides basic information regarding the programs offered by the School of Education. Students may obtain various program forms in this office. Information regarding the National Teacher Examination, Graduate Record Examination, and the Miller Analogies Test also can be obtained in this office.

**Admissions.** The Office of Graduate Studies processes applications for admission to graduate study at the School of Education received from the School of Graduate Studies. Information and forms regarding admission for graduate study in education can be obtained from this office.

**Financial Aid.** The School of Education offers a small number of fellowships, assistantships, and scholarships each academic year. The Office of Graduate Studies coordinates awards of such financial aid. Applications can be obtained in this office. Applicants must be admitted to a degree program within the School of Education.

In addition to the School of Education awards, each division may have financial assistance awards funded by the grants associated with the division. For information on grant-funded awards, please contact the division head. Information on financial aid administered by the University can be found in Part I of this Bulletin.

**Ph.D. in Urban Services Program.** The Office of Graduate Studies is responsible for the administration of the Ph.D. in Urban Services program. Please see the Ph.D. in Urban Services section of this Bulletin for further information.

**Office of Continuing Education and Field Services**

The Office of Continuing Education and Field Services coordinates all offerings in the area of continuing education for the school. Off-campus offerings and in-service training opportunities include day-long staff development events, a series of structured workshops designed for certificate renewal or graduate credit, credit or non-credit courses, degree programs, and field studies and evaluation projects.

**The Instructional Technology Center**

The Instructional Technology Center (ITC) provides educational technology and media support to the students, faculty, and staff of the School of Education. Within the ITC are three units: the Teacher’s Resource Workshop (TRW), the Word Processing Center (WPC), and Computing Services.

The TRW is a self-service center that maintains the equipment and supplies for students, faculty, and staff to create materials ranging from bulletin boards to multimedia audio/visual presentations. The TRW also contains a teaching computer lab with Macintosh, IBM compatibles, and Apple IIe computers.

The WPC provides a variety of word processing, desktop publishing, and duplicating services to the faculty and staff of the School of Education. Computing Services supports the Edunet network and maintains all computer technology for the center as well as troubleshooting and repair for the School of Education. It also provides training classes on a variety of subjects for all faculty and staff.

**CENTERS AND INSTITUTES**

Programs, resources, and scholarly and service endeavors of the School are extended by a number of academies, centers, institutions, and projects directed by the faculty. These include:

- Capital Writing Project
- Central Virginia Leadersh Academy
Other funded projects provide in-service training and personnel preparation training in the teaching of writing, special education and science projects.

ADMISSION PROCEDURES FOR GRADUATE STUDY

Application Procedures

Applicants for admission to graduate study in the School of Education should follow the application procedures as stated in Part I of this Bulletin. Please note that applications cannot be processed until they are complete (including test scores). Admission information specific to each program can be found in the Division section of this bulletin.

Test Scores

Either the Graduate Record Examination (GRE), General Aptitude portion, or the Miller Analogies Test (MAT) is required for the Masters of Teaching, the Master of Education, the Master of Science, and the Post-Baccalaureate Certificate in Teaching. The Ph.D. program requires the Graduate Record Examination (GRE), General Aptitude portion.

The National Teacher Examination (NTE), although not required for graduate admission purposes, is required for placement in certain practica, internships, and externships, as well as for certification in Virginia. Students should contact the Office of Academic Services or their advisors for the appropriate time to register for the NTE.

Information about all three tests may be obtained in the Office of Academic Services and the Office of Graduate Studies.

Application Deadlines

The following application deadlines have been established for the Master of Education and the Master of Science.

- May 1 — summer session term of entry
- July 1 — fall semester term of entry
- November 15 — spring semester term of entry

The Master of Teaching and the Post-Baccalaureate Certificate in Teaching have the following application deadlines:

- March 1 — summer session term of entry
- March 1 — fall semester term of entry
- October 15 — spring semester term of entry

The Ph.D. in Urban Services program has the following application deadlines:

- March 15 — summer session term of entry
- October 15 — spring semester term of entry

Students who are unable to enroll for the semester for which they are accepted may request a deferment. Ph.D. in Urban Services applicants who intend to begin in the fall semester should submit their applications by March 15th for deferment for fall.

GENERAL ADMISSION REQUIREMENTS

The admission decision will be made on an overall analysis of the following for each degree program. Please see each Division section for any additional information.

Master of Teaching, Master of Education, Master of Science, and Post-Baccalaureate Certificate in Teaching

1. A minimum GPA of 2.8 on a 4.0 scale on the last 60 semester hours of study.
   Applicants whose GPA during the last 60 semester hours of course work falls between 2.4 and 2.79 for the Master of Education and Master of Science, or 2.6 and 2.79 for the Master of Teaching and Post-Baccalaureate Certificate in Teaching on a 4.0 scale would be considered for provisional admission. Please see Part I of this Bulletin for further information on provisional admission.

2. Scores on the Graduate Record Examination or the Miller Analogies Test.

3. An interview with the applicant may be required by the faculty of the core to which the applicant is seeking admission.

Ph.D. in Urban Services

Please refer to the Ph.D. in Urban Services Program section of this Bulletin for admission requirements.
ADVISING AND STUDENT PROGRAM PLANNING

All students admitted to the School of Education are assigned advisors. Students are expected to work with their advisors to plan their programs of study. Each graduate program agreement or changes thereto must be approved by both the advisor and the appropriate division head, or the director of graduate studies for the Ph.D. in Urban Services Program. Courses taken without approval are taken at the student’s risk. Each student is required to complete and file a program plan with the division before the completion of the 6th credit hour.

The chart below outlines the general steps to completing the Master of Education and the Master of Science degrees. Master of Teaching, Post-Baccalaureate Certificate in Teaching, and Ph.D. in Urban Services student should refer to the appropriate division section of this Bulletin for information specific to these programs.

<table>
<thead>
<tr>
<th>Steps to Completing an M.Ed. and M.S. Degree</th>
<th>When</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Admission</td>
<td>0-6 Hours</td>
<td>Office of Graduate Studies, School of Education</td>
</tr>
<tr>
<td>2. Program of Studies</td>
<td>0-6 Hours</td>
<td>With advisor, approved by division head</td>
</tr>
<tr>
<td>3. Candidacy</td>
<td>9-15 Hours</td>
<td>Application approved by advisor, core coordinator, division head</td>
</tr>
<tr>
<td>4. Comprehensive examination</td>
<td>30 Hours</td>
<td>Application to division office</td>
</tr>
<tr>
<td>5. Externship or internship</td>
<td>Usually the last semester of course work</td>
<td>Application from Office of Academic Services</td>
</tr>
<tr>
<td>6. Graduation</td>
<td>Last semester of course work.</td>
<td>Approved by advisor, division head, dean’s office and returned to registrar.</td>
</tr>
</tbody>
</table>

ADMISSION TO CANDIDACY

Admission to graduate study in the Master of Education or Master of Science program does not constitute candidacy for a degree. Rather, students who have been admitted to graduate study are advanced to degree candidacy upon the recommendation of the advisor, core faculty, and division in which the degree is sought. (Ph.D. in Urban Services student should refer to the Ph.D. in Urban Services Program section for details on continuing doctoral status.)

Advancement to degree candidacy requires that students must have completed at least nine but no more than 15 semester hours of graduate study with a minimum grade-point average of 3.0; must have demonstrated clearly the aptitude and ability to pursue graduate work, including independent study; must have exhibited a commitment to education as a profession; and must have demonstrated promise for a successful career in the field selected in terms of temperament and personality. Specific courses may be required prior to application for candidacy. Admission to degree candidacy is not an automatic process. Students must file an approved “Application for Candidacy” with their divisions. Only students who have been admitted to candidacy may pursue additional work toward the degree.

Comprehensive Examination

A. All students in a Master of Education or Master of Science program must take a three-hour written comprehensive examination. (Ph.D. in Urban Services students should refer to the Ph.D. in Urban Services Program section.) Students must be registered for graduate course work in the semester in which they take the comprehensive examination.

B. Written examinations will be given on the first Saturday in November, the fourth Saturday in March, and the second Saturday in July. Students must notify the department in writing of the intention to take the examination at least 30 days prior to the published date. All comprehensive examinations must be taken on dates indicated except for religious or health reasons. Any exceptions must be approved in advance by the division head.

C. A minimum of three faculty members, designated by the core faculty, will evaluate
each examination independently. Satisfactory performance on the comprehensive examination requires approval of two of the three evaluators.

D. Any student failing the comprehensive examination must have a joint conference with at least two core faculty members, one of whom is the student’s advisor, before taking the comprehensive examination again.

1. During the conference, the core faculty members may recommend additional academic preparation and/or competencies which must be met by the student prior to retaking the comprehensive examination.

2. The student will be notified by letter of the recommendations made by the core faculty in the conference.

E. The student will have only two opportunities to take the comprehensive examination. Failure to pass the comprehensive examination the second time will result in the student being dropped from the degree program.

TRANSFER CREDIT

A maximum of six (6) credit hours of acceptable graduate credit may be transferred into a graduate degree program. Course work taken prior to being admitted to a program in the School of Education and not applied to another degree may be applied for transfer. This includes course work taken at VCU.

Ph.D. in Urban Services students may transfer up to nine (9) credit hours. Course work submitted for transfer is evaluated by the student’s advisor and the division head, or the director of graduate studies for the Ph.D. program. Please see the Ph.D. in Urban Services Program section of this Bulletin for further information regarding transfer credit for this program.

As a general rule, continuing education courses taken at institutions other than VCU will not be transferred.

Students seeking to earn credit at other institutions after acceptance to a graduate program in the School of Education must receive prior approval from their advisors and the division head, or the director of graduate studies for the Ph.D. program. Please see Part I of this Bulletin for further information regarding transfer credit.

FACULTY

Bailey, James W. Professor Emeritus M.Ed., University of Chicago; human development and learning.

Beale, Andrew V. Professor Ed.D., University of Virginia; counseling, career development, and parent education.

Bost, William A. Professor Emeritus Ed.D., George Peabody College; managerial communications, educational improvement strategies.

Briggs, Frances M. Professor Emerita Ph.D., University of North Carolina; educational psychology and English education.

Cauley, Kathleen M. Associate Professor Ph.D., University of Delaware; cognitive development, educational psychology.

Craver, Samuel M. Associate Professor Ph.D., University of North Carolina; history and philosophy of education.

Dilworth, Robert L. Assistant Professor Ed.D., Teachers College Columbia University; adult education.

Duncan, Jack A. Professor Ed.D., University of Georgia; group procedures, communications.

Ely, Vivien K. Professor Emerita Ed.D., North Carolina State University; curriculum and instruction in occupational education.

Fleming, Robert S. Professor Emeritus Ed.D., New York University; curriculum development, education and the arts.

Fuhrmann, Barbara S. Professor Ed.D., University of Massachusetts; adolescence, group work.

Gerber, Paul J. Professor Ph.D., University of Michigan; special education, learning disabilities, consultation.

Hephner, Thomas A. Associate Professor Ph.D., Ohio State University; vocational education and curriculum and instruction.

Keesee, C. Gordan, Jr. Professor Emeritus Ed.D., University of Virginia; counselor education, educational measurement.

Lambie, Rosemary A. Associate Professor Ed.D., University of Kansas Medical Center; special education-emotional disturbance, educational administration.

Linder, Fredric I. Assistant Professor Ph.D., State University of New York at Buffalo; human development and learning, educational psychology.

Londoner, Carrol A. Associate Professor Ph.D., Indiana University; adult learning, human resource development, program development.

McMillan, James H. Professor Ph.D., Northwestern University; research methods, educational psychology.

Ozmon, Howard A. Professor Emeritus Ed.D., Columbia University; philosophy of education, educational futures.

Philipson, Maike Assistant Professor Ph.D., University of North Carolina; foundations of education.

Pisapia, John Professor and Division Head Ed.D., West Virginia University; educational administration.

Schumacher, Sally A. Associate Professor Ph.D., Washington University; educational and evaluation research methods and design, curriculum, and program evaluation.

Seyfarth, John T. Professor Ed.D., University of Tennessee; developmental aspects of teachers’ beliefs about their work, personnel management in schools.

Sharman, Charles C. Associate Professor Ed.D., University of Virginia; public school finance, public school administration.

Sherron, Ronald H. Professor Emeritus Ph.D., University of North Carolina; adult learning, program evaluation, program planning, human resource development.

Strandberg, Warren D. Professor Ph.D., Northwestern University; philosophical and social foundations of education.

Division of Educational Studies

JOHN PISAPIA
Division Head
The Division of Educational Studies houses three degree-granting programs: 1) The M.Ed. in Adult Education; 2) the M.Ed. in Counselor Education; and 3) the M.Ed. in Educational Administration and Supervision. Additionally, the division hosts degree tracks in Educational Leadership and Adult Education and Training in the Ph.D. in Urban Services Program. The division also provides foundational courses in philosophy and the sociology of education, educational psychology, and research methods to degree-granting programs in the School of Education and across the University.

In addition to these education programs, the Division manages the Metropolitan Educational Research Consortium (MERC), the School Renewal Institute (SRI), the Virginia Adult Basic Learning Resource and Training Center, and the Central Virginia Leadership Academy (CVLA). Division faculty are involved in a wide range of research and public service activities through these program centers.

DIVISION PURPOSES AND VALUES
The Division’s mission is to: 1) prepare leaders for educationally-oriented positions such as policy analysts, executives and instructional specialists in public and private sectors; 2) improve the practice of leadership in such organizations; and 3) provide foundational studies essential for leadership in these organizations.

The work of the faculty involves: 1) producing new ideas, insights, and understanding; 2) developing better models, methods, and materials; and 3) creating more effective educational environments by sharing these new understandings, ideas, models, and materials.

The faculty subscribe to and promote the following values in striving to reach the Division’s mission:
1. The faculty are committed to providing students with quality programs and supportive professional relationships.
2. The faculty seek to maintain a supportive climate of people who enjoy each other and stimulate each other’s work.
3. The faculty actively promote improvement of their teaching, engagement in research, and regular participation in the programs of appropriate learned societies.
4. The faculty seek to form partnerships with colleagues, practitioners and lay people on projects of mutual interest which inform and improve the practice of leadership.

AWARDS
The WILLIAM C. BOSHER, JR. SCHOLARSHIP is awarded annually to an outstanding student in the Educational Administration program. The scholarship is supported by the School of Education.

The MERC RESEARCH FELLOWSHIP AWARDS are designed to prepare individuals for leadership and research positions at the school, division, state, and federal levels and/or teaching, research, and consulting positions in higher education. MERC Fellows are sponsored by Virginia Commonwealth University. They support the work of the Metropolitan Educational Research Consortium (MERC), which is composed of Virginia Commonwealth University and regional and national metropolitan school divisions.

The EDUCATIONAL FOUNDATION AWARD is presented by the faculty to an outstanding student in the foundations of education. The award is supported by the Foundation faculty and the Division.

M.ED. PROGRAM IN ADMINISTRATION AND SUPERVISION
The M.Ed. program in Administration and Supervision is designed to prepare individuals for leadership roles ultimately leading to top level executive positions. The curriculum emphasizes the policy context of administration, leadership, and instructional and operational management. These emphases orient students toward the broad spectrum of management and leadership problems, functions, and opportunities likely to be encountered in educational organizations.

The program goals and content are based upon the assumption that a large number of students who select this curriculum aspire to become chief executive officers of schools and school divisions at some point in their careers. The program has undergone a national and state review and was awarded approved program status by the Virginia Department of Education.

Students have four options in receiving the Master of Education in Administration and Supervision:
1. Educational Administration (Principal’s Specialization)
All students must take the core clusters (21 credits). All students, with the approval of their advisors, develop a specialization cluster of 15 credits to achieve their career goals (i.e., Higher Education Administrator, Special Education Administrator, Vocational Education Administrator, Personnel Administrator, Business/Finance Administrator).

Core Clusters* ........................................... 21
A. The Educational Governance and Policy Environment (6 cr.)
   ASE 600 Public School Administration
   ASE 611 School of Law
B. Leading Individuals/Groups/Organizations
   (9 cr.) (select 3 courses)
   EDU 604 Adult Development**
   ASE 605 Educational Administration and Organizational Behavior
   ASE 606 Development and Change in Educational Organizations
   ASE 607 Principles of Educational Leadership
C. The Context of Schooling (6 cr.)
   EDU 673 Seminar on Educational Issues, Ethics and Policy
   EDU 660 Research Methods in Education
Specialization Clusters .................................... 15

Total .......................................................... 36

*Students are expected to complete the Core Cluster prior to the Specialization Cluster.
**Students may take either EDU 604 or EDU 609, but not both.

Principal Certification Program
Students seeking Provisional School Principal Certification must have completed the M.Ed. in Administration described above, or its equivalent as determined by the faculty, prior to enrolling in the certification program. The certification program is composed of two steps: provisional certification and permanent certification.

Students who hold a masters degree in a field other than Administration and/or Supervision and wish to obtain certification as a school principal may apply to the Principal Certification Program by
1. reviewing coursework requirements for a M.Ed. in Administration and Supervision (Principalship Specialization) above; then
2. writing a letter listing all completed course work and work experiences that the student wishes to substitute for courses which are certification program prerequisites; and
3. attaching transcripts to verify the course work.

Appropriate work experiences may be substituted for up to 6 credit hours of course work. Administration transfer courses must be taken
from a university with an approved program in School Administration.

Letters written by students wishing to obtain certification only will be review by the faculty. Following this review, students can receive a program plan listing the courses and experiences that must be completed before the School of Education can make a recommendation for certification. It is expected that all new course work will be taken at VCU unless prior approval has been granted by the student’s advisor.

**Provisional School Principal Certification**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU 604 Principalship Seminar</td>
<td>3</td>
</tr>
<tr>
<td>EDU 672 Internship: Administration Process Skills and Operational Tasks Seminars</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
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</tbody>
</table>

**Permanent School Principal Certification**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU 700 Externship Issues Seminars</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
</tr>
</tbody>
</table>

* The Professional Practice program is offered for persons holding full-time positions as principals or assistant principals. The issues seminars will be designed individually by a professor, the student, the mentor principal, and the executive mentor of the employing school division.

**Supervision**

The M.Ed. in Supervision prepares future leaders in curriculum and instruction. The program in supervision leads to state certification in that specialty. Applicants should have a minimum of two years successful teaching or equivalent experience. Ordinarily, the applicant will have an undergraduate degree which qualifies the applicant for professional certification as a teacher.

**Foundations Core**

- EDU 660 Methods of Research
- EDU 609 Learning Theories in Education
- EDU 673 Seminar on Educational Issues, Ethics and Policy

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU 600 Public School Administration</td>
<td>9</td>
</tr>
<tr>
<td>EDU 601 Processes of Instructional Leadership</td>
<td>18</td>
</tr>
<tr>
<td>ASE 606 Development and Change in Educational Organizations</td>
<td>12</td>
</tr>
<tr>
<td>ASE 620 Improving School Programs and Performance</td>
<td>12</td>
</tr>
<tr>
<td>EDU 615 Curriculum Development</td>
<td>12</td>
</tr>
<tr>
<td>EDU 672 Internship: Supervision</td>
<td>12</td>
</tr>
<tr>
<td>Electives (select 4 courses)</td>
<td>12</td>
</tr>
</tbody>
</table>

**Certification Seekers Program**

Students who hold a Master’s degree in a field other than 1) Administration or 2) Supervision and wish to obtain certification as a school principal may apply to the certification seekers program by:

1. reviewing the course work requirements for a Master’s Degree in Administration (Principalship Specialization) leading to certification as a school principal or a Master’s Degree in Supervision
2. writing a letter listing all completed course work and work experiences that you wish to substitute for courses which are certification program prerequisites; and
3. attaching transcripts to verify the course work.

Appropriate work experiences may be substituted for up to 6 credit hours of course work. Administration transfer courses must be taken from a University with an approved program in School Administration.

Your letter requesting approval to enter the certification program will be reviewed by the faculty. Following this review, you will receive a program plan listing the courses and experiences that must be completed before we can recommend you for certification.
It is expected that all new course work will be taken at Virginia Commonwealth University unless prior approval has been granted by your advisor to take a course elsewhere.

**M.Ed. PROGRAM IN ADULT EDUCATION**

The M.Ed. program in Adult Education is designed to provide professional growth experiences that will increase the skills and understanding needed to plan, implement, manage, and evaluate educational programs for adults. Opportunities exist to design programs of study with emphasis in numerous areas.

### Credits

<table>
<thead>
<tr>
<th>Foundations Core</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Human Development and Learning (one of the following)</td>
<td></td>
</tr>
<tr>
<td>EDU 604 Adult Development</td>
<td></td>
</tr>
<tr>
<td>EDU/PSY 607 Advanced Educational Psychology</td>
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<tr>
<td>B. Cultural, Historical, and Philosophical (one of the following)</td>
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<tr>
<td>EDU 601 Philosophy of Education</td>
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<tr>
<td>EDU 608 History of Western Education</td>
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<tr>
<td>EDU 610 Social Foundations of Education</td>
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<tr>
<td>EDU 612 Education and the World’s Future</td>
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<td>EDU 614 Contemporary Educational Thought</td>
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<tr>
<td>C. Research</td>
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<tr>
<td>EDU 660 Methods of Research</td>
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</tbody>
</table>

### Program Core (taken sequentially) | 15

| ADE 600 The Adult Education Movement | |
| ADE 601 The Adult Learner | |
| ADE 602 Instructional Strategies for Adults | |
| ADE 603 Adult Program Planning, Management, and Evaluation | |
| ADE 604 Adult Education Seminar | |

### Externship* | 3

| EDU 700 Externship | |

### Electives | 12-15

### Total | 36-42

* Students who have not had education or training experiences or who would like to broaden their backgrounds will be assigned an externship for one or two semesters' duration.

### Electives

The purpose of the electives is to complement the student’s major area and to support the student’s professional goals. Thus, the suggested electives are grouped by topic. A content specialty is possible if all electives are taken in a specific topic area (12 to 15 hours); however, it is not necessary to take all electives from one specific topic area. Electives should be decided in conjunction with the student’s advisor. If the student’s content specialty interest is in another school or department (i.e., Business, Psychology, Allied Health Professions, etc.), it is possible to take electives in that area.

### Credits

<table>
<thead>
<tr>
<th>Administration—Public Systems</th>
<th>15</th>
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<tbody>
<tr>
<td>ASE 601 Supervision of Instruction</td>
<td></td>
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<tr>
<td>BUS 640 Management Theory and Practice</td>
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<tr>
<td>BUS 641 Organizational Behavior</td>
<td></td>
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<tr>
<td>BUS 643 Systems Management</td>
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<tr>
<td>EDU 645 Public Relations Principles</td>
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</tbody>
</table>

### M.ED. IN COUNSELOR EDUCATION

The M.Ed in Counselor Education program is designed primarily to prepare counselors for elementary, middle, and high schools in the Commonwealth of Virginia and the nation, and sec-
ondarily to prepare counselors for higher education and community agencies. The program leads to endorsement for school counseling and preparation for advanced graduate work at the post-master's level. While licensure as a teacher and teaching experience may be required for employment as a school counselor, applicants for the M.Ed. in Counselor Education program do not have to meet such criteria.

The faculty make every effort to assist students in individualizing a graduate program to their professional needs and interests. However, the mature student will recognize that individualization takes place in an environment of legitimate constraints revolving around institutional and certification requirements. Faculty view each program as more than simply an aggregate of courses, and students should plan all program work with their faculty advisors.

A joint program with the School of Social Work provides a dual certification for both counselor and visiting teacher. Also available through the School of Social Work is a cooperative certification program in school social work.

For students who already have a master's degree in education, the 30 credits of program core courses in Guidance and Counseling will lead also to recommendation for endorsement as a school counselor. Students wishing this endorsement must meet with the core coordinator and file a plan of study for endorsement purposes. Although students holding master's degrees do not apply for admission to the graduate program, they must file the appropriate plan of study in order to qualify for the VCU approved program of study.

Guidance and Counseling

<table>
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<tr>
<th></th>
<th>Credits</th>
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<tbody>
<tr>
<td>A.</td>
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<tr>
<td>Human Development and Learning</td>
<td>9</td>
</tr>
<tr>
<td>(one of the following)</td>
<td></td>
</tr>
<tr>
<td>EDU 602 Adolescent Growth and Development</td>
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<tr>
<td>EDU 603 Seminar in Child Growth and Development</td>
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<td>EDU 604 Adult Development</td>
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<td>EDU/PSY 607 Advanced Educational Psychology</td>
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<td>EDU 609 Learning Theories in Education</td>
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<tr>
<td>B.</td>
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<tr>
<td>Cultural, Historical, and Philosophical</td>
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<tr>
<td>(one of the following)</td>
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<tr>
<td>EDU 601 Philosophy of Education</td>
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<td>EDU 608 History of Western Education</td>
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<td>EDU 610 Social Foundations of Education</td>
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<td>EDU 612 Education and the World's Future</td>
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<td>EDU 614 Contemporary Educational Thought</td>
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<tr>
<td>EDU 678 Seminar on Educational Issues, Ethics and Policy</td>
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<tr>
<td>C.</td>
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<tr>
<td>Research</td>
<td></td>
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<tr>
<td>EDU 660 Methods of Research</td>
<td></td>
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</tbody>
</table>

Program Core .................................................. 30
COE 600 Introduction to Guidance
COE 601 Theories of Counseling
COE 602 Practicum: Techniques of Counseling
COE 603 Group Procedures in Counseling
COE 604 Practicum: Group Procedures in Counseling
COE 605 Career Information and Exploration
COE 606 Assessment of Techniques for Counselors

Restricted Elective
COE 610 Guidance in the Elementary and Middle School
EDU 700 Externship (6 cr.)
300 clock hours of actual work in an appropriate setting. Students wanting placement in elementary, middle and high schools may not fulfill this requirement during the summer.

Total ............................................................ 39

Dual Certification in Counselor and Visiting Teacher

Students seeking dual certification must complete the above M.Ed. in Counselor Education program, plus the Visiting Teacher program described below.

Visiting Teacher
M.Ed. in Guidance and Counseling Program ........... 39
Program Core .................................................. 15
LDS 600 Characteristics of the Learning Disabled
SLW 601 Human Behavior in the Social Environment I
SLW 606 Social Work Practices in Communities and Organizations
SLW 717 Social Work Practice in School Settings

Restricted Elective
SLW 711 Normal and Problem Family Behavior

Total ............................................................ 54

Articulation Agreement With The College Of William and Mary

The School of Education has an articulation agreement with the College of William and Mary in the area of counselor education. The basic purposes of the articulation agreement that established this program are to enhance the offerings in counseling at both institutions, to create flexibility in course options for students, and to expand the resources available to students at both institutions. The degree is a Doctor of Education and will be awarded by William and Mary.

All students applying for admission to the doctoral program will apply directly to William and Mary and will be required to meet the admissions criteria and procedures of William and Mary. A joint faculty committee of the Division of Psychological Foundations and Services (W&M) and the Division of Educational Studies, Counselor Education (VCU) will examine applications for consideration for the Admission Committee, School of Education, the College of William and Mary.
The curriculum in the program is quite flexible, allowing students to pursue their special interests. The major areas of concentration are Agency and Community Counseling, Public School Counseling —Elementary —Secondary

**Division of Health and Physical Education**

**JACK H. SCHILTZ**
Division Head

**FACULTY**

Davis, Robert G. **Professor Ph.D.**, University of Maryland; elementary physical education.

Dintiman, George B. **Professor Ed.D.**, Columbia University; research methods, administration of health and physical education.

Gayle, Richard **Associate Professor Ed.D.**, University of Tennessee; exercise physiology.

Groves, Barney R. **Associate Professor Ph.D.**, Florida State University; fitness, tests and measurement.

Pennington, Jude C. **Assistant Professor Ph.D.**, Florida State University; administration and supervision.

Pratt, LeEtta **Associate Professor Ed.D.**, Oregon State University; health education.

Schiltz, Jack H. **Associate Professor Ed.D.**, Columbia University; motor learning, aquatics.

The Physical Education graduate faculty seek to provide an opportunity for students to achieve their potential as professionals. Specific goals of the department are to provide knowledge, application, and practical experiences that will improve the student's ability to function as a professional while developing a positive attitude towards the importance of movement toward human growth and development. Students may choose one of two tracks: teaching or exercise science.

The nine-credit foundation requirement and nine-credit core requirement are common to both tracks. The remaining credits of the 33 credits required in each track are determined in consultation with the student's advisor.

**M.S. PROGRAM IN PHYSICAL EDUCATION**

The Master of Science degree in Physical Education is open to health and physical education professionals as well as those holding a bachelor's degree in another discipline. Those holding a degree in another area, however, may be required to take additional work in order to complete the M.S. degree. Applicants who are in or are planning to enter the teaching profession should hold a valid professional teaching certificate in physical education or should meet that requirement prior to the granting of the M.S. degree.

**Credits**

- Foundations ................................................................. 9
- A. Human Development and Learning
  (one of the following)
  EDU 602 Adolescent Growth and Development
  EDU 603 Seminar in Child Growth and Development
  EDU 604 Adult Development
  EDU/Psy 607 Advanced Educational Psychology
  EDU 609 Learning Theories in Education ........................................................................................................... 9
- B. Cultural, Historical, and Philosophical
  (one of the following)
  EDU 601 Philosophy of Education
  EDU 608 History of Western Education
  EDU 610 Social Foundations of Education
  EDU 612 Education and the World's Future
  EDU 614 Contemporary Educational Thought
  EDU 673 Seminar on Educational Issues, Ethics and Policy .................................................................................. 9
- C. Research
  EDU 660 Methods of Research ......................................................... 9

**Program Core** ............................................................................ 9

- EDU 681 Investigations and Trends in Teaching
- PHE 601 Movement Physiology
- PHE 603 Applied Fitness and Nutrition for Health and Physical Education Professionals

**Electives** .................................................................................... 9-12

Possible Electives, Depending on Track, Include:

- EDU 641 Directed Independent Study
- EDU 701 Thesis
- HED 500 Teaching Health in Public Schools
- HED/PHE 591 Topics in Education
- PHE 521 Athletic Care and Training
- PHE 600 Seminar in Motor Learning Performance
- PHE 611 Mechanical Analysis of Human Motion
- PHE 612 Administration and Supervision of Physical Education
- PHE 621 Sports Medicine

**Total** ......................................................................................... 33

**Division of Teacher Education**

**ALAN M. McLEOD**
Division Head

**FACULTY**

Baker, Stanley E. **Associate Professor Ed.D.**, Teachers College, Columbia University; student/teacher interaction during reading instruction, reading habits and attitudes of reading teachers.

Blankenship, M. Elise **Associate Professor Ed.D.**, University of Houston; perceptual and cognitive processing in learning disabilities, delivery systems for special education.

Boraks, Nancy **Associate Professor Ph.D.**, University of Colorado; peer impact on learning, ethnographic study of adult learning.

Brittain, Mary M. **Associate Professor Ph.D.**, University of Miami; psycholinguistics of reading, assessment of reading achievement.

Christenbury, Leila **Associate Professor Ed.D.**, Virginia Polytechnic Institute and State University; teaching methods, adolescent literature, issues in American education.
Davis, Michael D. *Professor* Ph.D., University of Illinois; development of student teachers, issues in teacher education.

Duncan, Patricia H. *Professor* Ed.D., University of Georgia; research in written composition in the elementary grades, perceptual factors and reading.

Fallen, Nancy H. *Professor Emerita* Ed.D., University of Maryland; assessment, preschool handicapped.

Fleming, Glady S. *Professor Emerita* Ed.D., New York University; creativity and the creative process, movement education.

Ganter, Howard G. *Professor* Ph.D., University of Florida; special education, emotional disturbance.

Gerber, Paul J. *Professor* Ph.D., University of Michigan; special education, learning disabilities, consultation.

Giaccobe, George A. *Associate Professor* Ph.D., University of Georgia; special education, mental retardation, emotional disturbance.

Goggin, William F. *Associate Professor Emeritus* Ed.D., University of Virginia; curriculum.

Gross, Ena *Associate Professor* Ph.D., Georgia State University; the use of hand-held calculators in learning mathematics—grades three-eight, the teaching and evaluating of mathematical problem-solving.

Hill, Ada D. *Associate Professor Emerita* Ed.D., American University; mainstreaming, mental retardation, learning disabilities.

Hodges, James O. *Associate Professor* Ph.D., University of Colorado; interdisciplinary cooperation in social science education, teaching strategies and techniques in social studies evaluation.

Johnson, Sheary D. *Assistant Professor* Ed.D., University of Virginia; instructional technology and library science.

Judd, William J. *Associate Professor* Ph.D., Syracuse University; instructional technology.

Kim, Jennifer L. *Associate Professor* Ed.D., University of Alabama; early childhood special education.

Kregel, John *Professor* Ed.D., University of Georgia; severely handicapped, vocational education for the handicapped.

Lambie, Rosemary A. *Associate Professor* Ed.D., University of Kansas Medical Center; special education-emotional disturbance, educational administration.

Lohr, Michael C. *Associate Professor* Ed.D., University of Virginia; activities in the teaching of secondary mathematics, learning theory in the teaching of mathematics.

Lokerson, Jean E. *Associate Professor* Ph.D., University of Maryland; language and learning disabilities, clinical diagnosis and teaching.

McLeod, Alan M. *Professor* Ed.D., University of Virginia; adolescent literature (teaching literature), teaching writing.

McNair-Knox, Faye C. *Assistant Professor* Ph.D., Stanford University; curriculum and linguistics.

Oehler, John S. *Associate Professor* Ed.D., University of North Carolina; staff development, curriculum and instruction.

Orelow, Fred P. *Associate Professor* Ph.D., University of Illinois; severely and profoundly handicapped.

Pieper, Alice M. *Associate Professor* Ph.D., University of Maryland; parenting, early childhood assessment.

Reed, Daisy F. *Professor* Ed.D., Teachers College, Columbia University; classroom management, mainstreaming.

Rezba, Richard J. *Professor* Ph.D., Indiana University; reading in the content areas of math and science, consequence evaluation measures.

Richardson, Judy S. *Professor* Ph.D., University of North Carolina; reading in content areas, remedial and beginning secondary and adult readers.

Rossi, John A. *Assistant Professor* Ph.D., University of Wisconsin-Madison; history, social studies, curriculum.

Simon, Diane J. *Associate Professor and Assistant Dean* Ph.D., New York University; special education, deaf education.

Sparks, Howard L. *Professor Emeritus* Ed.D., Teachers College, Columbia University; special education.

Swyers, William *Associate Professor Emeritus* Ed.D., University of Georgia; middle school curriculum.

Tarter, Martin A. *Associate Professor Emeritus* Ed.D., University of Virginia; photography and teaching of the social studies and the humanities (visual literacy and heightened awareness), economic education and dealing with controversial issues.

Van de Walle, John *Professor* Ph.D., Ohio State University; concept development in early childhood mathematics, instructional strategies for elementary school mathematics.

Wehman, Paul *Professor* Ph.D., University of Wisconsin; severely handicapped, vocational-career education.

Welch, Rizpah *Professor Emerita* Ed.D., Indiana University; special education, language development.

White, Doris *Associate Professor* Ed.D., University of Illinois; cognition and learning styles of young children, formation of values and attitudes among young minority children.

Wood, Judy W. *Professor* Ph.D., University of Southern Mississippi; mainstreaming, mental retardation.

Zaret, Esther *Professor Emerita* Ph.D., University of Wisconsin; curriculum theory, openness in teaching.

The Division of Teacher Education houses six degree and certificate granting programs:

1. **The Master of Education in Curriculum and Instruction**
2. **The Master of Education in Mathematics Education**
3. **The Master of Education in Reading**
4. **The Master of Education in Special Education**
5. **The Master of Teaching**
6. **The Post-Baccalaureate Certificate in Teaching.**

Applicants for each program in the Division of Teacher Education, except for the Master of Teaching and the Post-Baccalaureate Certificate in Teaching, should hold a valid professional teaching certificate in an appropriate endorsement area, typically in elementary or secondary education, or should meet that requirement prior to the granting of the degree. This expectation is true for individuals seeking endorsement as school library/media specialists and reading specialists as well. In some programs, students may meet both degree and certification requirements by completing the approved graduate program sequence with additional graduate or undergraduate work, as planned with their advisor.

The Division of Teacher Education also participates in an Extended Teacher Preparation Program.
Program with the College of Humanities and Sciences which leads to the student receiving a baccalaureate from the College of Humanities and Sciences and a Master of Teaching from the School of Education.

**M.Ed. PROGRAM IN CURRICULUM AND INSTRUCTION**

The Master of Education program in Curriculum and Instruction is designed to provide professional and cognate experiences for individuals wishing to become more effective teachers. Teachers and prospective teachers may select to concentrate in early education, middle education, secondary education, or instructional technology, which includes library/media. Content courses within the program may be selected with a discipline focus. (A student who seeks initial endorsement to teach should enroll in the Master of Teaching Program which is designed for individuals seeking initial certification).

<table>
<thead>
<tr>
<th>Credits</th>
<th>Foundations</th>
<th>A. Human Development and Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>(one of the following)</td>
<td>EDU 602 Adolescent Growth and Development EDU 603 Seminar in Child Growth and Development EDU 604 Adult Development EDU/PSY 607 Advanced Educational Psychology EDU 609 Learning Theories in Education</td>
</tr>
<tr>
<td></td>
<td>B. Cultural, Historical, and Philosophical (one of the following)</td>
<td>EDU 601 Philosophy of Education EDU 608 History of Western Education EDU 610 Social Foundations of Education EDU 612 Education and the World’s Future EDU 614 Contemporary Educational Thought EDU 673 Seminar on Educational Issues, Ethics and Policy</td>
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<tr>
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<td>C. Research</td>
<td>EDU 660 Methods of Research</td>
</tr>
<tr>
<td></td>
<td>Process Level</td>
<td>EDU 615 Curriculum Development EDU 617 Instructional Models</td>
</tr>
<tr>
<td>6</td>
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</tr>
<tr>
<td></td>
<td>Total</td>
<td>33</td>
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</tbody>
</table>

**M.Ed. PROGRAM IN MATHEMATICS EDUCATION**

The Master of Education program in Mathematics Education is offered in conjunction with the Department of Mathematical Sciences in the College of Humanities and Sciences. The degree provides the opportunity to pursue graduate level mathematical sciences content along with appropriate educational foundations.

The program meets the needs of currently practicing secondary or community college teachers who wish to update and extend their mathematical knowledge within the context of an education degree. It also is an appropriate degree program for persons wishing to enter community college teaching. **This degree is not appropriate for students seeking initial certification at the secondary level. Students seeking initial certification at the secondary level should see the Master of Education in Teaching Section of this Bulletin.** The program allows for extended study in the areas of mathematics, statistics, computer science, and professional education.

Program requirements differ for each student; they are determined by educational background and future aspirations. A sample degree program for students in mathematics education is listed below.

<table>
<thead>
<tr>
<th>Credits</th>
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</thead>
<tbody>
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<td></td>
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<tr>
<td></td>
<td>Program</td>
<td>EDU 660 Methods of Research</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>MAT 507 Analysis I MAT 508 Analysis II MAT 511 Applied Linear Algebra MAT 521 Number Theory EDU 681 Investigation and Trends in Teaching Electives</td>
</tr>
<tr>
<td></td>
<td>Total</td>
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</tbody>
</table>

**M.Ed. PROGRAM IN READING**

The Master of Education program in Reading is designed to provide prospective reading specialists with a program of sequential and integrated experiences in areas of the reading curriculum ranging from preschool to adult levels. Students will gain an understanding of the developmental and diagnostic processes involved in teaching and reading and will become familiar
with the resource and supervisory functions which are part of the specialist role. The M.Ed. in Reading is an approved certification program (K-12) for students who meet Virginia State Department of Education requirements.

A cooperative agreement has been established with Virginia State University to permit selected, qualified students to complete the M.Ed. in Reading. Up to 12 semester hours from an approved list may be transferred from the cooperating institution. Interested students should contact the Division of Teacher Education.

** Credits

<table>
<thead>
<tr>
<th>Foundations</th>
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</thead>
<tbody>
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<td>EDU 561 Reading Foundations</td>
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<td>EDU 562 Reading Instruction in the Content Areas</td>
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<td>EDU 672 Internship in Reading</td>
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<td>REA 600 Analysis and Correction of Reading Problems</td>
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<td>REA 605 Organizing and Implementing Reading Programs</td>
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<tr>
<td>Restricted Elective</td>
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<td>EDU 525 Language Arts in the Elementary School</td>
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</tr>
<tr>
<td>EDU 549 Developmental Reaching in the Secondary School</td>
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<tr>
<td>EDU 552 Teaching English as a Second Language</td>
<td>3</td>
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<tr>
<td>REA 601 Psycholinguistics &amp; the Language Arts Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>REA 602 Teaching Adults to Read</td>
<td>3</td>
</tr>
</tbody>
</table>

** Electives | 0-9**

** Total | 36**

Program candidates shall have completed at the graduate or undergraduate level **12 semester hours** selected from the following areas:

- Measurement and Evaluation
- Child/Adolescent Psychology
- Psychology of Personality, Cognition or Learning
- Child/Adolescent Literature
- Language Arts Instruction
- Learning Disabilities
- Study of Contemporary Issues and Trends in the Teaching of Reading

**M.Ed. PROGRAM IN SPECIAL EDUCATION**

The Master of Education program in Special Education prepares graduates for work in one of five areas: Early Childhood Special Education, Emotional Disturbance, Learning Disabilities, Mental Retardation, or Severe and Profound Disabilities. Individuals applying for admission are expected to have a valid professional teaching certificate or meet that requirement prior to the granting of the degree, unless exempted as a professional from another discipline. Individuals who are not certified may enter the program and receive both the M.Ed. and initial certification by taking additional courses.* Successful completion of the degree program leads to endorsement in Early Childhood Special Education, Emotional Disturbance, Learning Disabilities, Mental Retardation, or Severe and Profound Disabilities.

** Early Childhood Special Education**

The Master of Education program in Early Childhood Special Education is a sequentially planned series of courses and clinical experiences designed to prepare individuals to work with young children ages birth through five with developmental disabilities and their families. Successful completion of the degree program qualifies students for teacher certification with endorsement in Early Childhood Special Education by the Virginia Department of Education. Students are prepared to intervene with infants and young children representing a wide range of abilities, those considered at risk to those with severe disabilities. As a result of training, students will be prepared to fill a variety of early intervention roles. The program can be completed in five semesters of full-time study or two years of part-time study.

** Credits

<table>
<thead>
<tr>
<th>Foundations</th>
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</thead>
<tbody>
<tr>
<td>A. Human Development and Learning</td>
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<tr>
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<tr>
<td>EDU 603 Seminar in Child Growth and Development</td>
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<tr>
<td>EDU 601 Philosophy of Education</td>
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<td>EDU 608 History of Western Education</td>
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<td>EDU 610 Social Foundations of Education</td>
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<td>EDU 612 Education and the World’s Future</td>
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<tr>
<td>EDU 614 Contemporary Educational Thought</td>
<td>3</td>
</tr>
<tr>
<td>EDU 673 Seminar on Educational Issues, Ethics and Policy</td>
<td>3</td>
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</tbody>
</table>

* Those seeking initial certification in Emotional Disturbance and Mental Retardation may wish instead to enroll in the Master of Teaching program which is designed for initial certification.
C. Research
EDU 660 Methods of Research
Program Core .................. .................. .................. .................. .................. .................. .................. 15
ECH 601 Assessment of Delayed Infants and Young Children (3 cr.)
ECH 602 Instructional Programming for Delayed Infants and Young Children (3 cr.)
ECH 603 Case and Program Management for Delayed Infants and Young Children (3 cr.)
EDU 700 Externship (6 cr.)
Program Track .................. .................. .................. .................. .................. .................. .................. 18-21
With Thesis
EDU 798 Thesis (6 cr.)
Selectives (from list below) (15 cr.)
Without Thesis
Selectives (from list below) (15 cr.)
Electives (from list below) (3 cr.)
Total .................................................. .................. .................. .................. .................. ................. 42-45
Selectives
EDU 541 ... Young Children With Special Needs*
EDU 630 Trends in Special Education*
EDU 558 Introduction to Physically Handicapped
EDU 631 Behavior Management of Exceptional Students
MRT 500 Language Intervention for Young Children and Learners with Severe Disabilities
*Students may not take both EDU 541 and EDU 630.
Electives
EDU 625 ........... Young Child and the Curriculum
EDU 651 Topics: Current Issues in Early Childhood Education
IDS 600-E Interdisciplinary Teamwork
NUR 540 Infant Family Assessment
SLW 711 Dynamics of the Family
ASE 632 Administration and Supervision of Special Education

Emotional Disturbance
The Master of Education program in Emotional Disturbance is designed to provide teachers the professional competencies needed to work in resource or crisis rooms, self-contained classrooms, or residential settings. In developing these competencies, the program focuses on specific teaching strategies used in the diagnosis and remediation of behavior and learning problems associated with the emotionally disturbed students. Additionally, the program endeavors to develop skills in promoting positive parental and professional interactions. Students receive training in a variety of treatment models including psychodynamic, behavioral, and ecological. Students are offered the option of taking a half-time externship for one semester. A range of public and private schools and mental health programs in the Richmond area allow graduate students the opportunity to select an externship placement consistent with their professional goals.

Applicants are recommended to have one year of teaching experience and a personal interview with program faculty is required.

Students seeking initial certification should consider the Master of Education in Teaching which is designed for initial certification.

Credits
A. Human Development and Learning
(one of the following)
EDU 602 Adolescent Growth and Development
EDU 603 Seminar in Child Growth and Development
EDU 604 Adult Development
EDU/PSY 607 Advanced Educational Psychology
EDU 609 Learning Theories in Education
B. Cultural, Historical, and Philosophical
(one of the following)
EDU 601 Philosophy of Education
EDU 608 History of Western Education
EDU 610 Social Foundations of Education
EDU 612 Education and the World’s Future
EDU 614 Contemporary Educational Thought
EDU 673 Seminar on Educational Issues, Ethics and Policy
C. Research
EDU 660 Methods of Research
Special Education Core .......................... .................. .................. .................. .................. ................. 18
ASE 632 Administration and Supervision of Special Education
EDU 630 Trends in Special Education
EDU 631 Behavior Management of Exceptional Students
EDU 632 Secondary Programming for Exceptional Students
EDU 633 Educational Assessment of Exceptional Students
LDS 530 Language Disabilities: Assessment and Teaching
Specialization Core .......................... .................. .................. .................. .................. .................. .................. 15
EDU 566 Remedial Reading (3 cr.)
EMO 500 Characteristics of Students with Emotional Disturbance (3 cr.)
EMO 501 Teaching Students with Emotional Disturbance (3 cr.)
EDU 700 Externship (6 cr.)
EDU 798
Total .................................................. .................. .................. .................. .................. ................. 42

Learning Disabilities
The Master of Education program in Learning Disabilities develops and refines the competencies needed for work with learning disabled students in resource and self-contained settings at all levels and in a variety of cultural environments. Students enrolling in the program who do not have at least two years of appropriate work experience in an educational setting will be required to complete two semesters of externship during the regular academic year and may be required to complete additional field work activities and/or credits. Students in bachelor’s degree or extended programs who are planning to enroll are encouraged to consult with program faculty for assistance in selecting elective courses that pro-
provide a sound foundation and may reduce the number of additional courses necessary for certification.

Program course work encompasses broad concepts of education, research, development, related disciplines, and special education to build a foundation of professional knowledge and understanding. Specialized courses develop the intensive diagnostic/remedial/decision-making/consultative skills and understandings required of a professional in learning disabilities, including the ability to recognize educational and social problems, to formulate effective individualized instructional interventions using a variety of methodologies and modifications, to incorporate accommodations and transitions into program plans, and to consult productively with appropriate personnel in the development of maximum educational opportunities for learning disabled children and youth.

Applicants for the M.Ed. program in Learning Disabilities who hold a valid teaching certificate are encouraged to complete two years of successful teaching prior to admission. Applicants who hold a bachelor’s degree in non-education or non-special education majors must complete a review process with program faculty as part of the admission process.

Foundations .......................................................... 9
A. Human Development and Learning (one of the following)
EDU 602 Adolescent Growth and Development
EDU 603 Seminar in Child Growth and Development
EDU/PSY 607 Advanced Educational Psychology
EDU 609 Learning Theories in Education
B. Cultural, Historical, and Philosophical (one of the following)
EDU 601 Philosophy of Education
EDU 608 History of Western Education
EDU 610 Social Foundations of Education
EDU 612 Education and the World’s Future
EDU 614 Contemporary Educational Thought
C. Research
EDU 660 Methods of Research
Special Education Core ............................................ 18
EDU 630 Trends in Special Education
EDU 631 Behavior Management of Students with Disabilities
EDU 633 Educational Assessment of Individuals with Exceptionalities
LDS 530 Language Disabilities: Assessment and Teaching
Academic Remediation Elective (select one)
EDU 566 Remedial Reading
EDU 569 Diagnosis and Remediation in Mathematics
Career/Vocational Elective (select one)
EDU 503 Guidance for Exceptional Children

REH 611 Individual Counseling Approaches in Rehabilitation
REH 623 Occupational Information, Analysis, and Placement
Specialization Core .................................................. 15
LDS 600 Characteristics of the Learning Disabled
LDS 601 Methods of Clinical Teaching
LDS 620 Advanced Educational Diagnosis of Developmental Processes or
LDS 621 Advanced Diagnosis of Learning Problems
EDU 700 Externship (6 cr.)

Total ............................................................... 42

Mental Retardation
The Master of Education in Special Education: Mental Retardation is a graduate program approved by the National Council on Accreditation in Teacher Education (NCATE). Graduates of the program may fill roles as resource room, modified resource room, or self-contained classroom teachers in varied urban, suburban, or rural areas. Some graduates are employed in residential programs for individuals with mental retardation or in programs in community or state department settings. The Commonwealth of Virginia certifies their employment in public or private settings serving students from kindergarten through secondary school age.

The course of study in the Master's program in Mental Retardation includes a minimum of 48 credits designed around three components: Foundation, Special Education Core, and Specialization in Mental Retardation. The Foundation component is comprised of 9 semester hours that focus on three distinct content areas: human development and learning; cultural, philosophical, and historical foundations; and research and evaluation methods. The Special Education Core of 18 semester hours focuses on curriculum that is rooted in special education for individuals with mental retardation as well as other disabilities. The Specialization in Mental Retardation is comprised of 15 semester hours that focus on the development of specific advanced competencies for filling the varying roles of professionals in mental retardation. With previous certification in mental retardation, the program will require approximately one year of full-time study for completion. Students seeking initial certification should consider the Master of Teaching which is designed for initial certification seekers.

Credits
Foundations .......................................................... 9
A. Human Development and Learning (one of the following)
EDU 602 Adolescent Growth and Development
EDU 603 Seminar in Child Growth and Development
EDU 604 Adult Development
EDU/PSY 607 Advanced Educational Psychology
EDU 609 Learning Theories in Education

B. Cultural, Historical, and Philosophical
(one of the following)
EDU 601 Philosophy of Education
EDU 608 History of Western Education
EDU 610 Social Foundations of Education
EDU 612 Education and the World's Future
EDU 614 Contemporary Educational Thought
EDU 673 Seminar on Educational Issues, Ethics and Policy

C. Research
EDU 660 Methods of Research

Special Education Core ............................................. 18
ASE 632 Administration and Supervision of Special Education
EDU 630 Trends in Special Education
EDU 632 Secondary Programming for Exceptional Students
EDU 633 Educational Assessment of Exceptional Students
LDS 530 Language Disabilities: Assessment and Teaching

Specialization Core .................................................. 15
MRT 556 Introduction to Mental Retardation (3 cr.)
MRT 560 Curriculum Design for Students with Mental Retardation (3 cr.)
EDU 566 Remedial Reading (3 cr.)
EDU 700 Externship (6 cr.)
EDU 798

Total ................................................................. 42

Severity and Profound Disabilities
(Admissions Currently Suspended)

The Master of Education program in Severe and Profound Disabilities is designed to prepare teachers to work with students ages five to 21 in public school settings. The program emphasizes functional assessment strategies; development, implementation, and monitoring of individual instructional programs; educational and community integration; and the role of the family. Successful completion of the program results in Virginia endorsement in Severe and Profound Disabilities, in addition to the Master of Education degree.

Credits

A. Human Development and Learning
(one of the following)
EDU 602 Adolescent Growth and Development
EDU 603 Seminar in Child Growth and Development
EDU/PSY 607 Advanced Educational Psychology
EDU 609 Learning Theories in Education

B. Cultural, Historical, and Philosophical
(one of the following)
EDU 601 Philosophy of Education
EDU 608 History of Western Education
EDU 610 Social Foundations of Education
EDU 612 Education and the World's Future
EDU 614 Contemporary Educational Thought

EDU 673 Seminar on Educational Issues, Ethics and Policy

C. Research
EDU 660 Methods of Research

Special Education Core ............................................. 18
ASE 632 Administration and Supervision of Special Education
EDU 542 Parent/Professional Partnership
EDU 631 Behavior Management of Exceptional Students
EDU 632 Secondary Programming for Exceptional Students
EDU 633 Educational Assessment of Exceptional Students

Restricted Elective (select one)
EDU 651 Community Based Instruction
MRT 602 Curriculum for Severely Handicapped Specialization Core .................................................. 15
EDU 558 Introduction to the Physically Handicapped (3 cr.)
EDU 700 Externship (6 cr.)
MRT 500 Language Intervention for Young Children and Learners with Severe Disabilities (3 cr.)
MRT 610 Teaching Strategies for the Severely Handicapped (3 cr.)

Total ................................................................. 42

EXTENDED TEACHER PREPARATION PROGRAM

Any undergraduate student admitted to the University who declares a major in the College of Humanities and Sciences is also eligible to designate a second major in early, middle, secondary or special education. Students in the Extended Program earn a baccalaureate degree in the College of Humanities and Sciences and a Master of Teaching degree in the School of Education. The baccalaureate is earned for prospective secondary teachers in the discipline they will teach (English, one of the foreign languages, a science, mathematics, history or one of the social studies). For prospective middle grade teachers, the majors most often pursued are English, history, one of the social studies, mathematics, or one of the sciences. For prospective early or special education teachers, any humanities or sciences major is appropriate. See Part III of the University's Undergraduate Bulletin for detailed information on the requirements of the various baccalaureate degrees in the College of Humanities and Sciences.

The Extended Teacher Preparation programs of study are integrated. Students begin working on the Qualifying Courses component in the fourth or fifth semester. Courses numbered 500 and above generally apply to the masters component of the program and, therefore, cannot be undertaken before the student has made a formal application to graduate study.
# Steps to Completing the Extended Program

<table>
<thead>
<tr>
<th>STEP</th>
<th>REQUIREMENT</th>
<th>PROCEDURES</th>
</tr>
</thead>
</table>
| **Admission to the University** | 1) Scores from Scholastic Aptitude Test (SAT) or American College Test (ACT)  
2) minimum 2.0 GPA from high school or previous college | 1) Declare an undergraduate major in College of Humanities and Sciences  
2) Declare a second Education graduate major. Early Education, Middle Education, Secondary |
| **Admission to Teacher Preparation (Upon completion of 60 hours of liberal arts course work and prior to the completion of 90 hours of course work)** | 1) 2.5 GPA  
2) Completion of: 6 hrs English,  
3 hrs Math, 4 hrs Laboratory Science, and 6 hrs Social Studies  
3) completion of National Teachers Examination (NTE General Knowledge and Communication Skills Subtests)  
4) Confirmation of Education major (if undecided) | 1) Complete Admission to Teacher Preparation Form available in the Office of Academic Services  
2) Complete required interview with education program faculty (Special Education requires interview with program faculty) |
| **Advancing to Graduate Study (Upon completion of at least 90 credit hours of undergraduate course work)** | 1) 2.8 GPA (students with 2.6-2.79 may be considered for provisional admission)  
2) Completion of EDU 300 | 1) Apply for Graduate Study. See *Admission Procedures for Graduate Study* above.  
NOTE: The Personal Statement should address reasons for seeking graduate education, including career goals; experience working with the age group to be taught; reasons for entering teaching; successes in organizing, planning, and implementing work with other individuals. |
| **Admission to Internship** | 1) 2.8 GPA  
2) Admission to Teacher Preparation and Advancing to Graduate Study  
3) Completed application and transcripts submitted by established deadline | 1) Obtain application form from Office of Academic Services  
2) Obtain approval signatures of professional studies advisor and copies of transcripts  
3) Submit completed application to Office of Academic Services by: October 1 for Spring Semester Internship; March 1 for Fall Semester Internship |
| **Admission to the Profession (During the Final Semester of Enrollment)** | 1) Complete all degree requirements  
2) Acceptable scores on the National Teacher Examination (NTE) Specialty Area andences and Professional Subtests | 1) Complete graduation applications for undergraduate degree in College of Humanities and Science graduate degree in the School of Education |

## Master of Teaching Program

The Master of Teaching program is designed for individuals seeking initial teaching certification in early education, middle education, secondary education, and special education. (Individuals who wish to obtain certification in Art Education, Music Education or Theater Education should see the *School of the Arts* section of this *Bulletin.* Applicants seeking initial certification as teachers in Virginia must have earned a liberal arts degree (or its equivalent) and pursue professional studies. Individuals planning to teach at the secondary level must hold the equivalent of an undergraduate major in the discipline.
they wish to teach and for which VCU offers the approved program teaching specialty.

Although not a requirement for admission, students should take the National Teacher Examination (NTE), General Knowledge and Communications Skills Subtests or its scheduled replacement, PRAXIS I either before application or during the first semester of study because it is a prerequisite for all clinical courses, including EDU 310.

Students may be able to transfer courses taken as an undergraduate in the Qualifying Courses (see below) portion of study upon the recommendation of their advisors, but may only transfer six credit hours of graduate level course work.

**Early Education, NK-4**

**Qualifying Courses**

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EDU 300 Foundations of Education</td>
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<tr>
<td>EDU 301 Human Development and Learning</td>
<td></td>
</tr>
<tr>
<td>EDU 310 Practicum (student must take 2 semesters/ 1 cr. then 2 cr.)</td>
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<tr>
<td>EDU 351 Children’s Literature</td>
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</tr>
<tr>
<td>EDU 414 Curriculum and Methods for Young Children</td>
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<td>EDU 422 Teaching Elementary School Mathematics</td>
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<tr>
<td>EDU 426 Teaching Reading and Other Language Arts</td>
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<td>PHE 390 Physical Education for Elementary Teachers</td>
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**Foundation Courses**

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<td>EDU 673 Seminar on Educational Issues, Ethics, and Policy</td>
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**Concentration Courses**

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<th>Credits</th>
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<td>EDU 517 Science Education in the Elementary School</td>
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<td>EDU 566 Diagnosis and Remediation in Reading</td>
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<td>EDU 591 Social Studies Education in the Elementary School</td>
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<td>EDU 624 Early Childhood Education Programs and Policies</td>
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<tr>
<td>EDU 626 Home/School Communication and Collaboration</td>
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**Elective**

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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Graduate electives in Education and academic areas.</td>
<td>3-6</td>
</tr>
<tr>
<td>EDU 660 Methods of Research is encouraged.</td>
<td></td>
</tr>
<tr>
<td>EDU 672 Internship</td>
<td>9</td>
</tr>
</tbody>
</table>

**Total**

<table>
<thead>
<tr>
<th>Credits</th>
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<tbody>
<tr>
<td>54**</td>
</tr>
</tbody>
</table>

*At least 33 credit hours must be taken at the graduate level.

**Middle Education, 4-8**

**Qualifying Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU 300 Foundations of Education</td>
<td>24</td>
</tr>
<tr>
<td>EDU 301 Human Development and Learning</td>
<td></td>
</tr>
<tr>
<td>EDU 310 Practicum (student must take 2 semesters/ 1 cr. then 2 cr.)</td>
<td></td>
</tr>
<tr>
<td>Restricted Elective (select one)</td>
<td></td>
</tr>
<tr>
<td>EDU 351 Children’s Literature</td>
<td></td>
</tr>
<tr>
<td>EDU 433 Literature for Adolescents</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>EDU 423 Teaching Math for Middle Education</td>
<td></td>
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<tr>
<td>EDU 426 Teaching Reading and Other Language Arts</td>
<td></td>
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<tr>
<td>PHD 390 Physical Education for Elementary Teachers</td>
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</table>

**Foundation Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU 607 Advanced Educational Psychology</td>
<td>6</td>
</tr>
<tr>
<td>EDU 673 Seminar on Educational Issues, Ethics, and Policy</td>
<td></td>
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</tbody>
</table>

**Concentration Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU 517 Science Education in the Elementary School</td>
<td>12</td>
</tr>
<tr>
<td>EDU 544 Curriculum and Instruction for Middle Grades</td>
<td></td>
</tr>
<tr>
<td>EDU 566 Diagnosis and Remediation in Reading</td>
<td></td>
</tr>
<tr>
<td>EDU 691 Social Studies Education in the Elementary School</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Graduate electives in education and academic areas.</td>
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</tr>
<tr>
<td>EDU 660 Methods of Research is encouraged.</td>
<td></td>
</tr>
<tr>
<td>EDU 672 Internship</td>
<td>9</td>
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</table>

**Total**

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>54**</td>
</tr>
</tbody>
</table>

*At least 33 credit hours must be taken at the graduate level.

**Special Education, K-12**

The Master of Teaching program in Special Education leads to dual certification in emotional disturbance and mental retardation. The professional sequence in the Special Education program is designed to develop competencies needed to work with children and youth in the areas of emotional disturbance and mental retardation.
Qualifying Courses .................................................. 25
EDU 300 Foundations of Education

Restricted Elective (select one)
EDU 301 Human Development and Learning
EDU 305 Educational Psychology
EDU 310 Practicum: Emotional Disturbance (2 cr.)
EDU 310 Practicum: Mental Disturbance (2 cr.)
EDU 330 Survey of Special Education
EDU 331 Human Interaction in Teaching

Restricted Elective (select one)
EDU 422 Teaching Elementary School Mathematics
EDU 423 Teaching Mathematics for Middle Education
EDU 426 Teaching Reading and Other Language Arts
EDU 468 Educational Diagnosis of Exceptional Individuals

Foundation Courses .......................................................... 6
Graduate Level courses selected in consultation with advisor.

Concentration Courses .................................................. 21
EMO 500 Characteristics of Students with Emotional Disturbance
EMO 501 Teaching Students with Emotional Disturbance
MRT 556 Introduction to Mental Retardation
MRT 560 Methods for Students with Mental Retardation

Restricted Elective (select one)
LDS 503 Language Disabilities: Assessment and Teaching
MRT 500 Language Intervention for Children and Learners with Severe Disabilities
EDU 631 Behavior Management of the Exceptional Student
EDU 632 Secondary Programming for Exceptional Students

Electives ................................................................. 3
Graduate electives in education and academic areas.
EDU 660 Methods of Research is encouraged.

Clinical Experience .......................................................... 12
EDU 672 Internship: Emotional Disturbance
EDU 672 Internship: Mental Retardation

Total ................................................................................. 67*

*At least 33 credit hours must be taken at the graduate level.

POST-BACCALAUREATE CERTIFICATE PROGRAM IN TEACHING

The Post-Baccalaureate Certificate program in Teaching is designed for students who have earned bachelor’s degrees in fields other than education, who wish to become teachers in one or more grades, kindergarten through 12, and for whom a masters degree is not a priority (applicants already may have earned a masters degree or wish to earn a masters degree in a specialized area of education later). Applicants are expected to have earned a liberal arts degree or its equivalent; those planning to teach at the secondary level must have a major or its equivalent in the subject they wish to teach.

Students for the certificate are required to complete a minimum of 24 hours beyond the bachelor’s level, including the courses below. The minimum number of hours, including some at the undergraduate level, varies by certificate track, with fewer hours (30 credit hours) required for secondary education, as high school teachers most frequently teach a single subject, than for elementary (44 credit hours), since teachers in elementary schools most often teach an array of subjects. Equivalent courses taken within the past five years may transfer; however, a minimum of 24 hours, including clinical experiences, must be taken at VCU after admission to the program.

Persons completing the program are expected, among other attributes, to have an understanding of human development and learning theory appropriate to the age group they will teach, to demonstrate knowledge of the subjects they will teach, to develop an understanding of purposes for education and a defensible philosophical approach toward teaching, to acquire awareness of the diversity of the school-age population in cultural background and styles of learning, to demonstrate an ability to plan and implement effective teaching, and to measure student learning in ways that lead to sustained development and learning.

Early Education, NK-4

Qualifying Courses .................................................. 17
EDU 300 Foundations of Education
EDU 310 (2 semesters, 1 cr. each)
EDU 351 Children’s Literature Test out option available.
EDU 414 Curriculum and Methods for Young Children

Restricted Elective (select one)
EDU 422 Teaching Elementary School Mathematics
EDU 522 Mathematics Education in the Elementary School
EDU 426 Teaching Reading and Other Language Arts

Foundation Courses .................................................. 6

Restricted Elective (select one)
EDU 603 Seminar in Child Growth and Development
EDU/PSY 607 Advanced Educational Psychology
EDU 673 Seminar in Educational Issues, Ethics, and Policy

Concentration Courses .................................................. 12
EDU 517 Science Education in the Elementary School
EDU 566 Diagnosis and Remediation in Reading
EDU 591 Social Studies Education in the Elementary School

Restricted Elective (select one)
EDU 624 Early Childhood Programs and Policies
EDU 626 Home/School Communication and Collaboration

Clinical Experience .................................................. 9
Middle Education, 4-8

Qualifying Courses ........................................... 11
EDU 300 Foundations of Education
EDU 310 Practicum (2 credits/semesters)
EDU 423 Teaching Mathematics for Middle Education
EDU 426 Teaching Reading and Other Language Arts
Foundation Courses ............................................ 6
Restricted Elective (select one)
EDU 602 Adolescent Growth and Development
EDU 603 Seminar in Child Growth and Development
EDU/PSY 607 Advanced Educational Psychology
EDU 673 Seminar on Education Issues, Ethics, and Policy
Concentration Courses ........................................... 12
EDU 517 Science Education in the Elementary School
EDU 544 Curriculum and Instruction for Middle Grades
EDU 566 Diagnosis and Remediation in Reading
EDU 591 Social Studies Education in the Elementary School
Clinical Experience ............................................ 9
EDU 672 Internship
Total ............................................................... 38

Secondary Education, 8-12

Qualifying Courses ........................................... 6
EDU 300 Foundations of Education
EDU 310 Practicum (2 credits/semesters)
Foundation Courses ............................................ 6
Restricted Elective (select one)
EDU 602 Adolescent Growth and Development
EDU/PSY 607 Advanced Educational Psychology
EDU 673 Seminar on Education Issues, Ethics, and Policy
Concentration Courses ........................................... 9
EDU 537 Secondary School Curriculum Restricted Elective (choose discipline for which certification sought)
EDU 540 Teaching Secondary School Science
EDU 542 Teaching Secondary School Foreign Languages
EDU 543 Teaching Secondary School Social Studies
EDU 545 Teaching Secondary School Mathematics
EDU 547 Teaching Secondary School Social Studies
EDU 548 Teaching Secondary School English
EDU 681 Investigation and Trends in Teaching Students should select section focusing on their discipline.
Clinical Experience ............................................ 9
EDU 672 Internship
Total ............................................................... 30

Ph.D. in Urban Services Program

JACK A. DUNCAN
Program Director

JEAN LOKERSON
Track Coordinator, Urban Services Leadership

CARROLL LONDONER
Track Coordinator, Adult Education and Training

MICHAEL DAVIS
Track Coordinator, Instructional Leadership

JOHN SEYFARTH
Track Coordinator, Educational Leadership

The Ph.D. in Urban Services program is interdisciplinary in curriculum, design, and management and serves a variety of special audiences. The program is organized into the following tracks:

1. Educational Leadership Track. Designed primarily for line administrative personnel in urban school units. Emphasis is placed on providing leadership training for superintendents, building principals, and assistant principals.

2. Instructional Leadership. Designed primarily for staff administrative personnel in urban school units. Emphasis is placed on providing leadership training for curriculum specialty coordinators and elementary, secondary, and post-secondary school department heads and supervisors.

3. Adult Education and Training Track. Designed primarily for personnel who will be responsible for the design and management of adult education and training functions in environments such as business and industry, county, state and federal agencies, and volunteer organizations. Emphasis is placed on leadership training for planning, developing, managing and evaluating training, adult, and continuing education programs. The program of studies is highly individualized and is based on the student’s professional goals, previous graduate courses and work experiences.

4. Urban Services Leadership Track. Designed primarily for persons employed in leadership positions in the urban community requiring less traditionally delineated academic preparation, emphasis in this track is placed on providing leadership training for administrators of community agencies and community organizations.

ADMISSION REQUIREMENTS

Applicants must have earned a master’s degree in an appropriate profession or discipline related to a specific curriculum track in this program. Preference will be given to applicants who occupy positions of organizational leadership and
have responsibility (or demonstrate potential) for planning, administering, conducting, and evaluating service programs.

The entrance requirements, described below in the Admission Packet and Entrance Requirements section, reflect the aims of the program to provide continued academic growth for practitioners. The entrance requirements consist of a series of indicators which serve to predict an applicant’s potential for successfully completing doctoral work. No indicator stands alone, and the program takes into account many facets beyond those traditionally considered. The program’s philosophy is one of seeking excellence through an admission process which realizes that many applicants are practicing professionals whose experience and achievements must be recognized.

Admission is highly competitive. Preference is given to qualified applicants who demonstrate serious purpose, scholastic excellence, superior preparation, and appropriate experience for the program.

APPLICATION PROCESS

Admission decisions rest with a faculty admissions committee and are made only on the basis of a complete application packet. There are two admission periods each year. To begin course work in the summer session or fall semester, the application packet must be completed by March 15th. To begin course work in the spring semester, the application packet must be completed by October 15th. It is possible to delay enrollment, but the application packets will be reviewed only during the above two periods.

The admissions committee will review all completed admission packets and choose the most qualified candidates to participate in the final selection process. This process consists of personal interviews and the proctored writing of a short essay. Once the interviews are complete, all applicants will be notified of their status.

To be selected for the interview and writing portion of the admission process, an applicant usually will have attained a cumulative grade-point average of at least 3.4 on all graduate work attempted and/or above average scores on the Aptitude Section of the Graduate Record Examination. However, no one facet of data automatically determines an admission decision.

ADMISSION PACKET AND ENTRANCE REQUIREMENTS

Applicants for admission to this program must complete an admission packet, which includes the Virginia Commonwealth University Application for Graduate Study, as well as supplementary essay materials. Admission packets are available from:

School of Graduate Studies
Virginia Commonwealth University
901 West Franklin Street
Room B1
Richmond, VA 23284-3051
(804) 828-6916

Office of Graduate Studies
School of Education
Virginia Commonwealth University, Richmond, VA 23284-2020
(804) 828-6530.

The entrance requirements fall into the three following categories: Academic Criteria, External Criteria, and Self-Expression.

Academic Criteria
1. A completed VCU Graduate School Application Form.
2. Two official and up-to-date copies of all transcripts of the applicant’s undergraduate and graduate record indicating that the applicant has earned a master’s degree from an accredited college or university.
3. Official and current scores (within the past five years) for the General Test of the Graduate Record Examination. Advanced test scores are not required but may be submitted. If applicants have taken the examination more than five years prior to the year of expected admission, they must retake the examination. Older scores may be submitted also; and the Admission Committee will consider the time elapsed since last formal schooling, occupational success, and leadership ability.

External Criteria
1. A professional vitae resume indicating an applicant’s educational and career experience, as well as evidence of leadership potential. This experience may come from professional, civic, religious, fraternal, or advocacy organizations. The applicant must present evidence of sustained experience in planning, leading, administering, or evaluating programs and personnel in varied positions that are related directly to a program track. The evidence might include dates of positions, job responsibilities, supervisor’s evaluations, publications, and important
knowledge that came from the position. Other appropriate evidence may include letters of recognition, awards, and professional memberships.

2. Completed forms from three references. The applicant must submit names, addresses, and telephone numbers of three persons qualified and willing to rate the applicant’s intellectual and leadership ability. If the applicant has attended school within the last three years, at least one of the references should be academic. Each of these persons completes a form rating the applicant in a number of personal and academic areas. Submission of these names constitutes permission to contact these persons by telephone anytime during the admission decision process.

In addition to these three names, the applicant should submit the name, address, and telephone number of his or her current job supervisor. This person may be contacted by a representative of the Admissions Committee and informed of the full scope and requirements of the doctoral program. The supervisor is expected to support the applicant’s educational goals and be willing to provide released time for externship and other program-related activities.

Self-Expression
The applicant is required to submit three written statements:

1. Personal Statement in which the applicant discusses his or her personal career goals and the manner in which this doctoral program enhances these goals, as well as what the applicant expects to contribute to this program.

2. Educational Goals Statement in which the applicant states his or her educational goals and the manner in which this doctoral program will help him applicant achieve these goals.

3. Work Experience Statement in which the applicant discusses his or her work experience, and previous and current leadership roles.

The applicant should treat these statements as a summary of goals and talents which go beyond, and do not duplicate, the other submitted materials. The applicant is encouraged to check, in advance of the deadline date, the status of his or her application packet to insure that all components are in the packet by the deadline date. Inquiries should be made to the Office of Graduate Studies, School of Education, at the above address. Incomplete packets will not be reviewed by the Admissions Committee. The Admissions Committee will review all complete application packets after the deadline date and will decide which applicants will proceed to the final admission stage.

FINAL ADMISSION STAGE
Applicants chosen for the final stage of the admission process will be invited to the University to be interviewed by faculty. In addition to the interviews, applicants will participate in a proctored writing of a short essay on a topic assigned at that time.

DELAYED ADMISSION
Anyone admitted for a particular year may request delay of one year for entrance to the program. Normally this request will be granted. Individuals requiring a further delay will be required to reapply for admission. The request for delayed admission must be transmitted in writing to the director of the Office of Graduate Studies and must state the reasons for the request and the date that the individual plans to begin the program.

TRANSFER CREDIT
Ph.D. in Urban Services students may transfer up to nine (9) credit hours to the program, including courses taken at VCU prior to being admitted to the program. Note that credits earned for one degree cannot be applied to another degree. The rules for transferring credit to this program are:

1. Transfer credit request will be considered only after the student has been awarded Continuing Doctoral Status.

2. There are no substitutes for the foundation courses, externship, or dissertation.

3. Each request for transfer credit must stipulate the program component to which it applies with attendant reasoning. Requests for transfer and substitution for a specific research or concentration course must include course syllabus, reading list, instructor’s name, and any other pertinent material. Each request for transfer credit must be approved by the director of Graduate Studies for the School of Education and must be judged appropriate for the development of the student’s concentration or cognate area.

4. To be valid for application to the program,
transfer credit must have been taken no more than seven years prior to completion of all program requirements for awarding the degree, including successful defense of the dissertation.

Students wishing exceptions to these transfer rules must petition the director of Graduate Studies through their advisors. Their recommendations may be reviewed by the Ph.D. in Urban Services Policy Board for final action.

Please see Part I of this Bulletin and the above section Transfer Credit for further policies governing transfer credit.

CURRICULUM
Curriculum Components
There are six components of the program leading to the Ph.D. in Urban Services:

1. Foundations Component (9 hours minimum). This component emphasizes theoretical and social issues in urban institutional development and changes that all leaders in urban service institutions must understand and respond to within their leadership positions.

2. Research Component (12 hours minimum). This component emphasizes the prerequisite skills essential to designing, conducting, and interpreting research. It also provides the research, statistical, and computer tools and resources necessary to produce research beneficial to the urban leader. Students are required to demonstrate competency in areas of research methodology and statistics appropriate to doctoral level study prior to enrolling for courses in this component.

An applicant’s level of research competence is considered prior to admission. Research related prerequisites and/or corequisites (such as EDU 660 Research Methods in Education) may be established for individuals based on past academic and/or work experience.

3. Concentration Component (15 hours minimum). This component is designed to allow the student to pursue a series of courses that provide a specific focus and serve as the student’s primary discipline. These courses are expected to develop the in-depth knowledge and skills in an identifiable area that is congruent with the student’s current or projected career field. It is at this point in the program that the student pursues study in one of the following tracks:

- Educational Leadership
- Instructional Leadership
- Adult Education and Training
- Urban Services Leadership

Students admitted to the Adult Education and Training track without prior course work in adult education may be required to take one or two prerequisite courses: ADE 601 The Adult Learner and ADE 603 Adult Education: Program Planning Management and Evaluation.

4. Cognate Component (9 hours minimum). This component is designed to allow the student to pursue, through coursework outside the primary discipline, a secondary field of study that complements the student’s concentration component.

5. Externship Component (3 hours minimum). The term externship refers to a minimum of 150 hours of on-site work experience designed to enhance the student’s program, career goals, and professional development. The externship site is outside the setting in which the student is employed currently and ideally in a different, but related, career area in which the student has had no or limited prior work experience. It is expected that the student will develop an appreciation for the network of service delivery systems in the urban setting and acquire additional leadership skills to function more effectively within that network.

Externships are developed jointly by the student and the student’s advisor and approved by the director of graduate studies. Students may begin the externship experience only after being awarded Continuing Doctoral Status. The required 150 clock hours of the externship may be extended over two consecutive semesters if appropriate.

6. Dissertation Component (9 hours minimum). This component consists of EDU 890 Dissertation Seminar, 3 hours, and EDU 899 Dissertation Research, 6 hours. EDU 890 Dissertation Seminar is designed to aid the student in identifying the resources and refining the skills required to initiate, develop, and complete a scholarly prospectus and dissertation. The remaining credit hours of EDU 899 Dissertation Research are assigned to the scholarly pursuit and completion of the dissertation.

7. Restricted Elective: (3 hours minimum). To be taken in either the Concentration, Cognate, or Dissertation Component.
Course Work  Credits
Foundation Component ........................................ 9
EDU 701 Adult Education
SOC 650 Theories of Social and Institutional Change
PHI 713 Ethics and Public Policy (or equivalent)
Research Component ........................................ 12
STA/SOC 508 Introduction to Social Statistics
STA/SOC 608 Statistics for Social Research
EDU 710 Educational Research Design
Restricted Elective (select one)
EDU 661 Educational Evaluation: Models and Design
EDU 711 Qualitative Research Methods and Analysis
Concentration Component ................................. 15

EDU 617 Instructional Models
EDU 701 Development and Implementation of Educational Policy
ASE 704 School Business Administration
ASE 705 Planning Educational Facilities
ASE 707 Advanced Educational Law
The Concentration and Cognate Components combined must include at least 9 credit hours outside of the School of Education.

Instructional Leadership Track (required sequence)
EDU 617 Instructional Models
EDU 701 Development and Implementation of Educational Policy
EDU 730 Educational Staff Development Procedures and Process
EDU 731 Instructional Theories and Strategies Elective

Adult Education and Training Track (recommended sequence)
ADE 700 Organizational and Administration of Adult Education and Training
ADE 701 Advanced Program Planning in Adult Education and Training
ADE 703 The Adult Education and Training Consultant
ADE 704 Group Training Process and Procedures Elective
The Concentration and Cognate Components combined must include at least 9 credit hours outside of the School of Education.

Urban Services Leadership Track
Courses in Career-relevant skills within an urban context with approval of advisor. Either the Concentration Component or the Cognate Component must be developed in the School of Education, but not both.

EDUCATIONAL LEADERSHIP TRACK

EDU 617 Instructional Models
EDU 701 Development and Implementation of Educational Policy
EDU 730 Educational Staff Development Procedures and Process
EDU 731 Instructional Theories and Strategies Elective

Adult Education and Training Track (recommended sequence)
ADE 700 Organizational and Administration of Adult Education and Training
ADE 701 Advanced Program Planning in Adult Education and Training
ADE 703 The Adult Education and Training Consultant
ADE 704 Group Training Process and Procedures Elective
The Concentration and Cognate Components combined must include at least 9 credit hours outside of the School of Education.

Instructional Leadership Track
Cognate must be developed outside if the School of Education.

Adult Education and Training Track
The Concentration and Cognate Components combined must include at least 9 credit hours outside of the School of Education.

Urban Services Leadership Track
Either the Concentration Component or the Cognate Component must be developed in the School of Education, but not both.

Externship Component ........................................ 3
Dissertation Component ........................................ 12

EDU 890 Dissertation Seminar
EDU 899 Dissertation Research
Restricted Elective ........................................ 3
Total ...................................................... 60

OTHER PH.D. IN URBAN SERVICES PROGRAM REQUIREMENTS

Residency Requirement. Ph.D. in Urban Services students are required to complete a minimum of twelve (12) credit hours each calendar year, commencing with the first semester in which the student enrolls for course work.

Continuing Doctoral Status. At the completion of fifteen (15) credit hours (excluding prerequisite courses), including at least nine (9) credit hours composed of Foundation courses, Research courses, and/or one (1) Concentration course, Ph.D. in Urban Services students are evaluated for Continuing Doctoral Status by the director of graduate studies. To attain Continuing Doctoral Status, the student must have attained a minimum cumulative GPA of 3.3.

Program Planning. Ph.D. in Urban Services students are required to submit a final plan of program study before the completion of the 27th credit hour of study.

Comprehensive Examination. Ph.D. in Urban Services students are required to pass a comprehensive examination at the completion of all course work (excluding the dissertation component). The examination is scheduled once each semester over a two-day period.

GRADUATE COURSES IN EDUCATION (EDU)

500 Workshop in Education. Semester course; 1-3 credit hours repeatable to 6 credit hours. Designed to focus on a single topic within a curriculum area, the workshop offers graduate students exposure to new information strategies and materials in the context of a flexible instructional framework. Activities emphasize a hands-on approach with direct application to the educational setting.

501 Working with the Student Teacher. 1-3 credits. A focus on the role of the cooperating teacher during the student teaching experience. Overview of techniques for working with student teachers and evaluating student teacher performance.

503 Guidance for Exceptional Children. Semester course; 3 lecture hours. 3 credits. An introduction to guidance strategies for assisting exceptional children. Special attention is given to the interrelationships of home, school, and community resources.

504 Film as a Teaching Resource. Semester course; 3 lecture hours. 3 credits. Exploring the film as a teaching resource. The course is designed to familiarize the students with thought provoking films. Over 50 films will be pre-
288 ▼ SCHOOL OF EDUCATION

sented. Especially helpful for the English teacher will be the exploration of the relationship between film and fiction. The humanities teacher will find a repertory of films on topics relating to historical and social questions useful.

507 Survey of Educational Media. Semester course; 3 lecture hours. 3 credits. Introduces the role of educational media and technology in the instructional process. Emphasizes the systematic design of instruction and the selection, evaluation, and utilization of media. Basic production skills and equipment operation are developed within a framework of designing appropriate learning activities.

509 TV in the Classroom. Semester course; 3 lecture hours. 3-6 credits. Video taped teaching learning materials for specified learner outcomes will be designed and produced. Educational broadcasting and the use of commercial broadcast programs will be examined.

514 Parent-Child Relations. Semester course; 3 lecture hours. 3 credits. A methods course in parent-child communications and problem solving. Designed to enable parents and professionals to understand and relate more effectively with children.

517 Science Education in the Elementary School. Semester course; 3 lecture hours. 3 credits. A course designed to renew and/or expand teachers' knowledge and skills in the teaching of science in the classroom and the community. New materials and methodologies will be examined in the light of current trends, research findings, and professional recommendations.

522 Mathematics Education in the Elementary School. Semester course; 3 lecture hours. 3 credits. A course designed to renew and/or expand classroom teacher's knowledge and skills in the teaching of mathematics. New materials and methodologies will be examined in the light of current trends, research findings, and professional recommendations.

523 Implementing and Administering Programs for Young Children. Semester course; 3 lecture hours. 3 credits. Provides the student with fundamental knowledge and skills in the implementation, supervision, and administration of educational programs in schools, centers, and homes for infants and young children. A problems approach will be utilized with emphasis on creative management and evaluative processes.

524 Cross Cultural Perspectives in Child Rearing and Early Education. Semester course; 3 lecture hours. 3 credits. Analysis of the impact of linguistic patterns, child rearing techniques, and socialization processes on the education of young children in various cultural settings.

525 Teaching Language Arts. Semester course; 3 lecture hours. 3 credits. Teaching techniques and materials for the developmental teaching of communication skills. Students will explore significant research and current literature related to content, organization, and instruction in language arts for the elementary and middle schools.

528 Children's Literature II. Semester course; 3 lecture hours. 3 credits. A study of classic and current children's books from a variety of literary genre. Magazines and media related reference resources and journals are reviewed. The creative use of literature, its sociocultural functions, and its contribution to the development of the oral and written expression of children from nursery to grade eight are explored. A focus on children with special problems is included.

531 Creative Teaching in the Elementary School. Semester course; 3 lecture hours. 3 credits. Designed for early childhood and elementary teachers and administrators. Diversified experiences drawn from various curriculum areas including the arts. Focus on the creative process and the role of the teacher in fostering creativity.

534 Photography in Instruction. Semester course; 3 lecture hours. 3 credits. Skills with cameras, films, papers, and other photographic equipment and materials. The use of these materials as tools for teaching and the skills for preparation of instructional resources will be discussed and practiced.

535 Problems of Social Studies Instruction. Semester course; 3-6 credits. Prerequisite: permission of instructor and appropriate teaching experience. An in-depth investigation into the nature of and alternatives to problems encountered by students while teaching. Developing and evaluating instructional alternatives will be stressed.

537 Secondary School Curriculum. Semester course; 3 lecture hours. 3 credits. Studies the background and objectives of the contemporary secondary school; basic issues, current trends and practices in curriculum construction and instructional planning are examined.

538 Orientation to Speech and Language Disorders. Semester course; 3 lecture hours. 3 credits. An introduction to the history, scope, and trends in the field of speech pathology to include terminology, systems of classifications, and concepts of etiology, diagnosis, and therapy.

540 Teaching Secondary School Science. Semester course; 3 lecture hours. 3 credits. Examines the teaching strategies, materials and objectives of the sciences in secondary schools. Emphases include reflecting the nature of science in science instruction, teaching of experimental design, and translating science education research into teaching practices.

541 Young Children with Special Needs. Semester course; 3 lecture hours. 3 credits. An overview of the nature and needs of young children with special needs, the rationale for early intervention, and available resources. This is a course for teachers and personnel in health professions and other related fields.

542 Parent/Professional Partnership. Semester course; 3 lecture hours. 3 credits. A course to provide theory and practice relevant to helping parents and other family members work with their handicapped child. This course will address the need to provide supportive counseling services, necessary community resources information, and specific training techniques for families with handicapped individuals. The legal rights of parents and their handicapped child will also be emphasized.

543 Teaching Secondary School Foreign Language. Semester course; 3 lecture hours. 3 credits. To provide insight into effective secondary school foreign language instruction and to afford opportunities to the participants to upgrade their foreign language skills in listening comprehension and speaking. Attention will be given to materials, methods, and techniques. Time will be available to observe an experienced teacher using the methods and techniques taught.
544 Introduction to the Middle School. Semester course; 3 lecture hours. 3 credits. An examination of the nature and capabilities of the middle school student, the school environment, teacher characteristics, instructional modes, the curriculum, and the future of the middle school movement.

545 Teaching Secondary School Mathematics. Semester course; 3 lecture hours. 3 credits. Prerequisite: upper-division mathematical sciences major. Examines materials, resources, innovations, procedures, methods, equipment, and learning principles appropriate for decision-making related to the teaching of secondary mathematics.

547 Teaching Secondary School Social Studies. Semester course; 3 lecture hours. 3 credits. Examines demands involved in secondary social studies instruction; preparatory approaches to using academic and professional insights in confronting the demands; formulating and implementing appropriate methodological approaches.

548 Teaching Secondary School English. Semester course; 3 lecture hours. 3 credits. Studies teaching strategies, materials and objectives for literature, language, and composition; developing and organizing English instruction; applying learning theory; examining evaluation strategies; questioning techniques, and classroom management.

549 Developmental Reading in the Secondary School. Semester course; 3 lecture hours. 3 credits. For prospective and practicing secondary school teachers. The course explores theoretical concepts in learning and reading, and the translation of these concepts into specific teaching procedures for students in the secondary school.

552/ENG 552 Teaching English As a Second Language. Semester course; 3 lecture hours. 3 credits. To provide students who plan to teach English to people whose native language is not English with the techniques used in teaching foreign languages. Contrastive analysis of morphology, phonology, and syntax is used to isolate areas of difficulty in learning English.

554/MAT 554 Applications of Computers in the Teaching of Mathematics. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: college calculus course or permission of instructor. Introduction to computers and programming using the language, BASIC. Applications of the computer in algebra, geometry, trigonometry, statistics, and calculus.

555 Geography in Social Studies Curriculum. Semester course; 3 lecture hours. 3 credits. A survey of geographic concepts and processes as a basis for examining curricular projects for and developing instructional approaches to geography as part of the social studies curriculum.

556 Computer Applications in Education. Semester course; 3 lecture hours. 3 credits. Designed for persons who use, or plan to use, computers in the educational process. Emphasis will be placed on the role of computer technology in education, applications in various educational fields, the selection and evaluation of appropriate software, and the design of basic instructional programs.

558 Introduction to Physically Handicapped. Semester course; 3 lecture hours. 3 credits. Graduate elective for special education majors. Review of a variety of physically handicapping conditions. Analysis of major issues such as architectural engineering, equipment adaptations and modifications, and new advances in treatment and prevention.

561 Reading Foundations: Sociological/Psychological Perspectives. Semester course; 3 lecture hours. 3 credits. The purpose of this course is to provide a basic understanding of the theories, processes, and methodologies of reading instruction. Multidisciplinary, multicultural aspects of reading instruction are stressed. Topics of particular importance to the classroom teacher are emphasized.

562 Reading Instruction in the Content Areas. Semester course; 3 lecture hours. 3 credits. Prepares teachers to apply skills and methods of reading instruction to content areas in elementary and secondary school curricula. Includes theoretical bases and methodology for incorporating reading skills within content areas of instruction.

564 Teaching the Gifted. Semester course; 3 lecture hours. 3 credits. Curriculum development and organization of activities for the gifted at different maturational levels with specific attention given to program content, materials, resources, and guidance.

566 Diagnosis and Remediation in Reading. Semester course; 3 lecture hours. 3 credits. Prerequisite: basic reading methods course or permission of instructor. Studies reading problems by focusing on reading diagnosis and correction related to classroom and clinic. Involves evaluating and tutoring individuals with reading difficulties. A supervised practicum is a component.

569 Diagnosis and Remediation in Mathematics. Semester course; 3 lecture hours. 3 credits. For classroom and resource teachers working with children whose arithmetic achievement is significantly lower than grade-level placement or expectancy level; designed to remediate learning problems in arithmetic at the child's level and to aid teachers in the sequential development of skills and concepts.

573 Introduction to Learning Disabilities. Semester course; 3 lecture hours. 3 credits. An overview of the learning disabled student within the educational setting through readings, discussion, simulations, and guided field experiences. Recommended for teachers and other personnel who seek the understanding and skills to cope with learning problems in their own setting. Not for program majors or endorsement.

575 Cross-Cultural Communications. Semester course; 3 lecture hours. 3 credits. An experimentally oriented seminar for persons preparing for or in careers demanding close working relations with numbers of differing cultural/ethnic backgrounds, primarily white/black. Supported by out-of-class readings and exercises, the seminar will focus on attitudes, opinions, and self-perceptions operative within the seminar and on relating these to race relations problems and change strategies within the larger society.

578 Creative Rhythmic Movement. Semester course; 3 lecture hours. 3 credits. A study of the importance and place of movement and music in a school program, and the uses of these media in teaching. Emphasis will be placed upon music as an accomplishment for movement and movement as an accomplishment for music. Attention will be given to analysis, improvisation, and creativity.
591 Social Studies Education in the Elementary School. Semester course; 3 lecture hours. 3 credits. A course designed to renew and/or expand the knowledge and skills of the classroom teacher in the teaching of social studies. Curriculum emphasis on the development of knowledge, skills, values, and attitudes will be examined in the light of professional recommendations, current trends, and research findings.

594 Topical Seminar. Semester course; 1-3 variable credits repeatable up to six credits. A seminar intended for group study by students interested in examining topics, issues, or problems related to teaching and learning.

595 Reference and Bibliography. Semester course; 3 lecture hours. 3 credits. A study and evaluation of basic reference books and other bibliographical material most frequently used to answer reference questions in a library, including applications of computer technology.

596 Library Organization and Administration. Semester course; 3 lecture hours. 3 credits. A study of fundamental methods, routines, and procedures in the acquisition, preparation, and circulation of books and other materials for libraries. Special emphasis is on the school library.

597 Cataloging and Classification. Semester course; 3 lecture hours. 3 credits. A basic course in cataloging and classifying library materials. Practice is given in using classification systems, subject headings, filing rules, and the use and adaptation of printed cards and cataloging aids.

598 Media Center Development. Semester course; 3 lecture hours. 3 credits. No prerequisites. The development and operation of a comprehensive library/media center requires a broad range of professional skills. This course will provide library/media professionals with knowledge and practice in the design and evaluation of media facilities and an understanding of the specific administrative supervisory skills needed to operate a comprehensive library/media center.

600 Organizing for Effective Classroom Instruction. Semester course; 3 lecture hours. 3 credits. Designed to assist teachers in becoming effective classroom organizers. Emphasis on the theory and application of instructional planning, behavior control, classroom environment, instructional materials, and teaching models. (For elementary and secondary teachers).

601 Philosophy of Education. Semester course; 3 lecture hours. 3 credits. A study of basic philosophies which have contributed to the present-day educational system. Attention will be given to contemporary philosophies and their impact on educational aims and methods.

602 Adolescent Growth and Development. Semester course; 3 lecture hours. 3 credits. Contemporary learning theories and their implications for teaching the adolescent learner. Emphasis will be placed on specific problems of adolescent growth and development as they relate to the learning situation.

603 Seminar in Child Growth and Development. Semester course; 3 lecture hours. 3 credits. Intensive study of child growth and development and application of this knowledge. Emphasis on current research.

604 Adult Development. Semester course; 3 lecture hours. 3 credits. An introductory study of adult development from the life cycle perspective with implications for educators working with adults. Emphasis will be placed on major physiological, psychological, sociological, and anthropological factors that make adults distinct from earlier developmental levels.

606 Review of Research. Semester course; 3 lecture hours. 3 credits, repeatable to nine credits. Application of research findings to a specific educational area of study. Emphasis is on the consumption and utilization of research findings rather than the production of research evidence.

607 Psychology. 607 Advanced Educational Psychology. Semester course; 3 lecture hours. 3 credits. Application of the principles of psychology to the teaching-learning process. Discussion will focus on the comprehensive development of individual learning experiences and educational programs from the point of view of the educator and the administrator.

608 History of Western Education. Semester course; 3 lecture hours. 3 credits. This course will explore the development of educational thought and practice from ancient times to the present, with special attention being given to the major issues confronting American education since its beginning.

609 Learning Theories in Education. Semester course; 3 lecture hours. 3 credits. A study of general learning theories applicable to education including the concepts and issues related to the teaching-learning process. Instruction and curriculum will be discussed to illustrate psychological principles of learning.

610 Social Foundations of Education. Semester course; 3 lecture hours. 3 credits. A study of significant social issues involved in the development and operation of schools and other educational institutions and processes.

611 Critical Investigations in Mathematics Education. Semester course; 3 lecture hours. 3 credits. Prerequisite: EDU 422/522 or permission of instructor. A critical investigation of current and appropriate learning theories, instructional activities, programs, and manipulative materials applicable to mathematics education in the elementary school. This course assumes an overall knowledge of the more prominent techniques and materials used to teach mathematics in elementary and middle schools. Students will undertake in-depth critical studies of alternative curricula, materials, and strategies based on experience, learning theory, and research findings.

612 Education and the World's Future. Semester course; 3 lecture hours. 3 credits. An examination of education as it relates to future changes in other areas: population, energy, transportation, family, etc. The course will consist of readings dealing with educational change as well as a series of modules where students will engage in future exercises, games, and projects.

613 Educational Change. Semester course; 3 lecture hours. 3 credits. Developing the skills for planned program change through the use of systematic inquiry, systems analysis, and systems approaches through systems concepts. Provides opportunities for students to develop "mini (classroom) changes" or "macro (school district) changes" through the use of systems.

614 Contemporary Educational Thought. Semester course; 3 lecture hours. 3 credits. This course will be devoted
to a critical examination of educational ideas and programs emanating from contemporary writings on education. Students will be encouraged to develop critical skills of analysis in examining such writings utilizing historical and philosophical perspectives.

615 Curriculum Development. Semester course; 3 lecture hours. 3 credits. A basic graduate course in curriculum development. Curriculum decision making is examined in relation to foundation areas, content areas and current educational trends. Various conceptions of curriculum are explored.

617 Instructional Models. Semester course; 3 lecture hours. 3 credits. An examination of instructional models with a focus on their analysis and adaptation to learning environments and school curriculum.

618 Curriculum Construction. Semester course; 3-6 lecture hours. 3-6 credits. A study of curriculum problems with special attention given to the organization and preparation of teaching units. The course is individualized to meet student needs and nature of study.

620 Designing Modular Instructional Packages. Semester course; 3 lecture hours. 3 credits. A study of the theory underlying simulation and instructional packages. Modular instructional packages will be developed with emphasis on their proper use as an instructional strategy.

621 Curriculum Seminar. Semester course; 3 lecture hours. 3 credits. A study of curriculum theory, research, and practice for advanced students. The seminar is an opportunity for students to integrate previous course work and professional experiences in curriculum.

622 Creative and Cognitive Development. Semester course; 3 lecture hours. 3 credits. Prerequisite: EDU 603. Application of theories of creative and cognitive development in teaching.

623 Child Study and Assessment in Early Childhood Education. Semester course; 3 lecture hours. 3 credits. Investigation and application of methods of observing, recording, and interpreting the behavior of young children. Review of criterion and norm-referenced measures for assessing capacities and needs in early childhood education as a baseline for prescribing/providing appropriate activities.

624 Early Childhood Education Programs and Policies. Semester course; 3 lecture hours. 3 credits. A study of Early Childhood Education paradigms including historical, federally-funded and current center and home-based programs. A review of legislation, state and federal, which has affected ECE program development.

625 Young Child and the Curriculum. Semester course; 3 lecture hours. 3 credits. Translation of curriculum development principles into appropriate curricular programs for young children. Impact of recent research on these curricula. Consideration of child development as related to planned activities and expected outcomes.

626 Home-School Communication and Collaboration. Semester course; 3 lecture hours. 3 credits. Studies the rationale, methods, programs and current research of home-school partnerships, preschool through secondary education.

627 Critical Investigations in Social Studies Education. Semester course; 3 lecture hours. 3 credits. Prerequisite: EDU 491 or permission of instructor. Assuming a knowledge of basic content and techniques in the teaching of social studies in elementary and middle schools, this course conducts a critical examination of various curricula and methodologies from the standpoint of current research, philosophical positions, and relevant learning theory.

630 Trends in Special Education and the Mainstream. Semester course; 3 lecture hours. 3 credits. Overview of mainstreaming, characteristics of exceptional individuals, integration, transition, and classroom adaptations for educating exceptional students in least restrictive environments.

631 Behavior Management of Exceptional Students. Semester course; 3 lecture hours. 3 credits. An in-depth analysis of theoretical models, research, strategies for managing behavior of students with various handicapping conditions. Emphasis on developing, implementing, and evaluating behavior management programs in special education programs.

632 Secondary Programming for Students with Disabilities. Semester course; 3 lecture hours. 3 credits. An examination of the special educator's role in the habilitation of handicapped adolescents. Designed to provide knowledge of the philosophy and principles of career and vocational education, continuing and post-secondary education, and social/leisure activities as applicable to exceptional individuals. Investigation of current efforts to guarantee employment opportunities.

633 Educational Assessment of Students with Disabilities. An examination of standardized tests and informational techniques, and their application in educational settings. Skills needed for administration, interpretation, and application of such techniques in the development and understanding of individualized educational programs (IEP's) are developed.

636 Introduction to Supported Employment. Semester course; 3 lecture hours. 3 credits. This course is an overview of strategies for delivering supported employment services to persons with severe handicaps. Emphasis is placed on job and contract development, job placement, job-site training, and follow-along. Content is appropriate for use in specialized industrial training, mobile work crews, sheltered enclaves, and supported competitive employment.

637 Developing and Implementing Supported Employment Programs. Semester course; 3 lecture hours. 3 credits. This course focuses on the development of comprehensive supported employment programs at the agency or community level. Course content includes strategies for the management and operation of supported employment programs, procedures for program evaluation, and methods for designing and implementing staff development programs.

641 Independent Study. Semester course; 1-6 credits, repeatable to nine credits. An individual study of a specialized issue or problem in education. Determination of the amount of credit and permission of the instructor and department chairman must be procured prior to registration. Cannot be used in place of existing courses.

648 Preparation of Instructional Materials. Semester course; 3 lecture hours. 3 credits. Prerequisite: EDU 407/507 or permission of instructor. Development of materials for the
classroom with an emphasis on determining medium, designing the message, producing the material, and evaluating the effect. The design of these materials will be predicated on the learning modes and instructional styles.

649 Educational Media: Theory and Practice. Semester course; 3 lecture hours. 3 credits. Prerequisite: EDU 407/507 or permission of instructor. An analysis of educational media with emphasis on the use of media in instructional design and development of teaching strategies.

651 Topics in Education. Semester course; 1-3 credits, repeatable to nine credits. A course for the examination of specialized issues, topics, readings, or problems in education. Check with department for specific prerequisites.

660 Research Methods in Education. Semester course; 3 lecture hours. 3 credits. Designed to provide an introductory understanding of educational research and evaluation studies. Emphasizes fundamental concepts, procedures, and processes appropriate for use in basic, applied, and developmental research. Includes developing skills in critical analysis of research studies. Analyzes the assumptions, uses, and limitations of different research designs. Explores methodological and ethical issues of educational research. Students either conduct or design a study in their area of educational specialization.

661 Educational Evaluation: Models and Designs. Semester course; 3 lecture hours. 3 credits. Prerequisite: EDU 660 or permission of instructor. A comprehensive review of the major evaluation theories and models including their focus, assumptions, designs, methodologies, and audiences in educational policy-making and program development. Designed for students to gain an understanding of alternative procedures of educational evaluation, an in-depth knowledge of at least one theoretical approach to evaluation, and skills in interpretation of evaluation studies for policy and in developing an evaluation design for their area of specialization.

662 Educational Measurement and Evaluation. Semester course; 3 lecture hours. 3 credits. To provide an understanding of basic concepts of educational measurement and evaluation. Includes development, interpretation, and use of norm-referenced and criterion-referenced measures, standardized instruments, and qualitative assessments applicable to a wide variety of educational programs and settings. Students study in-depth measurement and/or evaluation procedures in their specialization. Course is a prerequisite for more advanced courses in research and evaluation.

672 Internship. Semester course; 1-6 credits, repeatable to 12 credits. Prerequisite: permission of advisor. Study and integration of theory with practice in clinical or off-campus settings supervised by an approved professional and university faculty. May include seminars, selected readings, projects, and other activities designed and evaluated by supervising faculty.

673 Seminar on Educational Issues, Ethics, and Policy. Semester course; 3 lecture hours. 3 credits. An analysis of the ethical dimensions of educational policies and practices. Examines aspects of selected educational policies and practices, drawn in part from practical issues encountered in clinical settings. Investigates how educational policies and practices reflect ethical values and how those values are grounded.

681 Investigations and Trends in Teaching. Semester course; 3 credits, repeatable to nine credits. A course designed to familiarize teachers and prospective teachers with recent trends and developments in course content, strategies for organizing learning experiences, and in presenting course material in their classrooms. Laboratory experience may be incorporated where appropriate.

682 Curriculum Development in Science Education. Semester course; 3 lecture hours. 3 credits. A course for science teacher-developed curriculum innovations which emphasize the initiation of formal and informal classroom work on current scientific trends, as well as special class work and laboratory programs.

700 Externship. Semester course; 1-6 credits, repeatable to nine credits. Prerequisite: permission of department. Off-campus planned experiences for advanced graduate students designed to extend professional competencies, carried out in a setting, under supervision of an approved professional. Plan of work designed by extern with prior approval of the offering department. Externship activities monitored and evaluated by university faculty. State certification or equivalent may be required for some externships.

701 Urban Education. Semester course; 3 lecture hours. 3 credits. A study of urban education from historical and contemporary perspectives. This course includes study of the educative effect of urban environments; the development of public and private urban educational systems; the influence of social, political, and economic factors on urban educational programs; and the impact of theories, proposals, and practices on alternative futures.

705 Doctoral Seminar. Semester course; 3 lecture hours. 3 credits. Provides doctoral students with opportunities to investigate research areas related to their doctoral studies. Students and instructor will critique student conducted in-depth literature reviews and preliminary research proposals.

710/SOC 710 Educational Research Design. Semester course; 3 lecture hours. 3 credits. Prerequisites: graduate level statistics course and EDU 660 or equivalent, or permission of instructor. An examination of research designs and concepts commonly utilized in conducting research in applied educational settings. Fundamental principles of research are extended to cover such topics as quasi-experimental, multivariate, and qualitative research design.

711 Qualitative Methods and Analysis. Semester course; 3 lecture hours. 3 credits. Prerequisites: graduate level statistics course and EDU 660 or equivalent, or permission of the instructor. Examines qualitative research designs and inductive analysis, including research traditions, problems formulation in field work, purposeful sampling, interactive data collection strategies, research reliability and validity. An interdisciplinary approach is used. Students conduct a small field study in their specialization.

730 Educational Staff Development. Semester course; 3 lecture hours. 3 credits. Prerequisites: graduate standing, EDU 617. Provides educational leaders with the knowledge and skills necessary to design, implement, and evaluate staff development programs that focus on instructional improvement. Includes the application of staff development as part of teacher evaluation systems. Note: this course cannot be used
to meet a requirement for endorsement as a Supervisor of Instruction in Virginia.

731 Instructional Theories and Strategies. Seminar course; 3 lecture hours. 3 credits. Prerequisites: graduate standing, EDU 617 Instructional Models. Provides instructional leaders with the knowledge and competence necessary to apply and evaluate instructional strategies that are appropriate for students in nursery through twelfth grade schooling. The focus of the course will be on case studies, application of principles, use of simulation, and practical problem-solving approaches.

790 Educational Research Seminar. Seminar course; 3 credits. 3 lecture hours. Provides doctoral students with opportunities to investigate research areas related to their doctoral studies. Students and instructor will critique student conducted literature reviews and preliminary research proposals.

798 Thesis. Seminar course; 1-6 credits, repeatable to six credits. A research study of a topic or problem approved by the student's supervisory committee and completed in accordance with acceptable standards for thesis writing.

890 Dissertation Seminar. Seminar course; 3 lecture hours. 3 credits. Designed to develop and refine the skills applicable to the preparation of an acceptable draft of a dissertation prospectus.

899 Dissertation Research. Seminar course; variable credit; repeatable. A minimum of 12 semester hours required. Prerequisite: successful completion of Comprehensive Examinations and approval of student's Doctoral Prospectus. Dissertation work under direction of dissertation committee.

GRADUATE COURSES IN ADMINISTRATION (ASE)

600 Public School Administration. Seminar course; 3 lecture hours. 3 credits. An overview of the theory and practice of public school administration. Emphasis will be placed on the governance of education and leadership roles of school boards, superintendents, principals, and supervisors at the elementary and secondary levels. Appropriate field-based experiences relating theory to practice.

601 Processes of Instructional Leadership. Seminar course; 3 lecture hours. 3 credits. An examination of clinical supervision methods for use by principals and supervisors to facilitate instructional improvement in schools. Emphasis on collection and interpretation of observation and interview data for analysis of teaching problems and development of improvement strategies consistent with current research.

602 Seminar in Elementary School Administration. Seminar course; 3 lecture hours. 3 credits. Problems and issues in elementary school leadership. Major responsibilities of the elementary school principal. Enrollment limited to specialists in administration.

603 Seminar in Secondary School Administration. Seminar course; 3 lecture hours. 3 credits. Problems and issues in secondary school leadership. Major responsibilities of the secondary school principal. Enrollment limited to specialists in administration.

604 Principalship Seminar. Seminar course; 3 lecture hours. 3 credits. Problems and issues in school administration, K-12. A culminating experience designed to provide school administrators with essential understandings, knowledge, and skills necessary to maintain and renew a school. Particular emphasis will be placed on planning, vision setting, student and staff affairs, curriculum and instruction, and resource allocation.

605 Educational Administration and Organizational Behavior. Seminar course; 3 lecture hours. 3 credits. A study of organizational theory, structure, and culture relating to schools. Emphasis on conceptual understandings needed for practical implementation.

606 Development and Change in Educational Organizations. Seminar course; 3 lecture hours. 3 credits. A study of organizational concepts and practices in educational contexts. Emphasis on both conceptual understandings and specific professional skills relating to diagnosis and development.

607 Principles of Educational Leadership. Seminar course; 3 lecture hours. 3 credits. Prerequisite: graduate standing. Develop understandings for school leaders of effective leadership in organizations, personal leadership styles, and modifying leadership styles. Leadership with respect to vision building, organizational communications, motivating others, and group problem solving will serve as major areas of study. Lecture, individual study, group work, and field work will serve as major means of course delivery.

610 School and Community Relations. Seminar course; 3 lecture hours. 3 credits. New concepts and specific techniques in school-community relations for teachers, involvement in educational planning, involvement in community planning, and an examination of evaluative projects for community use. Appropriate field-based experiences relating theory to practice will be included.

611 School Law. Seminar course; 3 lecture hours. 3 credits. Legal aspects of school administration which include constitutional and statutory provisions and court decisions.

620 Improving School Programs and Performance. Seminar course; 3 lecture hours. 3 credits. Introduction to principles of administering outcomes-based instructional improvement strategies in schools. Applies testing and evaluation techniques to the problem of improving instruction, with an emphasis on identification, selection, and measurement of appropriate performance indicators.

621 Management of School Operations and Support Programs. Seminar course; 3 lecture hours. 3 credits. Prerequisite: graduate standing. Developing understanding and practices of the school principal with respect to key elements of managing school operations and support programs. Special attention will be given to goal setting for programs, securing, organizing, and managing human, material, and financial resources. Attention will be given to cost/time-effective practices and accountability.

632 Administration and Supervision of Special Education. Seminar course; 3 lecture hours. 3 credits. Practices and problems in providing school programs for handicapped and gifted children in both urban and rural communities discussed.
640 Public School Finance. Semester course; 3 lecture hours. 3 credits. Prerequisite: graduate standing. A study of theories, policies, and expenditures of school funds. Special attention will be given to the practice of educational finance within the public school structure. The course will include such topics as the school budget, financial accounting, purchasing and supply problems, school equipment, and school insurance.

641 School Personnel Administration. Semester course; 3 lecture hours. 3 credits. A study of the personnel function in educational organizations. Designed to explore techniques and problems of staff-personnel relationships in contemporary education.

642 Organization and Administration of Guidance Services. Semester course; 3 lecture hours. 3 credits. A study of organizational principles and procedures necessary for the effective administration of guidance services. Consideration is given to procedures used in establishing guidance programs or modifying existing ones (or both), including the study of various community resources that can contribute to more effective guidance services.

643 The Community School. Semester course; 3 lecture hours. 3 credits. The development and utilization of the community school concept will be examined. Community-wide use of school facilities and the involvement of the total community in the learning process will be studied. Emphasis will be placed on the physical plant design, organizational structure, staffing, and curriculum of the community school. The utilization of the community school to implement "life-long learning" will be stressed.

701 Development and Implementation of Administrative Policies in Education. Semester course; 3 lecture hours. 3 credits. Examines processes involved in developing and implementing educational policy from the perspective of the school administrator. Emphasis is given to the roles of federal and state governments in policymaking with attention to problems encountered in implementing educational policies.

702 Educational Administration: Contemporary Theory and Practice. Semester course; 3 lecture hours. 3 credits. Prerequisite: ASE 600 or equivalent. Study of recent developments in administrative theory and the application of these theories to contemporary and future educational issues and problems.

704 School Business Administration. Semester course; 3 lecture hours. 3 credits. Study of theories, principles, and practices of school business administration as they apply at the school district and school building levels.

705 Planning Educational Facilities. Semester course; 3 lecture hours. 3 credits. Study of the theory, principles, criteria, procedures, and practices of planning educational facilities and the modernization, maintenance, and operation of existing facilities.

706 Advanced Supervision of Instruction. Semester course; 3 lecture hours. 3 credits. Prerequisite: ASE 601 or equivalent. Examines the development of the curriculum and management of instruction in schools; particular attention to organizational processes in schools and their relationship to instruction.

707 Advanced Educational Law. Semester course; 3 lecture hours. 3 credits. Prerequisite: ASE 611 or equivalent. Study of the legal aspects of curricular decision making; the legal prerogatives and liabilities of school officials; and the legal responsibilities, rights, and liabilities of school personnel, school students, and parents of students.

GRADUATE COURSES IN ADULT EDUCATION (ADE)

600 The Adult Education Movement. Semester course; 3 lecture hours. 3 credits. Investigates the broad field of Adult and Continuing Education. Traces the historical development of the field and explores the functions and purposes of the current movement including the public and private institutions that provide adult education programs. Examines current philosophical underpinnings of adult education in a democratic society and the issues and trends that may affect the field in the future.

601 The Adult Learner. Semester course; 3 lecture hours. 3 credits. An examination of the research findings from the applied behavioral sciences that affect adult learning throughout the life span. Emphasis is placed on the intellectual functioning and differential changes with age; the importance of self-image psychology to successful adult learning activities; relevant learning theories and principles that affect adult learning, motivation, adult attitudes, and participation patterns will be explored.

602 Instructional Strategies for Adults. Semester course; 3 lecture hours. 3 credits. Prerequisite: ADE 601. Systematic curriculum development models and specific teaching techniques that are effective with adults will be studied. Emphasis will be placed on individualizing instruction and the use of multi-media strategies. The specific concepts of media centers, learning centers, and programed learning will be explored. Special attention will be given to techniques for the disadvantaged and undereducated.

603 Adult Program Planning, Management, and Evaluation. Semester course; 3 lecture hours. 3 credits. Various models of program planning, management, and evaluation appropriate for adult programs will be studied. Emphasis will be placed on program promotion, staff recruitment, in-service training, student personnel services, and program evaluation. Formative evaluation will be stressed to improve instructional strategies, validate student diagnosis and placement, and restate program objectives.

604 Adult Education Seminar. Semester course; 3 lecture hours. 3 credits. Restricted to second semester graduate students. Current problems in adult education are identified and discussed. Each student will review and report on research that is related to the problems identified. Emphasis will be on the synthesis and application of skills and knowledge gained in current and prior graduate courses.

620 Human Resource Development. Semester course; 3 lecture hours. 3 credits. General investigation and overview of the training function in educational, business, industrial, governmental, and voluntary organization. Emphasis on roles, functions, and responsibilities of the HRD practitioner and the relationship of training to personal and organizational effectiveness.
621 Skills Development for Human Resource Development. Semester course; 3 lecture hours. 3 credits. Designed to develop a variety of special skills that the HRD practitioner needs to employ as a trainer. Small group leadership, team building, conflict management, problem solving, and other interpersonal skills will be studied and applied.

622 Human Resource Development Training Interventions. Semester course; 3 lecture hours. 3 credits. An examination of major training interventions used by training specialists in human resource development. Particular attention will be given to interventions that are appropriate for one-to-one training, group training, and organizational development. Also discussed will be the design of conferences, institutes, retreats, and workshops. Emphasis will be on practice and demonstration of ability to use interventions appropriately.

700 Organization and Administration of Adult Education and Training. Semester course; 3 lecture hours. 3 credits. Focuses on the policies and procedures essential to organizing and administering adult education and training departments. Explores administrative theory, specific administrative tasks (e.g., staffing, budgeting) and administrative leadership as it relates to managing adult education and training units.

701 Advanced Program Planning in Adult Education and Training. Semester course; 3 lecture hours. 3 credits. Analyzes current approaches to program planning in adult education and training. Explores specific aspects of program planning, including needs analysis, managing large-scale program operations, and interorganizational relationships. Prerequisites: ADE 603 Adult Program Planning, Management, and Evaluation or permission of the instructor.

702 Diagnosing Training and Development Needs. Semester course; 3 lecture hours. 3 credits. This course examines the nature and characteristics of systematic diagnosis of the educational and training needs of organizations. It surveys, analyzes, and critiques instruments trainers use in the HRD effort. Emphasis will be placed on the translation of identified needs into problem statements and action plans for conducting training activities. (This is a concentration course in the Human Resource Development track of the Ph.D. program in urban services.)

703 The Adult Education and Training Consultant. Semester course; 3 lecture hours. 3 credits. Emphasizes the roles, responsibilities and skills of internal and external consultants working with adult education and training organizations. Analyzes change, intervention and stabilization processes, the roles and functions of consultants, phases of the consulting process, adoption and diffusion of consultant innovations and diagnostic skills of consultants. Critiques current consultant intervention models and strategies. Appropriate prerequisites required or permission of the instructor.

704 Group Training Processes and Procedures. Semester course; 3 lecture hours. 3 credits. A critical analysis and evaluation of current research findings and conclusions in group training processes and procedures. Major emphasis on large and small group methods, group leadership, and group dynamics with implications for training and education. Appropriate prerequisites, or permission of the instructor.

GRADUATE COURSES IN COUNSELOR EDUCATION (COE)

600 Introduction to Guidance. Semester course; 3 lecture hours. 3 credits. An introductory course for all students in counselor education. The course is designed for both elementary and secondary counselors and is a prerequisite to all other courses offered by the department of counselor education. It includes a survey of pupil personnel services and places special emphasis on those services associated with the guidance program.

601 Theories of Counseling. Semester course; 3 lecture hours. 3 credits. The theories upon which counseling is based will be presented, with particular attention placed on the research underlying the theories. The primary focus will be on providing students with a theoretical foundation upon which to base their counseling techniques.

602 Practicum: Techniques of Counseling. Semester course; 3 lecture hours. 3 credits. Prerequisites: COE 600 and COE 601 or permission of instructor. A study and application of a variety of counseling techniques employed in the counseling relationship. Emphasis will be placed on counseling skill development.

603 Group Procedures in Counseling. Semester course; 3 lecture hours. 3 credits. Introduction to the group process, group counseling, and group guidance contrasted and defined; basically theoretical.

604 Practicum: Group Procedures in Counseling. Semester course; 3 lecture hours. 3 credits. Prerequisites: COE 601 and COE 603. Utilization of small-group interaction as a vehicle to explore techniques and procedures common to human relations study. Focus on the teaching of interpersonal effectiveness, behavior objective identification, and developing of experiences relevant to leadership, communication skills, decision making, and development in affective or humanistic education.

605 Career Information and Exploration. Semester course; 3 lecture hours. 3 credits. Designed to provide the potential counselor with an understanding of theoretical approaches to career development grades K-adult. Emphasis will be given to the relationship between counselor and student(s) in the career exploration and decision making process. A review of occupational, educational, and personal/social information resources will be made.

606 Assessment Techniques for Counselors. Semester course; 3 lecture hours. 3 credits. An examination of individual and group tests will be made. Particular attention will be given to tests of intelligence, aptitude, achievement, interest, and personality. Emphasis will be placed on the importance of careful selection, appropriate administration, skilled interpretation, and effective use of assessment instruments used by counselors.

610 Guidance in Elementary and Middle Schools. Semester course; 3 lecture hours. 3 credits. An intensive study of guidance and counseling programs for children and young adolescents. Emphasizes the role of elementary and middle school counselors in developmental guidance. Methods for individual and group counseling and classroom guidance will be discussed and practiced.
620 Student Personnel Services in Higher Education. Semester course; 3 lecture hours. 3 credits. Prerequisite: COE 601. A course which focuses attention on administration decision making and problem solving in the area of student personnel services. Emphasizes the case study approach; students will participate in various administrative experiments requiring the employment of administrative theory and practice.

621 Secondary School Guidance Seminar. Semester course; 3 lecture hours. 3 credits. An advanced course designed to provide a means for intensive study of secondary school guidance. The approach will be to integrate the knowledge and skills from various disciplines as they relate to the work of the secondary school counselor. Emphasis will be given to appropriate teaching strategies and data collection procedures.

GRADUATE COURSES IN EARLY CHILDHOOD SPECIAL EDUCATION (ECH)

601 Assessment of Delayed Infants and Young Children. Semester course; 3 lecture hours. 3 credits. Provides knowledge and practical applications for the identification, placement, program planning, and evaluation of developmentally delayed children aged 0-five.

602 Instructional Programming for Delayed Infants and Young Children. Semester course; 3 lecture hours. 3 credits. Curriculum development, implementation, and evaluation for young children from infancy through preschool. Attention given to appropriate teaching strategies and data collection procedures.

603 Case and Program Management for Delayed Infants and Young Children. Semester course; 3 lecture hours. 3 credits. Examines provisions of state and federal laws applicable to service delivery systems for young developmentally delayed children and their families. Emphasis on funding mechanisms, staffing patterns, curricula delivery, service models, family participation options, resource coordination, and program evaluation procedures.

GRADUATE COURSES IN EMOTIONAL DISTURBANCE (EMO)

500 Characteristics of Students with Emotional Disturbance. Semester course; 3 lecture hours. 3 credits. Focuses on the nature of children and youth described as behavior disordered/emotionally disturbed with emphasis on the biophysical, sociological, and psychological factors which relate to their educational needs. Related topics include school identification and assessment procedures, classifications of disorders, and treatment approaches.

501 Teaching Students with Emotional Disturbance. Semester course; 3 lecture hours. 3 credits. Prerequisite: EMO 600. Provides an in-depth study of instructional strategies and organization of activities for behavior disordered/emotionally disturbed children and youth including curriculum, media, materials, and physical environment. Develops skills to plan and deliver instruction in a variety of educational settings including resource rooms, self-contained classes, and residential programs.

503 Interactive Strategies in Teaching Students with Special Needs. Semester course; 3 lecture hours. 3 credits. Strengthens teaching skills in affective education, social skills development, and life space interviewing techniques as methods of promoting human interaction skills among special needs pupils in schools. Focuses on professional skills in interpersonal relationships, communication, consultation, and teamwork.

GRADUATE COURSES IN ENGLISH EDUCATION (ENE)

532 Applied English Linguistics. Semester course; 3 lecture hours. 3 credits. Application of linguistic theories and methods to selected teaching problems, such as teaching English grammar and usage, teaching English as a second or foreign language, or teaching standard English to students who speak different dialects. May be repeated for credit.

601 Young Adult Literature. Semester course; 3 lecture hours. 3 credits. An extended examination of literature written for young adults, literature appealing to adolescents, literature appropriate for young people in middle schools and high schools. The course focuses on the content, characteristics, and teaching of such literature.

636 Teaching Composition. Semester course; 3 lecture hours. 3 credits. A study of the traditional and modern instructional strategies for teaching composition. The validity of strategies will be tested in the student’s own writing.

643 Teaching Basic Writing Skills. Semester course; 3 lecture hours. 3 credits. The emphasis of this course will be on developing the student’s ability to teach fundamental writing skills. It will include such topics as diagnosis of writing problems, strategies for correcting problems, and methods for evaluating progress.

694 Internship in Teaching Writing. Semester course; 1 lecture and 6 practicum hours. 3 credits. Observation and practice of instructional techniques in writing courses. By special arrangement the practicum may be done at a community college or other nonuniversity setting.

GRADUATE COURSE IN HEALTH EDUCATION (HED)

500 Teaching Health in the Public Schools. Semester course; 3 lecture hours. 3 credits. Minority health issues, family influences, teenage attitudes, and signs of progress in health behavior are examined in this course. School health programs, including remedial, classroom instruction, and environmental aspects of school life are also considered.

GRADUATE COURSES IN LEARNING DISABILITIES (LDS)

530 Language Disabilities: Assessment and Teaching. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor or equivalent. Studies normal oral language development as a basis for understanding students who experience specific or generalized difficulties in learning a first language. Includes diagnostic and instruction strategies with an emphasis on the inter-relationships of language content, form, and use.
600 Characteristics of the Learning Disabled. Semester course; 3 lecture hours. 3 credits. The nature and needs of the learning disabled with emphasis upon psychological and behavioral characteristics as related to educational needs.

601 Methods of Clinical Teaching. Semester course; 3 lecture hours. 3 credits. Prerequisites: EDU 633 or LDS 620, and LDS 600. Specific methodologies for teaching individuals with identified precognitive and cognitive learning disabilities. Includes the use of developmental, remedial, and compensatory approaches for instruction in basic skills and accommodation to individual learning styles.

611 Teaching the Learning Disabled Adolescent. Semester course; 3 lecture hours. 3 credits. Prerequisites: LDS 600 and 601, or permission of instructor. An advanced course in identifying, diagnosing, and remediating academic learning problems in the adolescent. Explores the organization, selection, and implementation of compensatory programs and methods under the impact of cognitive, motivational, curricular, social, and vocational factors.

620 Advanced Educational Diagnosis of Developmental Processes. Semester course; 3 lecture hours. 3 credits. Prerequisite: EDU 633 or permission of instructor. An advanced course in the assessment and diagnosis of educationally relevant developmental processes in exceptional students, including perception, cognition, language, and socialization. Develops skill in utilization and interpretation of educational purposes. Must be taken concurrently with Clinical Experience.

621 Advanced Educational Diagnosis of Learning Problems. Semester course; 3 lecture hours. 3 credits. Prerequisite: EDU 633 or permission of instructor. An advanced course in the assessment and diagnosis of educationally relevant learning skills in exceptional students, including language arts, mathematics, behavioral, vocational, and related skills. Develops skill in utilization and interpretation for educational purposes. Must be taken concurrently with Clinical Experience.

631 Aural Rehabilitation. Semester course; 3 lecture hours. 3 credits. A detailed review in techniques for teaching lip reading and auditory training for the hearing-impaired child.

GRADUATE COURSES IN MENTAL RETARDATION (MRT)

500 Language Intervention for Young Children and Learners with Severe Disabilities. Semester course; 3 lecture hours, 3 credits. Prerequisite: permission of the instructor. Studies intensely the early developmental stages of normal and deviant language acquisition, assessment procedures and intervention strategies appropriate for infants, preschoolers, and those with severe handicaps. Focuses on functional and interactive approaches to language facilitation and use with special attention to augmentative communication.

556 Introduction to Mental Retardation. Semester course; 3 lecture hours. 3 credits. Initial graduate offering for special education majors concentrating in mental retardation. Includes review and discussion of all ages, functioning, and levels of the mentally retarded. Analysis of major issues in mental retardation such as deinstitutionalization, need for community services, sterilization, client advocacy, and new advances in treatment and prevention.

560 Curriculum Design for Students with Mental Retardation. Semester course; 3 lecture hours, 3 credits. Prerequisites: EDU 330 or equivalent, and MRT 556. Examines issues and strategies required in selecting and developing curriculum for mentally retarded. Emphasizes three components: the content and behavior from resources used in teaching particular topics, the instructional design and procedures, and ways of managing instruction for the mentally retarded.

562 Curriculum for Severely Handicapped. Semester course; 3 lecture hours. 3 credits. Evaluation, selection, and adaptation of curricula and programs for severely handicapped students. Emphasis on appropriate content across grade levels and curricular domains.

510 Teaching Strategies for the Severely Handicapped. Semester course; 3 lecture hours. 3 credits. This course is designed to provide instruction in teaching methods for individuals with severe behavior, learning, or emotional handicaps. Emphasis will be placed on instructional program development, task analysis, and methods of precision teaching.

GRADUATE COURSES IN PHYSICAL EDUCATION (PHE)

500 Motor Development of Young Children. Semester course; 3 lecture hours. 3 credits. This course will deal with the development of small children, preschool, kindergarten, and first-grade children through physical education. Emphasis will be on the construction of a program of motor development for each of these three groups. The programs will be based on the research findings in such areas as perceptual-motor development, motor learning, educational psychology, and others. Those students and teachers in the fields of physical education, special education, and elementary education should find this course useful in developing programs of motor development for their students.

514 Physical Education for Special Populations. Semester course; 3 lecture hours. 3 credits. This course is designed to provide fundamental information to students at the graduate level on physical education programming of impaired, disabled, and handicapped children. Course content focuses on programming techniques and methods that are most effective in meeting the specific physical education needs of the individual child. Emphasis is on the Public Law 94-142 provisions currently affecting physical education programming for special populations; in particular, the development of specially designed physical education programs, on individualized education programs, and providing programming in the least restrictive environment.

521 Athletic Care and Training. Semester course; 3 lecture hours. 3 credits. The course is designed to give the student insight and understanding into the basic principles in the care and prevention of athletic injuries. Course content includes emergency first aid techniques, mechanisms of athletic injuries with an anatomical and kinesiological analysis of common injuries, and preventive and protective techniques.

600 Seminar in Motor Learning Performance. Semester course; 3 lecture hours. 3 credits. Analysis of early patterns of behavior and the development of physical skills in childhood, adolescence, and adulthood. Consideration of differences in motor proficiency and factors affecting the acquisition of motor skills and concepts of motor learning with reference to the improvement of instructional practices.
601 Movement Physiology. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Physiological processes in relation to bodily exercises in everyday life and sports activities. Physiological changes in the human organism due to movement. Investigation and application of research to physical education. Students must design, conduct, and complete a research study.

602 Development of Research Techniques in Physical Education. Semester course; 3 lecture hours. 3 credits. Theory and techniques involved in the analysis and interpretation of data pertinent to research in physical education. Basic statistics applied to data encountered in physical education research. Student must design, conduct, and write a pilot study.

603 Applied Fitness and Nutrition for Health and Physical Education Professionals and Coaches. Semester course; 3 lecture hours. 3 credits. Open only to Health and Physical Education Professionals with at least a bachelor’s degree. An in-depth study of applied fitness and nutrition areas which are vital to health and physical education teachers, coaches, health club instructors/directors and corporate fitness directors. Emphasis is placed on the application of knowledge and fundamental fitness and nutrition principles.

610 Exercise Physiology: Instrumentation and Techniques. Semester course; 1 lecture and 4 laboratory hours. 3 credits. Designed to integrate practical and theoretical aspects of exercise physiology; experiences will benefit the physical educator, the coach, the athletic trainer, and the physiologist. Units include setting up and operating a movement physiology laboratory and techniques of open-circuit spirometry, closed circuit spirometry, blood chemistry, and anthropometrics.

611 Mechanical Analysis of Human Motion. Semester course; 2 lecture and 2 laboratory hours. 3 credits. Anatomical relationships dealing with arthrology, myology, neurology, and physical principles as applied to mechanical and kinesiological interpretation of normal, abnormal, and growth and development functions. Students must design, conduct, and complete a research study.

612 Administration and Supervision of Physical Education. Semester course; 3 lecture hours. 3 credits. Guides for administrative and supervisory policies and problems in physical education. Observation techniques, standards for judging instruction, the supervisory conference, cooperative supervision. Emphasis placed upon the common problems met by administrators and supervisors.

613 General Motor Ability Evaluation. Semester course; 2 lecture and 2 laboratory hours. 3 credits. The theory of the construction of evaluative instruments in physical education with emphasis on a critical examination of existing measurement devices. Emphasis on the use of measurement as a tool for improving physical education programs.

614 Motor Assessment for Special Populations. Semester course; 3 lecture hours. 3 credits. Prerequisite: PHE 514 or permission of instructor. This course is designed to provide the student with basic information regarding motor tests and observational instruments that assess and evaluate special populations. The content of the course will focus on the analysis of these tests as to their 1) main components and items purporting to measure these components; 2) administration, i.e., time, administrator’s experience, group size, validity and reliability, and standardization; and 3) use in establishing and monitoring annual goals and short-term objectives for a handicapped child’s individualized education program.

621 Sports Medicine. Semester course; 3 lecture hours. 3 credits. Prerequisite: PHE 521 or permission of instructor. The course is designed to give the student knowledge in the advanced principles of prevention and treatment of athletic injuries. The course includes advanced first aid techniques and the more sophisticated means of athletic care and prevention. Students are exposed to such modalities as mechanical therapies, thermal therapy, cryotherapy, hydrotherapy, and electrotherapy. One major component of the course deals with therapeutic exercise and its use in the rehabilitation of the injured athlete.

GRADUATE COURSES IN READING (REA)

600 Analysis and Correction of Reading Problems. Semester course; 3 lecture hours. 3 credits. Prerequisite: EDU 561 or 549. An analysis of factors relating to reading disability. Diagnostic testing procedures and instructional strategies appropriate for the reading specialist in clinical and classroom settings will be emphasized.

601 Psycholinguistics and Language Arts Curriculum. Semester course; 3 lecture hours. 3 credits. An investigation of the psychological processes involved in language behavior and the relationship of these processes to the teaching of the basic communication skills.

602 Teaching Reading to Adults. Semester course; 3 lecture hours. 3 credits. An examination of strategies appropriate for teaching adult readers functioning at levels ranging from beginning to college level. Basic reading concepts, skills, and adult reading methods and materials are analyzed. Focus is on adapting teaching techniques for use with adults in various organizational patterns.

605 Organizing and Implementing Reading Programs. 3 lecture hours. 3 credits. Prerequisites: EDU 561, REA 600, EDU 672 or permission of instructor. Integrates reading theory with program implementation. Analyzes the role of reading specialist as related to program design, assessment, supervision, instruction, and resource responsibilities. Includes specific field-based requirements.

691 Topics in Reading. Semester course; 3 lecture hours, 3 credits. Examines recent trends and topics within the field. Includes review of pertinent research, examination of policy issues, and investigation of historical movements. Clinical application is included as appropriate. Prerequisites determined by topic.
he School of Nursing originated in 1893 as part of the University College of Medicine. Since then, the educational program has evolved from a basic diploma program to multiple programs at the baccalaureate, master’s, and doctoral degree levels. Continuing education, research, and outreach programs are included. The School of Nursing takes pride in its long history of service to the profession of nursing and continues to be a leader in nursing education in Virginia.

MASTER’S PROGRAM IN NURSING

The graduate program in nursing is based on the goals and the philosophy of the University and the School of Nursing. Differentiation between the undergraduate and the graduate programs is reflected in the philosophy and purpose of graduate education, the characteristics of the graduates, and the program objectives. The graduate program is designed to respond to national nursing needs through creative, flexible approaches to graduate nursing education.

Graduate education is professionally oriented and has three major thrusts: (1) integration of three processes including transmission, utilization, and development of knowledge in an advanced practice area; (2) development of increased skill in application of knowledge to advanced practice; and (3) development of an awareness of the interaction between sociopolitical and economic forces which have an impact on nursing practice in complex health care delivery systems. Advanced study emphasizes analysis and synthesis of knowledge from nursing and related disciplines with systematic investigation of underlying concepts. Graduates of this program should integrate this new knowledge into nursing practice. Graduates should occupy pivotal roles to improve health care and influence health policy in political arenas. With these three thrusts, graduates of this program have a knowledge base for further research and doctoral study.

Graduate education is directed toward professional practitioners who are self-directed in setting educational goals and in determining learning strategies best suited for their cognitive styles. With guidance and direction, adult learners should be able to integrate past experiences with current learning situations to expand their approaches to problem solving. Graduate education permits greater autonomy in more diverse environments for learning and practice including the political arena, all levels of the health care delivery system, and community agencies whose missions are directed towards meeting the health needs of their clients. The graduate program in nursing has several purposes:

1. to prepare nurses for advanced practice in an area of specialization utilizing their own
conceptual framework, constructed through advanced study;
2. to prepare nurses for advanced practice in an increasingly technological society;
3. to develop leadership skills in an advanced practice area; and
4. to provide a foundation for further research and scholarly study.

The School of Nursing offers programs of study leading to the Master of Science degree. Programs combining major study in a clinical area or functional role are:

<table>
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<tr>
<th>Major</th>
<th>Credits Required</th>
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<tbody>
<tr>
<td>Community Health Nursing</td>
<td>36</td>
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<tr>
<td>Gerontologic Nursing</td>
<td>36</td>
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<tr>
<td>MCN Perinatal Clinician</td>
<td>36</td>
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<tr>
<td>MCN Infant Child Clinician</td>
<td>36</td>
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<tr>
<td>Medical-Surgical Nursing</td>
<td>36</td>
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<tr>
<td>Nursing Administration</td>
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<tr>
<td>Nurse Executive</td>
<td>42</td>
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<tr>
<td>Clinical Manager</td>
<td>45</td>
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<tr>
<td>Oncologic Nursing</td>
<td>36</td>
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<tr>
<td>Psychiatric-Mental Health Nursing</td>
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<tr>
<td>Child and Family Psychiatric Mental Health Nursing</td>
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<td></td>
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<tr>
<td>Primary Care Nurse Specialist</td>
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<tr>
<td>Family Nurse Practitioner</td>
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<tr>
<td>Adult Nurse Practitioner</td>
<td>42</td>
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<tr>
<td>Women’s Health (OB/GYN)</td>
<td>39</td>
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<tr>
<td>Pediatric Nurse Practitioner</td>
<td>39</td>
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<tr>
<td>Gerontologic Nurse Practitioner</td>
<td>42</td>
</tr>
</tbody>
</table>

Students electing to do a thesis will add 3 credits to these totals.

ADMISSION REQUIREMENTS AND PROCEDURES
The purpose of the following admission requirements and procedures is to encourage applications from competent students and to ensure selection of those whose ability, education, and motivation qualify them to pursue successful graduate study in nursing.

To be considered for admission, an applicant must have:
1. A Bachelor of Science in nursing from an NLN accredited school or a baccalaureate degree in another field with a lower division nursing education (associate degree or diploma). Applications from registered nurses holding baccalaureate degrees in other fields are reviewed individually.
2. Transcripts reflecting completion of undergraduate courses in statistics and health assessment. These courses may be taken after admission for students enrolled in part-time study.
3. Acceptable scores on the Graduate Record Examination (Aptitude Test only).
4. TOEFL scores of greater than 550 for international students.
5. Current license to practice as a registered nurse in Virginia. Professional liability insurance is highly recommended.
6. References from the applicant’s undergraduate program in nursing and from employers.
7. A personal interview may be requested.

Preference will be given to applicants with a minimum of one year of practice within the past five years.

Admission to study in the Nurse Executive Program requires a minimum of one year of management experience. One course in financial accounting is a prerequisite, as well as an undergraduate course in economics.

Applications and bulletins can be obtained from the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051.

Additional program information and advisement can be obtained through the Associate Dean for Graduate Programs, School of Nursing, Virginia Commonwealth University, Richmond, VA 23298-0567.

Applications are reviewed by the School of Nursing. Applicants will be notified of action by the dean of the School of Graduate Studies. Applicants who are granted provisional admission are responsible for satisfying the provision or may be subject to dismissal. Applicants should accept an admission offer in writing and submit a tuition deposit as instructed in their admission letters. The tuition deposit is not refundable but will be applied to tuition during the first semester of enrollment in courses.

SPECIAL STUDENTS
Students who have not been admitted to a graduate program in nursing may be permitted, at the discretion of the School of Nursing, to enroll in individual courses. Only six credits earned as a special student can be applied to the master’s degree.

ENROLLMENT
Students may begin study during fall, spring, or summer sessions. Students will have an academic advisor appointed and should plan a pro-
gram of study upon admission. Once admitted, students are expected to abide by enrollment policies of the School of Graduate Studies.

SCHOLARSHIPS, GRANTS, LOANS

Applications for financial assistance must be filed for all forms of financial assistance, including traineeships. An application for financial assistance is included in the graduate application or may be obtained from the Financial Aid Office, Virginia Commonwealth University, Richmond, VA 23298-0244.

Limited financial assistance is available through traineeships and scholarships administered by the School of Nursing. A copy of the application for financial assistance should be filed with the dean of the School of Nursing.

GRADUATION REQUIREMENTS

To be a candidate for the degree of Master of Science in nursing, students must be recommended by the faculty and must

1. Meet academic requirements of the School of Graduate Studies.
2. Complete all requirements for the prescribed curriculum within five calendar years of the first registration for work to be credited toward the degree.
3. Earn at least a “B” grade in all nursing courses.
4. Earn at least a cumulative average of 3.0 in all work presented for graduation.
5. Conform to School of Nursing policies in respect to pass-fail grading for course work or thesis study.
6. Complete one of the following requirements:
   a. preparation and defense of a thesis by oral examination at least two weeks before the commencement exercise at which the student expects to receive the degree, and submission of four copies of the thesis prepared according to the standards approved by the University Graduate Council.
   b. a final oral presentation to faculty and peers of a paper prepared for one of the non-thesis option courses: NUR 671 Nursing Research II or NUR 691 Nursing Research Practicum.

The degree will be granted only after all requirements have been fulfilled, all fees to the university have been paid, and bound copies of the thesis have been submitted. Degrees are not granted in absentia unless written request is made to the dean, and permission is granted.

ACADEMIC REQUIREMENTS

1. No student may proceed in the program with a GPA of less than 3.0 or with a grade of less than “B” in any nursing course without the approval of the Associate Dean for Graduate Programs, School of Nursing.
2. An advisor for each student is appointed by the department chairman. That advisor will assist the student in program planning, registration procedures, and certification for graduation.
3. The two non-thesis option courses NUR 671 Nursing Research II and NUR 691 Nursing Research Practicum require the successful completion of a paper of publishable quality and an oral presentation of the paper to faculty and peers.
4. Following are the requirements for students electing the thesis option:
   a. Committee formation:
      1) With the approval of the Department Chair, the student selects a thesis committee of not fewer than three University faculty. One member must be outside the major department and may be outside the School of Nursing.
      2) The student selects the committee chair from School of Nursing graduate faculty but not necessarily from the student’s major department.
      3) The student provides each member of the committee with a copy of the thesis in accordance with the School of Graduate Studies Thesis and Dissertation Manual.
   b. Committee responsibilities:
      1) The committee monitors the design and conduct of the research and the preparation of the thesis.
      2) The committee serves as the examining committee for the thesis. A member of the graduate faculty is selected by the Associate Dean for Graduate Programs to moderate the committee and represent the Dean.
      3) Committee members read and approve the thesis and participate in the final oral examination of the student. The final examination is open to faculty and students. The time and place, together with the candidate’s name, department, and thesis title, shall be announced in the School of Nursing ten days in advance of the examination.
c. Outcome:
1) Each member of the examining committee will attend and cast a vote.
2) A favorable vote of the examining committee with no more than one negative vote shall be required to pass the oral examination.

MASTER OF SCIENCE DEGREE
Program Requirement

Major: Minimum 9 credits. Varies by specialty.

Core

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>NUR 500 Theories and Models for Nursing</td>
<td>3</td>
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<tr>
<td>NUR 570 Nursing Research I</td>
<td>3</td>
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Core/Support

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<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>NUR 502 Advanced Pharmacotherapeutics for Nurse Practitioner Practice</td>
<td>3</td>
</tr>
<tr>
<td>NUR 505 Clinical Teaching in Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NUR 506 ANP: Sociopsychologic Concepts</td>
<td>3</td>
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<tr>
<td>NUR 507 ANP: Biopsychologic Concepts</td>
<td>3</td>
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<tr>
<td>NUR 508 ANP: Health Care Delivery and Management</td>
<td>3</td>
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<tr>
<td>NUR 511 Health Assessment for Advanced Nursing Practice</td>
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Specialty Advanced Practice Courses. Varies by major.

Practica Courses

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<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>NUR 669 Primary Care Nurse Specialist Preceptorship</td>
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<tr>
<td>NUR 696 Advanced Practicum in Nursing Administration I</td>
<td>3</td>
</tr>
<tr>
<td>NUR 695 Advanced Practicum in Nursing Administration II</td>
<td>3</td>
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Synthesizing/Culminating Courses

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<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>NUR 671 Nursing Research II</td>
<td>3</td>
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<tr>
<td>NUR 691 Nursing Research Practicum</td>
<td>3</td>
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<tr>
<td>NUR 798 Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

TRANSFER CREDIT

Students may take 12 of the required credits at another institution and transfer these to VCU. The School of Nursing will determine the acceptability of courses for transfer credit.

MASTER OF SCIENCE DEGREE
PROGRAMS
Community Health Nursing

The graduate program in community health nursing prepares advanced practitioners to provide leadership and deliver care to communities, families, and individuals. Advanced community health nursing practice is directed toward promoting, rehabilitating, and preserving the health of populations by integrating skills and knowledge relevant to nursing and public health. Community health nursing practice is comprehensive and general and involves continuous interventions over time and across the life span in a variety of settings. Courses required: NUR 571, 612, 613, 614, BIS 521.

Primary Care Nurse Specialist
(Nurse Practitioner)

Graduates are prepared to provide care to selected populations—women, children, families, adults, or older adults. The nurse specialist is prepared to provide primary health care to clients, groups of clients, and their families in a variety of settings. The knowledge and skills of advanced practice provide the graduate with the ability to manage the health care of clients, teach, counsel, and work collaboratively with other health care professionals. The curriculum includes content related to physical and psychological assessment, management of primary health problems and chronic diseases for selected client populations as well as content on the development of advanced nursing practice roles and research. In addition to a required advanced health assessment course and NUR 502 for all primary care options, the following courses are required by program: FNP NUR 511, 631, 641, 644, 662, 664, 665, 666; PNP NUR 511, 631, 641, 644, 645, 646; OGNP NUR 511, 631, 635, 636, 666, 664; ANP NUR 511, 606, 631, 662, 664, 665, 666 and two additional clinical courses selected in consultation with advisor; GNP NUR 511, 606, 662, 664, 665, 666 and two additional clinical courses taken in consultation with advisor.

Gerontologic Nursing

The major in gerontologic nursing prepares graduates to assume leadership positions in the care of the aged in a variety of community and institutional settings. Emphasis is placed in developing beginning research capabilities and clinical skills for promotion, maintenance, and restoration of health. Innovative roles for nurses in meeting the health care needs of older adults are explored. The curriculum builds upon theoretical knowledge from the behavioral, social, and biological sciences related to aging. The implications of aging for the individual, family and community are examined. Courses required: NUR 603, 604, 605. In addition, an advanced health assessment course is required.
Maternal/Child Nursing: Perinatal or Infants and Children

Graduates are prepared to provide care to selected high-risk populations perinatal or infant/child in hospital (levels II and III) and home settings. The nurse specialist is prepared to provide care to patients, groups of patients, and their families. The knowledge and skills of advanced nursing practice provide the graduate with the ability to teach, counsel, and work collaboratively with other health professionals. The curriculum includes content related to physical and psychological assessment, assessment of risk, nursing management skills for emergency, critical, and follow-up care of selected patient groups as well as content on the development of advanced nursing practice roles and research. Courses required: Perinatal-NUR 511, 635, 636, 666; Infant/Child-NUR 511, 644, 645, 646.

Medical-Surgical Nursing

The focus of the Graduate Program in Medical-Surgical Nursing is on the care of the acutely ill patient. Clinical experiences are provided at MCV Hospitals, one of the largest university-based hospital complexes in the nation. MCV Hospitals provides primary and secondary care to the Richmond metropolitan area, is a Level 1 Trauma Center, and serves as a tertiary care referral center for the Southeast. The opportunity to interact in the community, as well as study within the hospitals complex, offers students breadth of preparation. Courses required: NUR 507, 626, 628, 629.

Psychiatric-Mental Health Nursing

This program prepares advanced practice clinicians in psychiatric-mental health nursing. Students achieve a measure of expertise toward meeting both professional and personal goals through an individually planned program of education. Practice in clinical settings is selected on the basis of goals. Individual and group supervision is provided for students’ clinical work. Students have access to multidisciplinary experts in planning and implementing care for individual clients and their families and for persons and/or groups in the community. Courses required: NUR 654, 655, 656, group dynamics. A subspecialty program option in child and family mental health in the public mental health system is available. Two subspecialty courses, NUR 657, 658, emphasizing minority informed content and the delivery of culturally compatible nursing services, are required along with NUR 655, 656 and group dynamics.

Oncologic Nursing

This program prepares the student for advanced practice in adult, oncologic nursing. Emphasis is placed on prevention and screening, diagnosis and treatment. Clinical experiences are provided in inpatient units at MCV Hospitals, the outpatient services of the Massey Cancer Center, and the Cancer Rehabilitation and Hospice programs. Courses required: NUR 507, 622, 624, 628, 629.

Nursing Service Administration

The Department of Nursing Administration and Information Systems offers two programs, the Executive Program and the Clinical Nurse Manager Program. The Executive Program prepares graduates to assume top-level management positions in nursing service administration. Admission to study in the Executive Program requires a minimum of one year of management experience. Students enroll in courses in the School of Nursing, the Department of Health Administration, and the School of Business. The focus of the program is both theoretical and experiential and seeks to promote the integration of administrative and nursing theories. Administrative practica are planned individually to capitalize on students’ backgrounds and to promote the development of new skills.

Forty-two credits are required. One course in financial accounting is a prerequisite, as well as an undergraduate course in economics. Part-time students will take accounting at an appropriate time early in their programs. In addition, prior to enrolling in NUR 685, students are expected to have developed skills in using personal computers, i.e., word processing and spreadsheets. Students should meet with their advisors early in their programs to discuss the available alternatives to meet this requirement. Courses required: NUR 508, 681, 685, 686, 692, 695 and HAD 606, 607, 614, 624.

The Clinical Nurse Manager Program is designed for individuals who want advanced education in a clinical specialty area as well as in nursing management. The program prepares individuals for first-line management positions in acute care facilities. Clinical as well as integrated clinical/administrative practica provide students with opportunities to apply theoretical content in actual patient care situations.

The program is available in the following areas: medical-surgical nursing (45 credits), oncology nursing (45 credits), obstetric nursing (45 credits), psychiatric mental health nursing (45 credits), child/family psychiatric nursing (45 credits), word processing and spreadsheets. Students should meet with their advisors early in their programs to discuss the available alternatives to meet this requirement. Courses required: NUR 508, 681, 685, 686, 692, 695 and HAD 606, 607, 614, 624.

The Clinical Nurse Manager Program is designed for individuals who want advanced education in a clinical specialty area as well as in nursing management. The program prepares individuals for first-line management positions in acute care facilities. Clinical as well as integrated clinical/administrative practica provide students with opportunities to apply theoretical content in actual patient care situations.

The program is available in the following areas: medical-surgical nursing (45 credits), oncology nursing (45 credits), obstetric nursing (45 credits), psychiatric mental health nursing (45 credits), child/family psychiatric nursing (45 credits), word processing and spreadsheets. Students should meet with their advisors early in their programs to discuss the available alternatives to meet this requirement. Courses required: NUR 508, 681, 685, 686, 692, 695 and HAD 606, 607, 614, 624.
credit, gerontological nursing (48 credits), and pediatric nursing (45 credits).

Courses required depend on student's choice of clinical area.

CLINICAL FACILITIES
A variety of urban and rural agencies, including community, medical centers and state hospitals, public health services, private clinics and offices, federal and state centers and departments, are available for clinical study. These facilities provide generalized and specialized inpatient and ambulatory services for maternal and child health, psychiatric-mental health, medical and surgical treatment, geriatrics, and oncology. Selection of specific facilities for student experience is based upon the needs of the individual student and the services available within the facility.

THE DOCTORAL PROGRAM IN NURSING
The purpose of the doctoral program is to prepare scholars and researchers in nursing with the depth of educational preparation to engage in significant independent investigation in areas critical to the advancement of clinical nursing practice and nursing administration. The degree awarded is the Doctor of Philosophy (Ph.D.)

The doctoral program is in the process of revision. Potential applicants should contact the Associate Dean for Graduate Programs in the School of Nursing for specific information. The following description applies to the 1993-1994 academic year. There are two distinct concentrations. The focus in nursing administration prepares nurses for research and/or educational positions in a variety of settings, including academic, corporate, public, and private institutions concerned with the delivery of patient care and health services. Students in the nursing administration concentration may choose to focus in one of two broad research areas: the study of economic and policy issues related to the allocation of health and nursing resources, or the study of organizational issues centering on the assessment, design, and evaluation of nursing management structures in complex health care organizations. The clinical science option prepares nurses to engage in microbiological/immunological research related to the clinical practice of nursing, particularly the study of the pathogenesis and epidemiology of hospital acquired infection, autoimmune disease, human response to viral and bacterial agents, and transplantation immunology. The clinical science program is offered cooperatively with the Department of Microbiology and Immunology in the School of Basic Health Sciences.

Admission Requirements
1. Applicants must have both a bachelor's and a master's degree, one of which must be in nursing. The degree in nursing must be from an NLN accredited school.
2. Official transcripts of all undergraduate and graduate work, with a grade point average of 3.0 on a 4.0 scale.
3. Letters of recommendation from three individuals judged by the applicant to be able to evaluate the student's potential for advanced graduate study.
4. Satisfactory scores on the verbal, quantitative, and analytic sections of the Graduate Record Exam.
5. International applicants must have TOEFL score of greater than 550.
6. A typed, personal letter from the applicant summarizing professional and academic experience, immediate and long-range professional goals, and rationale for pursuing advanced study.
7. A personal interview is required.

Prerequisites
1. A graduate-level statistics course is required of all students prior to beginning course work.
2. An upper division undergraduate economics course is required prior to enrolling in HAD 624.
3. Clinical science students must have a minimum of three credits in upper-level undergraduate organic chemistry.
4. Nursing administration students without a master's degree in nursing administration must have the equivalent of NUR 508, 681, and 685. These courses may be taken after admission to the program.

DOCTORAL PROGRAM REQUIREMENTS
For progression to candidacy status, students must demonstrate competence in three areas:
1. Competency regarding the knowledge base comprising the discipline of nursing—12 credits.
2. Competency in the chosen cognate—nursing administration or clinical science—18 credits.
3. Research including the satisfactory completion of an original and independent dissertation—24-27 credits.

Courses required:
- Core Courses:
  - NUR 701, 702, 703, elective in philosophy of science or ethics
- Cognate:
  - Nursing Administration:
    - NUR 715, 721, 722, 781, 797, and HAD 624
- Clinical Science:
  - BIC 503, 504, MIC 504, 506, 515, 516, 517, 653
- Research:
  - Nursing Administration:
    - NUR 770 and 898, EDU 790, plus 9 credits of graduate statistics
- Clinical Science:
  - MIC 508, 512, 690, 898

Additional courses in the cognate and research area may be required.

Admission to Candidacy
Before admission to candidacy for the doctorate, students must have (1) satisfied the language requirement, if applicable; (2) completed required course work; (3) successfully completed the comprehensive examinations; and (4) fulfilled any additional requirements.

Comprehensive Examinations
Upon satisfactory completion of all required formal course work, the student takes written comprehensive examinations. Comprehensive examinations encompass the three areas of competency previously outlined, i.e., the discipline of nursing, the cognate, and research. The decision that a student is ready to sit for comprehensive examinations is made between the student and his/her advisor. Students who successfully complete the examination are advanced to candidacy. Students who fail any portion of the examination may re-take that portion(s) during the next formal testing opportunity. Students who fail the examination may be required to engage in remedial work prior to re-taking the examination.

Dissertation
The student must conduct a substantial independent investigation and prepare a dissertation reporting the results of this research and analyzing its significance in relation to existing scientific knowledge. An oral defense is conducted by the student’s dissertation committee. Specific requirements for the composition of the student’s committee should be referred to the director of the doctoral program. The student is responsible for preparing the dissertation in accord with University guidelines and regulations.

FACULTY
Barrell, Lorna Mill Associate Professor and Chair, Department of Community and Psychiatric Nursing, Director of Master’s Program Ph.D., University of Illinois; developmental transitions, middle age and aging; widowhood, crisis, loss, and coping; chronic mental illness.
Corley, Mary C. Associate Professor, Nursing Administration and Information Systems Ph.D., University of Kentucky; utilization of research findings; ethical decision-making; nurse recruitment and retention; touch and massage.
Cowing, W. Richard, Ill Associate Professor, Community and Psychiatric Nursing and Associate Dean for Graduate Programs Ph.D., New York University; depression in the elderly, transformation in midst of despair, health promotion, unitary-transformative theory and methods.
Goren, Suzanne Clinical Associate Professor, Community and Psychiatric Nursing Ph.D., New York University; child mental health family systems, child mental health delivery systems.
Grap, Mary Jo Assistant Professor, Medical/Surgical Nursing Ph.D., Georgia State University; critical care nursing practice.
Henry, JoAnne K. Associate Professor, Maternal/Child Nursing Ed.D., University of Virginia; stress in high-risk pregnancy; analysis of health policy.
Kissinger, Jeanette F. Professor, Medical/Surgical Nursing Ed.D., University of Virginia; hypertension behavior; stress and stress management; modifying life style, cognition and learning; personality variables and cardiovascular disease.
Langston, Nancy F. Professor and Dean Ph.D., Georgia State University; quality of life with institutionalized elderly, educational administration-facilitators of scholarly productivity.
Lewis, Judith A. Associate Professor and Chair, Maternal/Child Nursing Ph.D., Brandeis University; pregnancy after infertility, health policy analysis, regionalization of perinatal care.
Mark, Barbara A. Associate Professor and Chair, Nursing Administration and Information Systems, Director of Doctoral Program Ph.D., Case Western Reserve University; organization theory; technology, structure, effectiveness relationships.
Mervin, Elizabeth Associate Professor, Nursing Administration and Information Systems Ph.D., Virginia Commonwealth University; nurse staffing and labor issues, administrative and patient outcomes, rural mental health services research.
Mujias, Barbara A. Professor, Community and Psychiatric Nursing Ph.D., University of Pennsylvania; AIDS, chronic mental illness behavior and intervention, quality of life for institutionalized adults; nursing diagnosis.
Munro, Cindy L. Assistant Professor, Medical/Surgical Nursing Ph.D., Virginia Commonwealth University; interac-
tion of host/microorganism in infectious processes, molecular genetics, genetic technology and society.

Pickler, Rita H. Assistant Professor, Maternal/Child Nursing. Ph.D., University of Virginia; high risk infants and families, chronically ill children and families, stress mastery, caregiving contexts.

Ropka, Mary E. Associate Professor and Chair, Medical/Surgical Nursing. Ph.D., University of Virginia; nutritional changes during HIV treatment, symptom management in HIV and oncologic clients, nutritional treatment in cancer patients.

Sawin, Kathleen Assistant Professor, Maternal/Child Nursing. D.N.S., Indiana University; chronic illness/disability in children/adolescents; women with disability.

Smith, Martha N. Associate Professor, Community and Psychiatric Nursing. Ph.D., University of Michigan; health promotion; primary preventions; injury and other epidemic strategies.

Strauss, Sarah S. Associate Professor, Maternal/Child Nursing. Ph.D., University of Washington; stress and coping, parent-child interaction, stress and coping in families of disabled children, information seeking and desire for control in health decision making.

Waters, Haidee F. Assistant Professor, Medical/Surgical Nursing. D.N.Sc., Catholic University of America; clinical oncology, stress and coping.

Wyman, Jean F. Professor, Community and Psychiatric Nursing. Ph.D., University of Washington; urinary continence, functional assessment; patient falls, mobility assessment.

Younger, Janet B. Professor, Maternal/Child Nursing, and Associate Dean for Undergraduate Programs. Ph.D., University of Virginia; mastery of stress, response to illness.

Youngkin, Ellis Quinn Associate Professor, Maternal/Child Nursing. Ph.D., Old Dominion University; human papillomaviral and herpes infection in women; short term strategies for coping, premenstrual syndrome, clinical profiles of women.

GRADUATE COURSES IN NURSING (NUR)

The course descriptions provided here are for the major in nursing and are restricted to students in this major. Please see other sections of the bulletin for courses in other schools and departments. Lecture hours may be used as seminar in which case the hours are doubled.

500 Theories and Models for Nursing. 3 lecture hours. 3 credits. Focuses on the analysis and evaluation of conceptual models of nursing and related theories for application in all advanced practice courses.

502 Advanced Pharmacotherapeutics for Nurse Practitioner Practice. 3 lecture hours. 3 credits. Prerequisite: Graduate status or permission of the instructor. Focuses on the knowledge, principles and application of pharmacotherapeutics for the management of common primary care health problems by the nurse practitioner.

505 Clinical Teaching in Nursing. 3 lecture hours. 3 credits. Focuses on theories and principles related to teaching and evaluation for patients, nursing staff, and students. Explores multiple teaching strategies and learning styles and application of teaching and evaluation methods to the clinical situation.

506 Advanced Nursing Practice: Sociopsychologic Concepts. 3 lecture hours. 3 credits. Examines selected sociopsychologic theories and concepts and relates them to the practice of professional nursing. Focuses on systems and developmental theories.

507 Advanced Nursing Practice: Biophysiological Concepts. 3 lecture hours. 3 credits. Focuses on selected physiological concepts that underlie the identification of specific nursing diagnoses and nursing interventions at an advanced practice level. Includes individual ineffective coping, pain, alterations in energy, tissue perfusion, sensory-perceptual systems, immune response, wound healing, sleep patterns, fluid and electrolyte balance, acid-base balance, and thermoregulation.

508 Advanced Nursing Practice: Health Care Delivery and Management. 3 lecture hours. 3 credits. Provides an understanding of the context in which health services are managed and delivered. Explores social, ethical, and political issues affecting current and future nursing care delivery systems. Examines cost-effectiveness of nursing care in a variety of settings.

510 Nursing Ethics. 3 lecture hours. 3 credits. Identifies and examines moral dilemmas encountered in professional nursing practice. Examines personal value systems, applies ethical theory and principles to dilemmas in clinical nursing practice: patient's rights, informed consent, confidentiality, quality of life and death and dying. Examines relationships between professional nursing and resolution of moral dilemmas.

511 Health Assessment for Advanced Nursing Practice. 1 lecture and 2 laboratory hours. 3 credits. Prerequisite: Undergraduate health assessment course. Focuses on advancing students' knowledge and assessment skills in health history and physical examination techniques. Emphasizes assessment of deviations from normal and selected content in specialty areas. Includes supervised experiences with advanced clinical assessment skills.

540 Infant Assessment. 2 lecture and 3 clinical hours. 3 credits. Presents infant (birth to 2 years) assessment techniques and tools which will prepare health professionals to adapt and utilize results of recent research findings for infants and families. Learn assessment scales that examine the infant's sleep patterns, behaviors, interactions with caregiver, and the environment. Clinical practice focuses on obtaining interobserver reliability in use of scales. Home visits with a partner are required.

570 Nursing Research I. 3 lecture hours. 3 credits. Focuses on research methodology, critical analysis of studies, and relationships among theory, research, and practice leading to the development of a research proposal.

571 Principles of Epidemiology. 3 lecture hours. 3 credits. Provides theoretical foundation for understanding health problems and needs of American society. Analyzes factors that alter the course of disease and health problems in selected populations. Analyzes concepts, methods, and uses of epidemiology in human populations.

591 Special Topics. Semester course; 1-3 credits. Explores specific topics in nursing theory and practice.
592 Directed Study in Nursing. 1-3 credits. Prerequisite: permission of instructor. Independent study in a specific area of nursing developed under the supervision of a member of the graduate faculty.

603 Advanced Gerontologic Nursing I. 2 lecture and 3 clinical hours. 3 credits. Examines physiological, psychological, and sociocultural processes associated with normal aging. Analyzes relevant theories, concepts, and research findings from the behavioral, social, and biological sciences as a basis for advanced nursing practice with older adults and their families. Emphasizes health promotion with individuals within the context of their functional capabilities, social support networks, and environment. Explores the advocacy role of the gerontological nurse specialist in sociopolitical issues affecting the health of the elderly. Provides clinical practica in community settings.

604 Advanced Gerontologic Nursing II. 3 lecture hours. 3 credits. Examines common high-risk physiological and psychosocial alterations associated with aging. Applies relevant theories, concepts, and research findings related to acute and chronic illness as a basis for advanced nursing practice with aging clients and their families. Stresses strategies for health maintenance within the functional capabilities and lifestyles of aging clients and future trends in the long-term care system.

605 Advanced Practice in Gerontologic Nursing. 9 clinical hours. 3 credits. Prerequisites: NUR 507, 508, 603; corequisite NUR 604. Stresses development of clinical competence required in delivering nursing care to aging clients and their families. Applies relevant theories, concepts, and research findings in advanced nursing diagnoses and therapeutics. Emphasizes working with individuals, families, groups, and interdisciplinary teams. Explores the role of the gerontological nurse specialist in delivering health care in different settings. Provides clinical practica in a variety of community and institutional settings.

606 Nursing of Older Adults. 2 seminar and 6 clinical hours. 3 credits. Prerequisites: NUR 511, NUR 666. Focuses on advanced nursing practice related to the management of common high risk health alterations of older adults. Applies relevant theories, concepts, and research findings related to acute and chronic illness as a basis for clinical assessment and decision-making with aging clients and their families. Explores the role of the gerontological nurse practitioner in delivering health care in different settings. Provides clinical practice in a variety of community and institutional settings.

612 Advanced Community Health Nursing I. 3 lecture hours. 3 credits. Prerequisites: NUR 500, 506, Epidemiology, Biostatistics. Provides the theoretical foundation for advanced community health nursing practice. Examines and integrates public health science, nursing theories, and community.

613 Advanced Community Health Nursing II. 2 seminar and 6 clinical hours. 3 credits. Prerequisites: NUR 500, 506, 612 (can be taken concurrently with NUR 612). Provides the student opportunity to apply theories and community health models of care to families and community groups in the advanced practice role. Permits students, in partnership with a community, to validate, analyze, and interpret data. Establishes a clinical practice based upon a diagnosed need and provides care to a family and group, using a recognized nursing model.

614 Advanced Community Health Nursing III. 3 clinical hours. 3 credits. Prerequisites: NUR 612, 613. Concentrates on a synthesis of the principles and practice of advanced community health nursing, public health, and management as the basis for development of the skills required for nursing leadership positions in public/community health organizations and ambulatory care settings. Provides through prerequisites and course content the foundation for issue-related seminars and a community health leadership practicum.

622 Cancer Nursing I. 3 lecture hours. 3 credits. Prerequisite: NUR 500 or permission of instructor. Provides a theoretical base for oncology nursing practice, emphasizing the integration and synthesis of relevant knowledge utilizing the nursing process. Covers cancer epidemiology, carcinogenesis, cancer pathology, risk factors, prevention, detection, diagnosis, and treatment for common adult malignancies.

624 Advanced Practice in Cancer Nursing. 2 seminar hours and 6 clinical hours. 3 credits. Prerequisite: NUR 622. Integrates theory, research and practice in the management of clients with multiple and complex problems associated with the diagnosis and treatment of cancer. Provides opportunities for evaluating and developing advanced clinical competence and for acquiring specialized skills needed for advanced nursing practice.

626 Nursing of Acutely Ill Adults. 2 seminar and 6 clinical hours. 3 credits. Prerequisite: NUR 507. Focuses on factors affecting the delivery of nursing care to patients in the acute and dynamic stages of complex medical-surgical conditions. Discusses the pertinent nursing diagnoses and interventions for these patients while using the framework of multisystem failure.

628 Immunocompetence: Clinical Applications in Nursing. 1 lecture, 2 seminar, and 3 clinical hours. 3 credits. Corequisites: NUR 507, graduate physiology, or permission of the instructor. Focuses on impaired immunocompetence across the life span as a result of secondary causes. Explores concepts and factors related to the phenomenon of immunocompetence using a nursing case management approach. Analyzes clinical problems associated with immunodeficiency. Examines AIDS, infection, malignancy, autoimmune disease. Examines management strategies such as transplantation, augmentation of host defenses, and other treatment modalities as they relate to and influence nursing care.

629 Nursing of Adults Recovering from Acute Illness. 2 seminar and 6 clinical hours. 3 credits. Prerequisite: NUR 500, 507 or permission of instructor. Focuses on relevant research findings that are applicable to the post acute phases of illness in the adult patient. Includes economic, cultural and spiritual impact the illness has on the patient, family, and community. Addresses dynamic patterns of recovering from illness, including communication, coping, energy depletion, restricted mobility, pain and quality of life issues. Considers strategies to facilitate recovery, prevent therapy complications and optimize level of functioning. Prepares students to function as a member of an interdisciplinary health care team in a variety of health care settings.

631 Health Problems of Women. 3 lecture hours. 3 credits. Focuses on advanced nursing practice related to logical health and illness changes of women. Includes physiologic, pharmacological, and nutritional management.
modalities. Develops clinical judgment in history and physical assessment and decision making in management of common health problems.

635 Perinatal Nursing I. 2 seminar and 6 clinical hours. 3 credits. Corequisite or prerequisite: NUR 500. Focuses on nursing assessment, diagnosis, and intervention with the family during pregnancy, labor, delivery, and the post-partum period.

636 Perinatal Nursing II. 2 seminar and 6 clinical hours. 3 credits. Prerequisite: NUR 500. Focuses on high-risk family during pregnancy, labor, and delivery, and the neonatal and post-partum periods. Nursing assessment, diagnosis, and intervention related to health promotion and prevention are used with high risk families.

641 Health Problems of Children I. 3 lecture hours. 3 credits. Focuses on advanced nursing practice related to common developmental, health, and illness changes of children. Includes pathophysiologic, pharmacologic, and nutritional management modalities; develops clinical judgment in history taking, physical assessment, and decision making in management of common health problems.

644 Nursing of Children I: Well and Minor Health Deviations. 2 seminar and 6 clinical hours. 3 credits. Corequisite or prerequisite: NUR 500. Focuses on health needs of well infants and children and their families. Major organizing concepts are development, infancy through childhood, systems, individual and family, adaptation, and nursing process. Common minor health deviations on the wellness illness continuum and dysfunctional patterns in infancy and childhood and nursing assessment and intervention are presented within a nursing diagnostic framework.

645 Nursing of Children II: Major Health Deviations. 2 seminar and 6 clinical hours. 3 credits. Corequisite or prerequisite: NUR 500. Focuses on the health needs of infants/children with major long- and short-term health deviations and their families. Major organizing concepts are development, family systems, stress and coping, and nursing process. Major health deviations of infancy and childhood and nursing assessment and intervention are presented within a nursing diagnostic framework.

646 Nursing in Adolescent Health Care. 2 seminar and 6 clinical hours. 3 credits. Prerequisite: NUR 500. Focuses on the adolescent client and family, using nursing assessment, diagnosis to plan intervention related to health promotion, maintenance, and common health problems. Emphasis will be placed on joint planning between nurse and adolescent to establish priorities and promote increasing involvement of the adolescent in decision-making regarding health.

654 Advanced Psychiatric Mental Health Nursing I. 2 seminar and 6 clinical hours. 3 credits. Corequisites: NUR 500, 506, and Group Dynamics. Examines nursing and behavioral concepts and applies them to clinical practice. Provides context for socialization as a specialist in psychiatric mental health nursing.

655 Advanced Psychiatric Mental Health Nursing II. 2 seminar and 6 clinical hours. 3 credits. Prerequisite: NUR 654. Addresses family theory and therapy principles and issues. Investigates family systems, social systems, and systems of health care. Provides supervised clinical practice with families selected to meet course and students' objectives and extends psychiatric mental health nursing skills.

656 Advanced Psychiatric Mental Health Nursing III. 2 seminar and 6 clinical hours. 3 credits. Prerequisites: NUR 654, 655. Provides synthesis of psychiatric mental health nursing theory and focuses on groups in the community, using theories related to group, change, consultation, organizational systems, and prevention. Prepares students to function competently with groups and individuals in community health care settings.

657 Advanced Child and Family Mental Health Nursing I. 2 seminar and 6 clinical hours. 3 credits. Corequisites: NUR 500, 506, group dynamics. Introduces the advanced practice role in child/family psychiatric nursing. Examines concepts and issues relevant to advanced practice and their application with children, adolescents and families served by the public mental health system.

658 Advanced Child and Family Mental Health Nursing II. 2 seminar and 6 clinical hours. 3 credits. Prerequisites: NUR 657 or permission of instructor. Corequisites: NUR 508, 570, 655. Introduces competence-based brief psychiatric nursing interventions with children and families, with emphasis on cultural competence in service design and delivery. Examines the selected mental health problems presented by children and families served by the public mental health system.

662 Primary Health Care of Families. 2 seminar and 6 clinical hours. 3 credits. Prerequisite: permission of instructor. Provides concentrated study and clinical practice as a primary care nurse specialist. Utilizes family nurse practitioner skills in a variety of primary care clinical sites. Focuses on the application of family and chronic disease management theories and research to problems encountered in advanced clinical practice.

664 Health Problems of Adults I. 3 lecture hours. 3 credits. Focuses on advanced nursing practice related to common developmental, health, and illness changes of adults. Includes pathophysiologic, pharmacologic, and nutritional management modalities; develops clinical judgment in history taking, physical assessment, and decision making in management of common health problems.

665 Health Problems of Adults II. 3 lecture hours. 3 credits. Focuses on advanced nursing practice related to develop mental, health, and illness changes of adults; included are pathophysiologic, pharmacologic, and nutritional management modalities. Increases the students' knowledge and integration of essential clinical content and on the development of clinical judgment in history taking, physical assessment, and decision making in the management of common health problems.

666 Nursing of the Well Adult. 2 seminar and 6 clinical hours. Prerequisites/corequisites: NUR 500, 511, and 631. Focuses on health needs and care management of well adults. Health promotion, illness prevention, wellness maintenance, and risk assessment provide the organizing concepts. Selected critical issues affecting men and women in their daily living, biological progression, and changing roles through adulthood and maturity will be addressed.

669 Primary Care Nurse Specialist Preceptorship. Variable (1-6) Credits (45 clinical hours: 1 credit) Can be re-
peated. Prerequisites: Applicable clinical courses allowing student to practice in a specialty area; to be taken prior to or concurrent with NUR 690. Applies relevant theories, concepts, and research findings to clinical care. Stressses development of clinical competence required in delivering primary health care.

671 Nursing Research II. 3 lecture hours. 3 credits. Prerequisite: NUR 570. Develops the student’s understanding of research as scholarly activity in nursing. Examines external, internal, and technological influences on the definition of nursing problems. Explores a variety of research methodologies utilized to address these problems and investigates how the findings are communicated and utilized in both practitioner and academic communities.

680 Evaluation of Outcomes and Quality in Nursing Practice. 2 lecture and 2 field work hours. 3 credits. Prerequisite: NUR 508 or permission of the instructor. Focuses on the process of evaluating the delivery of nursing care, with particular emphasis on strategies to address evaluation of patient outcomes and quality of nursing care.

681 Nursing Administration I. 3 lecture hours. 3 credits. Explores individual and organizational factors which influence nursing administrative practice; analyzes relationships between organizational variables and their impact on the design and management of a department of nursing.

685 Nursing Administration II. 2 lecture hours and 2 computer laboratory hours. 3 credits. Examines methods of measuring nursing productivity in a variety of settings; describes use of automated systems to enhance nursing productivity; concentrates on those systems which can be applied to management of patient care in a clinical nursing division; uses computer-based systems as decision-support systems.

686 Nursing Administration III. 2 lecture and 2 computer laboratory hours. 3 credits. Analyzes systems involved in managing a department of nursing; identifies the role of nursing service in development of an institutional budget; describes automated systems which can assist nursing service administrators.

691 Nursing Research Practicum. 3 laboratory hours. 3 credits. Prerequisite: NUR 570. Participates in ongoing research. Implements research with faculty direction and supervision. Permission of instructor required.

692 Advanced Practice in Nursing Administration I. 2 seminar hours and 6 practicum hours. 3 credits. Focus is on planning and managing organizations for the cost effective delivery of patient care. Provides students the opportunity to critically evaluate the management of human, material, and financial resources in health care institutions.

695 Advanced Practice in Nursing Administration II. 2 seminar hours and 6 practicum hours. 3 credits. Focuses on the integration of administrative theory and practice in health care institutions. Emphasizes enhancing the nurse administrator’s skills in long-term and strategic planning.

696 Advanced Practicum in Nursing. 9 clinical hours. 3-6 credits. Prerequisites: specialty courses in the clinical major. (At least 2 of the 3 specialty courses must be completed; the third specialty course may be taken concurrently with this course by permission of departmental and course faculty.) Focuses on advanced nursing practice in the student’s clinical major and on advanced clinical practice roles of clinician, teacher, administrator, consultant, and researcher.

701 Theory Development in Nursing I. 3 lecture hours. 3 credits. Prerequisite: admission to the Doctoral program or permission of Associate Dean and course faculty. Explores the structure of nursing knowledge by contrasting analyzing and critiquing concepts, theories, and conceptual models of nursing to determine their contribution to nursing knowledge. Using selected concepts, conceptual-theoretical-empirical structures to answer research questions will be developed. Examines the emergence of nursing as a scholarly discipline.

702 Theory Development in Nursing II. 3 lecture hours. 3 credits. Prerequisite: NUR 701 or permission of Associate Dean and course faculty. Explores various philosophies of science and examines factors influencing the development of nursing theory and emergence of nursing as a discipline. Examines the impact of economic, social, political, and scientific factors on nursing.

721 Concept Analysis in Nursing Administration I. 3 lecture hours. 3 credits. Prerequisite: admission to doctoral program. Identifies and examines concepts in nursing administration from the perspective of research relevant to the management of clinical patient care; includes patient classification and acuity systems; scheduling and staffing systems and their relationship to work outcomes, costs, quality of care, and other measures of productivity; evaluates organizational strategies which promote utilization of research findings in clinical practice.

722 Concept Analysis in Nursing Administration II. 3 lecture hours. 3 credits. Prerequisite: NUR 721. Identifies and examines concepts in nursing administration from the perspective of research relevant to the management of nursing services and the role of the nurse executive; includes job satisfaction, job design, and theories which attempt to explain and predict nurse supply, demand, and turnover. Examines the organizational context in which decision making occurs; appraises the process of organizational change, growth, and decline.

770 Advanced Nursing Research. 3 lecture hours. 3 credits. Prerequisites: NUR 701, 702 (concurrent), SOC/STA 508; or equivalent); SOC/STA 608 (or equivalent)(concurrent). Examines the relationship between theory, research, and the logic of causal inference. Focuses on quantitative methodologies to investigate problems of interest in nursing research. Examines research design, data collection and analysis and ethical issues in the conduct of nursing research.

781 Organizational Analysis in Nursing. 3 lecture hours. 3 credits. Prerequisite: NUR 508, 681 or equivalent (i.e. graduate course in organizational theory); or permission of instructor. Analyzes current paradigms guiding nursing systems research. Evaluates concepts and theoretical models that attempt to explain organizational functioning and that are of particular usefulness in developing a substantive body of knowledge.

782 Analysis of Health Care Policy as a Factor in Nursing Practice. 3 lecture hours. 3 credits. Analyzes global and national issues in health care policy. Applies traditional and emerging models to policy issues. Examines policies having implications for nursing practice research and administration. Focuses on the environment of health care policy devel-
opment, the agencies and leadership of policy development and implementation, and nursing’s role in policy development, implementation, and evaluation.

791 Special Topics. 1-3 credits. Prerequisites: admission to doctoral program and permission of instructor. Explores specific topics in nursing administration.

792 Directed Study in Nursing. 1-3 credits. Prerequisites: admission to doctoral program and permission of instructor. Independent study in a specific area of nursing developed under the supervision of a member of the graduate faculty.

797 Directed Research in Nursing. 1-3 credits. Prerequisites: 12 credits of doctoral level course work and permission of instructor. Supervised investigation of selected problems in nursing research.

798 Thesis. 6 credits. The master’s thesis constitutes carefully planned and executed research under the supervision of an advisor and in conjunction with a thesis committee. The student writes and presents the required thesis in the area of clinical nursing interest.

898 Dissertation. 1-12 credit hours. Prerequisite: admission to candidacy. Original research.
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 B.S. degree was awarded. In 1960 the program lengthened to the current 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.

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 graduate programs leading to the M.S. and Ph.D. degrees in medicinal chemistry, pharmaceutics, and pharmacy administration. These programs provide the preparation and research experience for academic, governmental, and industrial careers.

PROGRAMS IN MEDICINAL CHEMISTRY

The Department of Medicinal Chemistry offers programs leading to the M.S. and Ph.D. degrees in medicinal chemistry. All students will complete the following core courses:
- Medicinal Chemistry—PHC 403 and 601
- Advanced Medicinal Chemistry—PHC 610 and 620
- Research Techniques—PHC 526 and 641
- Seminar (each semester)—PHC 690
- Biochemistry—BIC 503-504
- Pharmacology—PMC 403
- Advanced Organic Chemistry—CHE 604

In addition, elective courses may be deemed necessary to the student's program. These electives may include courses outside the department.

At the present time the research interests of the department include synthesis and biological evaluation of new compounds; molecular-graphics assisted drug design; determination of relationships between chemical structure and biological activity; studies of drug action; receptor binding studies; theoretical studies on structure-activity relationships of drugs, including the use of molecular orbital theory, X-ray crystallography, computational chemistry, and molecular con-
nectivity; rational design of new drugs and studies on drug metabolism.

PROGRAMS IN PHARMACEUTICS AND PHARMACY ADMINISTRATION

The Department of Pharmacy and Pharmaceutics offers programs leading to the M.S. and Ph.D. degrees in pharmaceutics and pharmacy administration. Applications for the Ph.D. program are preferred; a master’s degree is not required for admission to the Ph.D. program. Persons who are interested in applying for the master’s program should first receive the written permission of the department graduate program director.

Advanced degrees in pharmaceutics and pharmacy administration 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 section of the Medical College of Virginia Campus Bulletin where the baccalaureate (B.S.) and Doctor of Pharmacy (Pharm.D.) programs are described.

Students may elect to pursue a joint Pharm.D.-Ph.D. program. Such students must apply to, and be accepted by, both programs separately.

Graduate students majoring in pharmaceutics may select programs emphasizing biopharmaceutics, pharmacokinetics, biopharmaceutical analysis, or clinical sciences. These students take suitable courses outside the department in the areas of basic sciences, mathematics, statistics, computer use, and chemistry. The selection and scope of the external courses will depend on student needs and research interests.

Graduate students majoring in pharmacy administration may select programs emphasizing practice management or the drug selection process. Suitable outside courses may include statistics, computer use, hospital and health care management, and business management.

At the present time, the research interests of the department include bioavailability studies, factors governing release of drugs from solid dosage forms, micellar nature of drug solutions, drug-protein binding interactions, effects of saturated and competitive metabolism on pharmacokinetics, clinical pharmacokinetics including computer modeling of pharmacokinetics in man and use of individual pharmacokinetic parameters in optimizing dosage regimens, development of analytical methodology for drugs in biological fluids, geriatric pharmacokinetics, design and management of pharmacy-related health services systems, drug prescribing, and utilization studies.

ADMISSION REQUIREMENTS

General requirements pertaining to graduate programs in the pharmaceutical sciences follow the same guidelines as described in Part I of this bulletin. Additional requirements concerning undergraduate education are imposed upon applicants to graduate programs in the School of Pharmacy.

Admission to graduate programs in medicinal chemistry is open to students having a bachelor’s degree in pharmacy, chemistry, biochemistry, biology, pre-med, or a related science. Admission to graduate programs in pharmaceutics and pharmacy administration normally requires a bachelor’s degree in pharmacy. However, applicants with degrees in chemistry, biology, or engineering may qualify in specific programs in pharmaceutics.

Acceptance is based upon undergraduate performance, satisfactory scores on the Graduate Record Examination, letters of recommendation, and where applicable, TOEFL scores.

Applications for admission, as specified in Part I of this bulletin, should be sent to the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051.

REGISTRATION

While most students register for the first semester beginning in August, arrangements may be made to initiate graduate work at other times during the academic year.

FINANCIAL ASSISTANCE

Graduate students in the pharmaceutical sciences may receive support via teaching assistantships, research assistantships, or fellowships. The American Foundation for Pharmaceutical Education provides support to eligible applicants for graduate study in the pharmaceutical sciences. All students, regardless of the level or the source of support, are required, as a part of their graduate education, to obtain teaching experience in lecture and laboratory. Students pursuing the master’s degree may not be supported by university teaching assistantships.

THE STUDENT’S ADVISOR AND GRADUATE COMMITTEE

The departmental graduate program director will advise students until a permanent advisor has been chosen. During their first semester, new
graduate students are required to arrange interviews with each graduate faculty member of their major department to discuss research projects. Students will select an advisor and a research project and report the selection to the appropriate departmental committee. The advisor will arrange for the appointment of the student’s graduate committee. The responsibilities of the advisor and the graduate committee are described in the School of Basic Health Sciences section of this bulletin.

requirements for graduate degrees

Graduate students in the pharmaceutical sciences must satisfy the degree requirements described in the School of Basic Health Sciences section of this bulletin. In some cases more stringent requirements are imposed. These are described in detail in graduate student rules which are issued to all students.

All graduate students are required to attend seminars in their own department and are encouraged to attend seminars of interest in other departments. Students are required to present seminars satisfactory to the faculty. Normally, students will present one seminar per year.

Graduate students are expected to devote maximum effort to the pursuit of their education. During normal working hours, graduate students are expected to be working on their research projects when they are not in class. Graduate students who are progressing satisfactorily may be granted permission by the chair man of their department to take outside employment during evenings or weekends.

organizations

Rho Chi, the national honorary pharmaceutical society, has a chapter at VCU. Membership in this society is open to graduate students in pharmaceutical sciences who meet the society’s scholastic standards.

The Society of Sigma Xi Chapter at VCU brings in outstanding scholars for its lecture program. Graduate students who have demonstrated a marked aptitude for research in the field of pure or applied science may be elected to associate membership in the society.

Professional associations which meet locally include the Virginia Pharmaceutical Association and the Virginia Section of the American Chemical Society.

Pharmacy fraternities with chapters at VCU are Kappa Epsilon, Kappa Psi, and Phi Delta Chi.

Department of Medicinal Chemistry

FACULTY

Abraham, Donald J. Professor and Chairman Ph.D., Purdue University; X-ray crystallography in drug design.

Boots, Marvin R. Associate Professor Ph.D., University of Kansas; synthetic medicinal chemistry.

Glennon, Richard A. Professor Ph.D., University of New York at Buffalo; synthetic medicinal chemistry.

Kier, Lemont B. Professor Ph.D., University of Minnesota; theoretical medicinal chemistry.

May, Everett L. Professor (Pharmacology) University of Virginia; medicinal chemistry, drug abuse.

Semus, Simon F. Assistant Professor (Biomedical Engineering) University of Nottingham; molecular graphics, drug delivery systems.

Soini, William H. Associate Professor Ph.D., University of Kansas; analytical medicinal chemistry.

Stubbins, James A. Professor Ph.D., University of Minnesota; design and synthesis of new drugs.

Westkaemper, Richard B. Associate Professor Ph.D., University of Kansas; enzyme inhibitors.

Windridge, Graham C. Associate Professor and Associate Dean Ph.D., University of California; peptide chemistry.

graduate courses in medicinal chemistry (phc)

526 Research Techniques in Medicinal Chemistry. 0-2 lecture and 2-8 laboratory hours. 1-4 credits. The theory and application of classical, instrumental, and computer techniques used in pharmaceutical research are presented.

531 Medicinal Chemistry for Nurse Anesthetists I. 4 lecture hours. 4 credits. A review of the principles of organic chemistry and bio-organic chemistry with emphasis on the concepts necessary for an understanding of PHC 532.

532 Medicinal Chemistry for Nurse Anesthetists II. 3 lecture hours. 3 credits. Prerequisite: PHC 531 or equivalent. A series of lectures covering the structure-activity relationships, metabolism, and mechanism of action of selected agents.

591 Special Topics in Medicinal Chemistry. Semester course; 1-3 credits. An elective course in which students may choose to participate in individual or group study in one or more areas of medicinal chemistry. The course can take the form of formal lectures, informal group discussions, literature research, and/or laboratory research. Students must have the permission of the individual instructor before registering for this course. This course is graded Pass or Fail.

601 Advanced Medicinal Chemistry I. Fall. 1 lecture hour. 1 credit. Introduces the general concepts important in medicinal chemistry, including drug dynamics, drug macromolecule interactions, drug design and quantitative structure-activity relationships.

610 Advanced Medicinal Chemistry II. Spring. 2 lecture hours. 2 credits. Prerequisites: PHC 601 or the permission of the instructor. Analyze the theories relating to drug action

1Department in parenthesis indicates primary appointment.
based on receptor theory. Emphasizes drug acting on adrenergic, cholinergic and serotonergic receptors.

620 Advanced Medicinal Chemistry III. Spring. 2 lecture hours. 2 credits. Prerequisites: PHC 601 or the permission of the instructor. Reviews the concepts necessary for enzyme inhibitor design. Emphasizes the design of new agents to treat disease states by enzyme inhibition.

630 Theoretical Methods in Drug Design. Semester course; lecture and laboratory. 2 credits. Prerequisites: PHC 601, PHC 610 or 620, or permission of instructor. A study of the theoretical methods of drug structure-activity analysis, including molecular orbital theory, topological indexes and physical property correlations. Computational chemistry problems will be emphasized in the laboratory.

641 Survey of Molecular Modeling Methods. Semester course; lecture and laboratory. 1 credit hour. Introduces computational chemistry and molecular graphics with the current software used for drug design and small molecule large molecule interactions. Computational chemistry problems will be emphasized in the laboratory.

642 Nucleoside, Nucleotide, Carbohydrate and Peptide Chemistry. 1 lecture. 1 credit hour. Surveys nucleoside, nucleotide, carbohydrate and peptide chemistry with emphasis on their synthesis.

643 Regioselective Drug Metabolism. 1 lecture. 1 credit hour. Surveys drug biotransformation reactions. Emphasizes the molecular aspects of Phase I and Phase II drug metabolism.

644 Asymmetric Synthesis. 1 lecture. 1 credit hour. Reviews the major asymmetric chemical transformations, including mechanisms, scope and synthetic utility.

645 Introduction to Heterocyclic Chemistry. 1 lecture. 1 credit hour. Introduces the chemistry of heterocyclic compounds. Emphasizes heterocyclic nomenclature and the reactions/reactivity of heterocyclic systems.

670 Advanced Molecular Modeling. Theory and Practice. Semester course; 3 credits lecture/laboratory. Prerequisite: PHC 641 or permission of instructor. Examines the principles and application of computational chemistry and molecular graphics to current problems in drug design. Lectures focus on the application of a specific computational methods and techniques to solve problems in drug/molecular design. Workshop sessions provide hands-on experience using state-of-the-art hardware and software for molecular modeling.

690 Departmental Research Seminar. 1 lecture hour. 1 credit. In addition to reports presented by students, staff, and visiting lecturers, current problems and developments in pharmaceutical and medicinal chemistry are discussed.

691 Special Topics in Medicinal Chemistry. 1-4 lecture hours. 1-4 credits. Lectures, tutorial studies, and/or library assignments in selected areas of advanced study not available in other courses or as a part of the research training.

697 Directed Research in Medicinal Chemistry. 1-15 credits. Research leading to the M.S. or Ph.D. degree.

Department of Pharmacy and Pharmaceutics

FACULTY

Barr, William H. Professor and Chairman Pharm.D., Ph.D., University of California at San Francisco; clinical pharmacokinetics, mechanisms of absorption.

Byron, Peter R. Associate Professor Ph.D., University of Manchester, Manchester England; physical chemistry, dosage form design, aerosol and inhalation technology.

Carroll, Norman Associate Professor Ph.D., University of North Carolina; pharmaceutical marketing.

Garnett, William R. Professor Pharm.D., Philadelphia College of Pharmacy and Science; pharmacotherapeutics of epilepsy and geriatrics, pharmacokinetics, pharmacodynamics.

Karnes, H. Thomas Assistant Professor Ph.D., University of Florida; drug analysis in biological fluids.

Miederhoff, Patrick A. Associate Professor Ph.D., University of New Orleans; substance abuse education, health ethics, health services research.

Musulin, Michael Assistant Professor Ph.D., University of Pittsburgh; management of drug distribution systems.

Poynor, Wesley J. Associate Professor Ph.D., University of Texas at Austin; liver dysfunction pharmacokinetics, pharmacodynamics, application of computer technology to pharmacy practice and data analysis.

Smith, Harold L. Associate Professor Ph.D., Medical College of Virginia; drug protein binding.

Venitz, Jurgen Assistant Professor M.D., Ph.D., Universitat des Saarlandes, Homburg/Saar, West Germany; pharmacokinetics and pharmacodynamics.

Wood, John H. Professor Emeritus Ph.D., Ohio State University; biopharmaceutics, kinetics of saturable and competitive metabolism.

GRADUATE COURSES IN PHARMACY AND PHARMACEUTICS (PHA)

502 Pharmacotherapeutics. 2 lecture hours. 2 credits. Prerequisite: PIO 501. Focus on the application of basic pharmacotherapeutic principles of drug categories to patient management.

504 Pharmacotherapeutics in Physical Therapy. 1 lecture hour. 1 credit. Introduces pharmacotherapeutics for physical therapy students. Emphasizes the safe and appropriate use of drugs in the prevention and treatment of disease. Focuses on the principles and concepts of drug action and therapeutic indications for drugs and drug classes in didactic presentations. Includes the effects of medications on physical functions when appropriate.

531 Pharmaceutical Product Development. 2 lecture and 4 laboratory hours. 4 credits. A study of the pharmaceutical, physicochemical, biopharmaceutical, and engineering principles and technology underlying the development of various pharmaceutical dosage forms for hospitals and industry.

532 Pharmaceutical Product Development. 2 lecture and 4 laboratory hours. 4 credits. A continuation of PHA 531.

601 Advanced Pharmaceutical Product Development. 3 lecture and 4-10 laboratory hours. 5-8 credits. An advanced study of the pharmaceutical, physicochemical, and engineering principles and technology underlying the development of various pharmaceutical dosage forms.
602 Advanced Pharmaceutical Product Development. 3 lecture and 4-10 laboratory hours. 5-8 credits. A continuation of PHA 601.

608 Clinical Radiopharmacy. 1 lecture and 2 laboratory hours. 2 credits. Students receive training in the safe use, preparation, calibration, quality control, and clinical diagnostic use of current and investigational radiopharmaceuticals in nuclear medicine practice. Emphasis will be placed on obtaining patient medication histories for the evaluation of agents capable of in-vivo and in-vitro radioisotopic test modification.

611 Advanced Physical Pharmacy. 3 lecture and 0-4 laboratory hours. 3-5 credits. Detailed application of physicochemical principles to areas of pharmaceutical interest, including colloids, rheology, phase rule, complexation, kinetics, drug stability, and micromeritics.

612 Advanced Physical Pharmacy. 3 lecture hours. 0-4 laboratory hours. 3-5 credits. A continuation of PHA 611.

621 Advanced Biopharmaceutics and Drug Disposition. 3 lecture hours. 3 credits. Study at the advanced level of the relationships between the physicochemical properties of a drug and dosage form and the absorption, distribution, elimination, and pharmacological effects of the drug. Current theory and methodology involved in solving problems at the research level are emphasized.

622 Clinical Pharmacokinetics. 2 lecture and 2 laboratory hours. 3 credits. The application of current pharmacokinetic theory to clinical problems involved in optimizing and monitoring drug use in patients. Particular attention is given to adjustment of drug dosage in individual patients with impaired drug elimination due to renal and hepatic dysfunction.

624 Pharmacokinetics. 3 lecture hours. 3 credits. An advanced treatment of the kinetics of drug absorption, distribution, and elimination utilizing mathematical models, analog, and digital computers for analysis of linear and nonlinear biologic systems.

625 Pharmaceutical Analysis. 3 lecture hours. 3 credits. Theory and practice of analytical techniques for the quantitative and qualitative analysis of drugs in body fluids and other matrices. Emphasis is on chromatographic, spectroscopic, and immunoassay methodologies.

626 Pharmaceutical Analysis Laboratory. 2 laboratory hours. 2 credits. A continuation of PHA 625 with emphasis on providing "hands on" experience with modern techniques for analysis of drugs and drug metabolites.

631 Advanced Hospital Pharmacy Management. 3 lecture hours. 3 credits. Classical, social, and systems views of management are introduced with emphasis on the uses of implicit control. The sociology of professions and the nature of professional work are explored; the management of the professional's work is discussed in detail. Design and operation of integrated drug information, drug distribution, and drug use control systems is explored.

632 Advanced Hospital Pharmacy Management. 3 lecture hours. 3 credits. The planning and development of a total program in institutional drug use control is stressed with emphasis on modern human and fiscal resource management theories and applications. Current management problems unique to institutional pharmacy practice are stressed.

690 Pharmacy Research Seminar. 1 lecture hour. 1 credit. Required of all graduate students in pharmacy.

691 Special Topics in Pharmacy. 1-4 lecture hours. 1-4 credits. Presentation of subject matter is by lectures, tutorial studies, and/or library assignments in selected areas of advanced study not available in other courses or as part of the research training.

697 Directed Research in Pharmacy. 1-15 credits. Research leading to the M.S., Pharm.D., or Ph.D. degree.
PART XII

SCHOOL OF SOCIAL WORK

ADMINISTRATIVE OFFICERS
FRANK R. BASKIND
Dean
BEVERLY B. KOERIN
Associate Dean
ANN NOCHOLS-CASEBOLT
Associate Dean
ROBERT G. GREEN
Director, Ph.D. Program
MARcia P. Harrigan
Director, M.S.W. Program
JANE REEVES
Director, Baccalaureate Social Work Program

FACULTY
Adler, Martin D. Professor Ph.D., University of Pittsburgh; policy, mental health.
Beckett, Joyce O. Professor Ph.D., Bryn Mawr College; mental health, human behavior, practice, special populations.
Bentley, Kia Assistant Professor Ph.D., Florida State University; mental health, direct practice with adults, research methodology.
Biggerstaff, Marilyn A. Professor D.S.W., University of Southern California; social work manpower, aging, practice, research methodology.
Dattalo, Patrick Assistant Professor M.S.W., D.P.A., Virginia Commonwealth University; social policy analysis, community organization.
Davis, King E. Professor Ph.D., Brandeis University; mental health, fund raising and volunteerism in black communities.
Dungee-Anderson, Elizabeth A. Associate Professor D.S.W., Howard University; mental health, practice.
Fauri, David P. Professor Ph.D., The Maxwell School Syracuse University; administration, policy, and gerontology.
Gilson, Stephen F. Assistant Professor Ph.D., University of Nebraska; disabilities, alcohol and drug, and human behavior.
Green, Robert G. Professor and Director, Ph.D. Program Ph.D., Virginia Polytechnic Institute and State University; family theory and therapy, marriage and divorce.
Gruber, Carolyn Assistant Professor D.S.W., Catholic University of America; practice and field instruction.
Hall, Julia L. Assistant Professor and Off-Campus Coordinator Radford M.S.W., Virginia Commonwealth University; practice and field instruction.
Harrigan, Marcia Associate Professor and Director, M.S.W. Program Ph.D., Virginia Commonwealth University; practice, family theory.
Harris, Grace E. Professor and Vice Provost for Continuing Studies and Public Service Ph.D., University of Virginia; organizational theory, social administration and planning.
Hutchison, Elizabeth D. Associate Professor Ph.D., State University of New York at Albany; direct practice, child welfare.
Jimenez-Vazquez, Rosa Assistant Professor M.A., University of California at Los Angeles; social planning and community organization, Hispanic women.
Koerin, Beverly B. Associate Professor and Associate Dean Ph.D., University of Virginia; social policy, family and child welfare.
Miller, Jaclyn Associate Professor and Director, Field Instruction Ph.D., University of Texas; practice and field instruction.
Netting, Florence E. Professor Ph.D., University of Chicago; gerontology, nonprofit organizations, and case management.
Nichols-Casebolt, Ann Associate Professor and Associate Dean Ph.D., University of Wisconsin-Madison; social welfare policy, single-parent families and poverty.
Peay, Robert W. Assistant Professor M.S.W., Virginia Commonwealth University; field instruction.
Reeves, Jane Assistant Professor and Director, B.S.W. Program M.S., Simmons College; field instruction.
Rodwell, Mary K. Associate Professor Ph.D., University of Kansas; children and family practice, child abuse and neglect.
Rosenblum, Amy Assistant Professor and Assistant Director, Field Instruction M.S.W., New York School of Social Work, Columbia University; field instruction.
Rosenblum, Phillip L. Assistant Professor M.S.W., University of Pittsburgh; clinical practice and field instruction. Saunders, David N. Associate Professor Ph.D., Bryn Mawr College; alcohol and driving, alcohol and youth. Schneider, Robert L. Professor D.S.W., Tulane University; gerontology, social administration. Schwartz, Martin S. Professor Ed.D., Columbia University; clinical social work, mental health. Schwartz, Sanford Associate Professor Ph.D., Washington University; community-based corrections, substance abuse, planning, and development. Seaberg, James R. Professor Ph.D., University of Wisconsin-Madison; child welfare, social services effectiveness. Sheridan, Michael Assistant Professor Ph.D., Virginia Commonwealth University; research, human behavior. Sonnenberg, Dale F. Assistant Professor and Off-Campus Coordinator, Northern Virginia M.S.W., Catholic University of America; practice and field instruction. Walker, Ruby C. Assistant Professor M.S.W., Richmond Professional Institute; family practice, the black aged. Walsh, Joseph Assistant Professor Ph.D., Ohio State University; serious mental illness.

The 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 developed initially in response to community needs to help World War I veterans with their social and health problems. Subsequent development of the school has expanded activity into all areas of human service. The School of Social Work is the oldest of its kind in the South.

With the creation of Virginia Commonwealth University in 1968, the School of Social Work became a unit of the University’s Academic Campus. The Raleigh Building at 1001 West Franklin Street houses faculty offices, a student lounge, and conference rooms. Richmond provides a unique setting for social work education. The population of the metropolitan area is approximately 800,000 persons. As a community, Richmond is in a period of exciting economic and social growth permitting varied opportunities for community study and field instruction. As the capital of Virginia, Richmond offers educational opportunities in many state government agencies concerned with the development and provision of social services. Proximity to Washington, D.C. allows additional opportunities with federal agencies and national organizations. The existence of a large number of social agencies in the area permits students to participate in the delivery and development of a wide range of social services.

THE PROFESSION OF SOCIAL WORK

The goals of the profession of social work are to provide services to persons who experience vulnerability due to a lack of personal, social and/ or institutional resources to meet their emotional, health, and economic needs. Social work practice is the application of professional knowledge, skills and values across a range of settings and populations. The focus of social work practice is on individuals, couples, families, groups and communities. In addition to direct clinical social work practice, social workers are involved in the administration of human service programs, social planning, the development of social policies, research and evaluation, and in teaching.

In order to achieve the goals of promoting social justice and enhancing well-being for individuals, families, groups and communities, social workers provide a variety of services primarily in public and non-profit organizational contexts. Examples of the range of settings in which social workers practice are: community centers, public social services, child welfare, residential treatment facilities, schools, community mental health agencies, family and children’s service agencies, psychiatric and acute care hospitals, substance abuse treatment facilities, services for the elderly, court services, and adult and juvenile rehabilitation facilities.

The origins of the social work profession were in the settlement house and charity organization societies movements of the late 19th century. Professional education for social work practice dates to the early 1900s. The contributions of the profession are evidenced in health and mental health care, the well-being of children and families, the development and implementation of social policies, the planning, delivery and evaluation of human services, and a broad base of research on the human condition. The knowledge base of the profession, and integration of related social, behavioral, and biological sciences acquired through professional education facilitates the contributions of social workers in multidisciplinary contexts.

Social work practice is designed to enrich the quality of life by enabling individuals, groups, communities, and organizations to achieve their greatest potential development. The goal of the School of Social Work at VCU is to provide professional education in response to these needs.

EDUCATIONAL PROGRAMS

The School of Social Work offers three degree programs. These are an undergraduate curriculum leading to the Bachelor of Social Work degree, a graduate professional curriculum leading to the Master of Social Work degree, and a
Ph.D. program in social work. In addition, a wide range of continuing education offerings are made available to help social work practitioners remain current with practice knowledge and skills.

**BACCALAUREATE SOCIAL WORK PROGRAM**

The four-year program leading to the Bachelor of Social Work degree is accredited by the Commission on Accreditation of the Council on Social Work Education. The objectives of the baccalaureate program are to prepare students for beginning-level professional social work practice and, in the case of students wishing to pursue additional social work education, for graduate study.

A description of the baccalaureate program may be found in the *Virginia Commonwealth University Undergraduate Bulletin*. A copy of the Bulletin may be obtained by writing to University Enrollment Services, Virginia Commonwealth University, Richmond, VA 23284-2526.

**MASTER OF SOCIAL WORK PROGRAM**

The school offers a graduate professional curriculum accredited by the Commission on Accreditation of the Council on Social Work Education leading to the Master of Social Work degree.

The purpose of the social work programs at Virginia Commonwealth University is to educate persons for social work practice. The guiding principle in educating students is the promotion of a more just society which includes a commitment to the value of diversity and social work practice in a multicultural society. The VCU School of Social Work emphasizes critical thinking, self-awareness, data-based decision-making, and ethical integrity.

Graduates of our programs will be able to address personal and social problems; formulate, implement, and evaluate policies and programs; engage in knowledge development for the profession; and, influence community decision-making. Our educational programs focus on service to people who experience vulnerability due to lack of personal, social and/or institutional resources to meet their emotional, health, and economic needs.

Within this context, social work practice is defined as the application of professional knowledge, skills and values across a range of settings and populations for the prevention and amelioration of personal and social problems. The interactions among persons and their environments are the primary targets of social work practice. Services provided by social workers include the restoration, rehabilitation, maintenance and enhancement of optimal functioning of individuals, families, groups, communities, and organizations.

Knowledge for social work practice is based on an analysis and critical application of qualitative and quantitative research from within the profession and related social, behavioral, and biological sciences. Skill in professional practice is based on the differential application of theories and research findings about human behavior in its sociocultural and organizational contexts. Skill is developed by the social worker through the educational process, self-critical practice, and the use of supervision and consultation.

**Admission to the Master’s Degree Program**

Full-time or structured part-time program applicants are admitted to begin study in the fall semester only. Advanced-standing program applicants are admitted for the summer semester only. At the time of application, applicants may apply for only of the following: full-time on-campus Richmond, part-time on-campus Richmond, part-time off-campus Northern Virginia, or Advanced Standing. **Application deadlines are March 1st for full-time or part-time programs and December 31st for the advanced-standing program.** Application forms are available from the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051.

**General Admission Requirements**

Within the policies established by the University Graduate Council, the School of Social Work has established the following criteria for admission:

1. A bachelor’s degree from an accredited college or university.
2. A cumulative grade point average of 2.7 (B) on a 4.0 scale for all undergraduate coursework and a 3.0 for the last 60 credits.
3. A broad liberal arts background. Applicants must have completed a minimum of 30 semester credits in the liberal arts. Applicants must have completed at least one course in each of the following four areas: **Mathematics/Computer Sciences**: math, logic, statistics, computer sciences **Humanities**: English composition, literature, art history, music appreciation, philosophy, languages, religious studies, multicultural studies **Social and Behavioral Sciences**: psychology, sociology, anthropology, history, po-
political science, economics (with at least 3 credits in psychology and 3 credits in sociology)

**Biology and Physical Sciences:** anatomy/physiology, botany, general biology, zoology, chemistry, ecology, physics, geology, astronomy (with a minimum of 3 credits in human biology content)

Applicants who have not completed all the liberal arts prerequisites may be considered for admission but must have completed the prerequisite courses prior to enrolling in the MSW program and must provide official transcripts to document completion of liberal arts prerequisites. Courses may be completed at a community college or college/university.

4. Demonstrated commitment to social welfare and social justice. This may be reflected in the personal statement and/or by applicant’s academic background, social work employment, and/or volunteer work in community agencies serving the vulnerable, at-risk, and oppressed populations.

**General Admission Procedures**

Applications will be reviewed when they are complete. This includes application form, three letters of reference (such as faculty, employers, colleagues who know the applicant’s academic and work/volunteer abilities), official transcripts from all undergraduate and graduate colleges and universities attended, personal statement, and employment resume. The applicant is responsible for ensuring that all materials are submitted prior to the application deadline, and applicants are encouraged to submit their materials well before the deadline.

Some early decisions will be made on very strong applications; the majority of decisions will be made within 6-8 weeks after the application deadline when the entire applicant pool can be considered. The admission review process includes faculty and administrative review of the applications; reviewers consider scholarship ability, academic background, work and/or volunteer experience, and personal qualities that indicate potential to meet the requirements of the social work profession. The school is particularly committed to ensuring a student population that reflects the multi-cultural and diverse nature of our society.

**Advanced Standing Program**

Advanced Standing admission is available to a select group of students with a bachelor’s degree from an undergraduate social work program, accredited by the Commission on Accreditation of the Council on Social Work Education, completed no more than five (5) years prior to the date of application to the MSW program. The minimum requirement for admission to the advanced standing program is a 3.2 grade point average on a 4.0 scale for the last 60 semester hours of academic work. As part of the application packet, applicants must submit their field practicum evaluation(s) and a reference letter from the field practicum faculty. Applicants who meet these criteria will be scheduled for a structured on-campus interview, which includes a written case assessment. Admission decisions will be based on application materials and faculty/administrative evaluation of applicant performance on the structured interview and written case assessment.

The Advanced Standing Program leads to a Master of Social Work degree upon completion of 39 credit hours. The program begins in early June, continues through the summer, and culminates with graduation the following May. The Advanced Standing Program is a full-time program only and cannot be pursued on a part-time basis.

**Transfer Admits**

Applicants transferring from other CSWE-accredited MSW programs must submit course syllabi, field practicum evaluations, and a Statement of Good Standing from the dean or director of the program from which the student is transferring. These materials must be submitted in addition to the required application form, transcripts, personal statement, resume, and reference letters. No more than 30 semester credits will be accepted in transfer, and transfer credit will be awarded in accordance with University policies governing transfer credit and time-limits for degree completion.

Applicants from nonsocial work graduate programs must submit course syllabi for transfer evaluation. A maximum of six semester credits of elective coursework may be accepted in transfer from nonsocial work graduate programs in accordance with University policies governing transfer credit and time-limits for degree completion.

**Special Admits**

Special admission may be granted to applicants who receive the baccalaureate degree at least five years prior to application submission, who obtained a 2.5 cumulative grade point average, and who have strong practice-related experi-
ence or other unusual qualifications. Although the GRE is not required, applicants may submit GRE scores or transcripts reflecting graduate coursework completed to provide information on their capability for graduate study. Applicants admitted as provisional students (with grade point averages between 2.5 and 2.7) must complete the first 12 credits in the program with grades of "B" or better.

Master of Social Work Degree Requirements

The M.S.W. degree requires the completion of 60 credits of graduate study (two years of full-time study). The first 30 credits may be taken in one academic year on a full-time basis (in the Richmond program site only) or may be extended to a maximum of two years in the structured part-time program. The first 30 credits represent the foundation curriculum of the program and include courses in social work practice, human behavior, social policy, social justice, research, and field instruction. Students select an area of concentration for the last 30 credits, which can be completed in one academic year on a full-time basis or extended to a maximum of two years in the structured part-time program. Second-year concentration study is designed to prepare students as practitioners in a particular concentration of advanced social work methods. Students are usually in a field instruction practicum two days each week during the foundation curriculum and three days each week during the concentration curriculum.

THE M.S.W. CURRICULUM

A key assumption upon which M.S.W. curriculum objectives rest is that there is a foundation of knowledge, skills, and values common to all social workers upon which education for concentration practice builds. The foundation is focused by the five traditional social work content areas: social work practice, human behavior and the social environment, social welfare policy and services, research, and field instruction. There is also emphasis on the professional socialization of students and on their development of self-awareness, self-discipline, and accountability. Stress is given to the identification, understanding, and commitment of students to the perspective and values which bind all social work levels and specialties into one profession whose practitioners share common attributes and an agreed-upon purpose.

A second assumption is that graduate students, as future practitioners who will assume leadership roles in intricate social systems, must be able to assist clients through the application of specific methods of social work practice. The school defines and organizes these methods as being either clinical social work practice (intervention with individuals, families, and groups) or planning and administrative social work practice.

The purpose of the Master of Social Work program is to prepare graduate-level social workers with mastery of the knowledge, values, and skills essential for advanced social work practice in a multicultural society. The School accomplishes this purpose through its full- and part-time programs of study for the MSW degree in its on- and off-campus locations. The objectives of the MSW program are to:

1. provide a foundation curriculum of the knowledge, skills, ethics and values essential for work with individuals, couples, families, groups, communities, and organizations;
2. provide a concentration curriculum preparing students for advanced practice in either clinical social work practice or social work planning and administrative practice in a range of settings;
3. offer classroom and field instruction experiences that promote students’ adherence to the profession’s values and their applications;
4. offer learning experiences which sensitize students to the implications of diversity by helping them to identify and counteract individual and institutional prejudice, oppression and discrimination;
5. enable students to analyze and critically evaluate professional practice, programs and service delivery systems;
6. provide a learning environment that instills in students a commitment to continued learning and self-critical practice.

The expected outcomes for student learning are found in the course objectives for the Foundation and Advanced Concentration curricula.

The Foundation

The foundation curriculum comprises the first 30 credits of the program. It includes the knowledge, skills, and values common to all social workers and provides a foundation for developing advanced analytical and practice skills during study in the second-year concentration curriculum. Emphasis is placed on the identification, understanding, and commitment to the perspective and values that bind social work as a profession.
Concentration Options

After completion of foundation study, M.S.W. students choose an advanced concentration in either clinical social work or social work planning and administrative practice. The concentration curriculum prepares graduates for active roles in practice and program evaluation and in the generation of knowledge for future practice, programs, and policy.

Both concentration options are available in the Richmond program. The clinical social work concentration is available in the Northern Virginia off-campus site, and the social work planning and administrative option is available in Northern Virginia when there is sufficient student enrollment.

CLINICAL SOCIAL WORK PRACTICE CONCENTRATION

Clinical social work practice involves a mutual problem solving process in which multidimensional assessment, goal setting, planned intervention and evaluation are prominent components, all of which are informed by current scientific knowledge. All clinical practice is grounded in the values and purposes of the social work profession. The goal of clinical social work is to promote effective coping with life challenges and transitions. This is achieved by helping people solve problems, change dysfunctional behavior, resolve emotional and interpersonal conflicts, develop and use social networks and resources and maintain achieved capacities and strengths.

This goal rests on the fundamental belief in the dignity of all human beings and in communal responsibility for all members of our multicultural society.

Clinical social work practice takes place in the context of a purposeful relationship. The conscious use of the professional self is central in building and maintaining such relationships. Interventions may involve therapeutic, supportive, educational and resource management activities. These interventions are based on a process of strengthening and reordering of organizational structures in the lives of clients: intrapersonal (including intrapsychic) interpersonal, institutional and/or social

SOCIAL WORK PLANNING AND ADMINISTRATIVE PRACTICE CONCENTRATION

The social work planning and administrative practice concentration prepares graduates for entering advanced social work practice through mid-level organizational and community program positions that call for knowledge and skills in system modification and system development. Our approach to social planning and administrative practice emphasizes the major themes of cultural diversity, social justice and change. In carrying out this purpose, we recognize that students should be exposed to and acquire information on current theory and research on organizations and communities, both in classroom and field based experiences.

FIELD INSTRUCTION

Field instruction courses are an integral part of the curriculum of the School of Social Work. Academic credit is awarded for field instruction hours completed in a community agency under professional supervision. Foundation students are expected to demonstrate in practice the professional knowledge, values and skills studied in the total first year curriculum.

In the second year concentration component of the curriculum, students are placed in agencies according to their chosen concentration (Clinical Social Work Practice or Social Work Planning and Administrative Practice) and their career interests. Examples of such agencies are: public social services, community mental health centers, hospitals, substance abuse treatment programs, schools, family and children’s services, and correctional facilities.

Part-time students planning to take either foundation or concentration field instruction (two semester or block option) must request placement in writing one full semester prior to the semester or summer in which they plan to begin field instruction. Such requests are to be addressed to the Director of Field Instruction. Only one placement (foundation or concentration) may be taken in a block and the block placement option is only for students in the structured part-time program.

Field instruction placements are generally available throughout Virginia, The District of Columbia, and in neighboring states. Students residing in a community outside of Richmond may request field placement there. Granting of the request depends on the availability of resources. Students are, however, placed in agencies for field instruction primarily on the basis of curriculum requirements. Therefore, students may be placed in agencies that are a distance from Richmond (or their residence). Arrangements for travel and accommodations must be made by students at their own expense.
Credit for work or life experience is not granted in lieu of field instruction course credits.

STRUCTURED PART-TIME STUDY FOR THE MASTER OF SOCIAL WORK DEGREE

The School offers a structured part-time program leading to the M.S.W. degree on the Richmond campus and at its off-campus site in Northern Virginia. Students applying for the structured part-time program must: meet the same criteria for admission as full-time students; be admitted to the University prior to enrolling in any courses in the structured part-time program; and may begin the program in the fall semester only. Students in the structured part-time program must also complete six credits each fall and spring semester and are expected to complete all requirements for the degree within a four-year period. The structured part-time program cannot be completed on nights and weekends, given field practicum requirements and the scheduling of some courses. With the exception of the field practicum, Foundation courses required in the structured part-time program are available in evening courses (4:00 and 7:00 p.m. classes). Students may take the concentration curriculum (last 30 credits) on a structured part-time or full-time basis at the Northern Virginia off-campus site or on-campus in Richmond. Concentration courses in Richmond are predominantly available during the day, although some of these classes are available in 4:00 and 7:00 p.m. classes.

SPECIAL M.S.W. OPTIONS

Study in the M.S.W. program combined with study in other programs or subjects can lead to students earning special certificates or additional degrees. Options are offered for a certificate in aging, for school social work certification, for dual degree study in law, and for dual degree study in Christian education. These options are only available in Richmond.

M.S.W. and Certificate in Aging Studies

The School of Social Work in cooperation with the Department of Gerontology of the School of Allied Health Professions of VCU provides students with a unique educational opportunity in social work and gerontology. School of Social Work M.S.W. students interested in work with the elderly or in gerontological programs may earn a Certificate in Aging Studies while completing the Master of Social Work degree requirements.

Students must meet the admission requirements of the M.S.W. program of the School of Social Work and of the Certificate in Aging Studies of the Department of Gerontology. Admission into one program does not guarantee admission into the other. In order to meet the requirements of the M.S.W. degree and the Certificate in Aging Studies, students complete a total of 65 graduate credits. All foundation and concentration courses of the M.S.W. program are completed, and core courses (nine credits) of the Certificate in Aging Studies are completed. Other requirements are met by (1) completion of M.S.W. research credits with students undertaking a research project focused on aging; (2) completion of second-year field instruction practicum requirements (six credits) in a social work setting related to aging; and (3) completion of an independent study course in gerontology which integrates research and practicum courses.

Additional information may be obtained from the School of Social Work, Virginia Commonwealth University, 1001 West Franklin Street, Richmond, VA 23284-2027 (Attention MSW-Gerontology Certificate Advisor).

Certificate for School Social Work

Through a collaborative program with the VCU School of Education, students may meet State Department of Education standards for certification as school social workers in Virginia in addition to meeting requirements for the M.S.W. degree. Students interested in certification in school social work should contact their advisor during the first semester of their program. In order to meet the requirements of the M.S.W. degree and the School of Social Work certification option, students complete a total of 63 graduate credits including courses in the School of Education.

The School of Social Work prepares professionals ready to work with children in both school and family settings. The skills and competencies school social workers need are provided through course work at VCU in social work and education. Since 1907, when school social work services began, social workers have been instrumental in furthering the purposes of schools and families in teaching, learning, and attainment of competence in educational settings.

Additional information may be obtained from the School of Social Work, Virginia Commonwealth University, 1001 West Franklin Street, Richmond, VA 23284-2027 (Attention Certificate for School Social Work Advisor).
Dual Degree Study in Law and Social Work

Through a cooperative arrangement with the T.C. Williams Law School, selected students in either school may pursue a four-year curriculum of graduate study leading to the degrees of Master of Social Work and Juris Doctor. The program is established in recognition of the role of public law in social and economic life. The dual degree program prepares professionals versed in the values, knowledge, and skills of both fields, bringing an integrated base of competency to the resolution of human and social problems.

Applicants must successfully meet the admission requirements of both schools, and upon admission are assigned an advisor in each school. Students in dual degree study may begin the course work in either school, with the sequence of courses being determined by the point of entry.

The time normally required for completion of the integrated four-year curriculum is one academic year less than if each degree were taken separately. Elective courses will enable students to select areas in law and in social work which meet their particular interests. Admission materials for each student may be obtained respectively from the Admissions Office of the T.C. Williams Law School, University of Richmond, VA 23173 and the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23298-0568.

Cooperative Program with the Presbyterian School of Christian Education (PSCE)

In this program, the first year of study is completed at PSCE and the second year at the School of Social Work in the foundation curriculum in order to meet the requirements for the degree of Master of Arts in Christian education. Students may spend an additional year at the School of Social Work in the concentration curriculum and meet the requirements necessary for the Master of Social Work degree.

Application for admission must be made to each institution separately. Those interested should write both the School of Graduate Studies, Virginia Commonwealth University, Richmond, VA 23284-3051, and Director of Admissions, PCSE, 1205 Palmyra Avenue, Richmond, VA 23227.

Academic Status

A minimum grade-point average of 3.0 ("B") on a 4.0 scale over the entire period of study, a minimum of 60 credits in the two-year and part-time options, 39 credits in the advanced-standing program, demonstrated ability in social work practice, and acceptable professional behavior are required for graduation with a Master of Social Work degree.

Students must achieve a grade-point average of 3.0 or higher in the required foundation courses, exclusive of field instruction practicum, in order to continue into second-year specialization study.

A student who receives any grade of "D" or "F" will be reviewed for possible academic termination.

A student who earns a grade of "C" or below in more than six credits, exclusive of field instruction, will be dropped automatically and immediately from the program without regard to grade-point average.

Field practicum performance is graded on a pass/fail basis. The student must receive a grade of "pass" to continue in the program. The student who receives a grade of "fail" in the field practicum is dropped automatically and immediately from the program without regard to grade-point average.

A student with less than a 3.0 overall grade-point average may petition the dean of the School of Social Work in writing for readmission to the program after an absence of one academic year (two semesters). A student with less than 3.0 grade-point average at the time foundation requirements are completed, and who takes summer session courses approved in writing by the assistant dean and thereby raises the grade-point average to a 3.0 or higher, may continue in the program without a one-year absence. However, each student's situation will be considered individually, and the minimum one-year leave of absence may still be required before the student is permitted to continue in the program. A student who is dropped from the Master of Social Work program because of a grade of "fail" in field instruction may petition the dean of the School of Social Work in writing for readmission to the program after an absence of one academic year.

COURSE REQUIREMENTS FOR THE MASTER OF SOCIAL WORK DEGREE

Following are the course requirements for the foundation curriculum. Concentration study will vary according to the student's choice of method. Foundation course requirements must be completed prior to entering concentration courses.

TWO-YEAR PROGRAM

<table>
<thead>
<tr>
<th>Foundation</th>
<th>Credits</th>
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<tbody>
<tr>
<td>First Year, Fall Semester</td>
<td></td>
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<tr>
<td>SLW 601</td>
<td>Human Behavior in the Social Environment I</td>
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</tbody>
</table>
forall participants, and 18 credit hours of dissertation research. The course credit hours of coursework and a minimum of 18 concentration content in one of two areas: clinical social work includes 18 credit hours of content common to knowledge development and dissemination, including theory, policies, programs, and methods aimed at promotion of human well-being and alleviation of social problems.

The curriculum consists of a minimum of 36 credit hours of course work and a minimum of 18 credit hours of dissertation research. The course work includes 18 credit hours of content common for all participants, and 18 credit hours of concentration content in one of two areas: clinical social work or social policy. The requirements of the School of Graduate Studies for candidacy exams and dissertation committees apply to participants in this program. Part-time study for portions of the program is possible.

### Admission to the Ph.D. Program

Applicants to the program must have an earned master’s degree in social work or a related discipline. The application process includes submission of a completed application form, transcripts for all undergraduate and graduate studies, three references, recent Graduate Record Examination scores, a written exercise, and a personal statement describing the applicant’s motivation for participation in the program and preparation to do so. Three years of post-master’s supervised full-time clinical experience is required for the clinical concentration.

Potential applicants interested in testing their capacity for doctoral work or those whose application material has not been completed for faculty review may take classes as nondegree students. Six credit hours in approved courses taken on this basis may be applied toward the degree. Satisfactory performance as a non-degree student does not assure admission as a regular degree-seeking student. While it is possible to combine a limited amount of course work with outside employment, participants are expected to commit themselves to one year of full-time study prior to beginning dissertation work.

For application materials, write to: Director, Doctoral Program, School of Social Work, Box 2027, Virginia Commonwealth University, 1001 West Franklin Street, Richmond, VA 23284-2027.

### Requirements for the Ph.D. Degree

A minimum of 36 credit hours of course work beyond the master’s degree plus a minimum of 18 credit hours of dissertation research is required. Up to six credit hours may be granted for courses completed in a Ph.D. program at an other university. There is no foreign language requirement. Full-time participants ordinarily complete 18 credit hours per academic year. Other requirements are detailed below.

### Common Curriculum

The common curriculum which is required of all students consists of the following courses (18 credits):

- SPW 703 Causal Relationships and Theory Construction
- SPW 701 Research Methods I
- STA 608 Statistics for Social Research
- SPW 702 Research Methods II

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<tbody>
<tr>
<td>SLW 602</td>
<td>Social Welfare Policy, Community Planning and Organizational Practice I</td>
<td>3</td>
</tr>
<tr>
<td>SLW 603</td>
<td>Social Work and Social Justice</td>
<td>3</td>
</tr>
<tr>
<td>SLW 604</td>
<td>Social Work Practice with Individuals, Families, and Groups I</td>
<td>3</td>
</tr>
<tr>
<td>SLW 693</td>
<td>Foundation Field Instruction I</td>
<td>3</td>
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**First Year, Spring Semester**

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<tr>
<th>Course Code</th>
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<tr>
<td>SLW 605</td>
<td>Social Work Practice with Individuals, Families, and Groups II</td>
<td>3</td>
</tr>
<tr>
<td>SLW 606</td>
<td>Social Welfare Policy, Community Planning and Organizational Practice II</td>
<td>3</td>
</tr>
<tr>
<td>SLW 609</td>
<td>Foundations of Social Research</td>
<td>3</td>
</tr>
<tr>
<td>SLW 610</td>
<td>Human Behavior in the Social Environment II</td>
<td>3</td>
</tr>
<tr>
<td>SLW 694</td>
<td>Foundation Field Instruction II</td>
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**Concentration**

**Second Year, Fall Semester**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Clinical Social Work Practice I</td>
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<td></td>
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<tr>
<td>Clinical Human Behavior</td>
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<td>OR</td>
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<tr>
<td>Social Work Planning and Administrative Practice and Human Behavior</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Social Work Management Strategies and Techniques</td>
<td>3</td>
<td></td>
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<tr>
<td>Research I</td>
<td>3</td>
<td></td>
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<tr>
<td>Elective</td>
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<tr>
<td>Concentration Field Instruction</td>
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**Second Year, Spring Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Clinical Social Work Practice II</td>
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<tr>
<td>OR</td>
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<td></td>
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<tr>
<td>Social Work Planning and Administrative Practice and Human Behavior II</td>
<td>3</td>
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<tr>
<td>Research II</td>
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<tr>
<td>Social Policy</td>
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<tr>
<td>Elective</td>
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<tr>
<td>Concentration Field Instruction II</td>
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**Information on the required sequencing of courses for the Structured Part-Time Program is available upon request.**
Students are required to complete the common curriculum prior to undertaking their concentration studies.

**Concentration Curriculum.** The concentration consists of a minimum of 18 credit hours of course work designed to prepare participants for a career in one of the two areas: clinical social work (theory and research) or social policy (development, analysis, implementation, and evaluation). Some courses are required in each concentration, but within limits set by the objectives of the program, concentration course work may be individually designed to complement the career objectives of each participant. In addition to seminars and courses offered by the program, participants are encouraged to enroll in appropriate courses in other schools and departments of the University with approval of their advisor.

**Comprehensive Exam/Admission to Candidacy.** Upon completion of all required course work, participants will take a comprehensive exam under the supervision of a Graduate Advisory Committee which will focus on the integrative aspects of the substance of their course work. Successful completion of the comprehensive exam results in candidacy status for the Ph.D. degree.

**Dissertation.** After admission to candidacy participants proceed to propose, complete, and defend their dissertation. This is done under the supervision of a dissertation committee. Participants are required to maintain continuous enrollment of at least three credit hours per semester (excluding summer) until they have attained 18 hours of dissertation credit, after which they may enroll for as few as one credit per semester. The number of credit hours per semester is expected to reflect the intensity of use of University resources, especially faculty time. The dissertation must represent independent research which is devoted to an original question or hypothesis with the appropriate development, analysis, and interpretation of data. Successful defense of the dissertation completes the requirements for the degree.

**GENERAL INFORMATION**

**Financial Assistance**

Although financial assistance is limited, funds are available. No prospective student should refrain from seeking admission to the school for financial reasons alone.

**Traineeships.** States, through their departments of social services, mental health, corrections, and rehabilitation, may have programs to assist individuals in securing professional education. These may be consulted locally.

The school also administers and awards federal and University traineeships for qualified students. However, since funds available through the School of Social Work are limited, applicants are strongly urged to seek additional sources to finance their education.

**Federally Guaranteed Loans and Work-Study Program.** See “Student Financial Assistance” in Part I of this bulletin.

**H. H. Hibbs Loan Fund.** The H. H. Hibbs Loan Fund was established by the School of Social Work Alumni Association for short-term emergency needs. Alumni, faculty, and friends of the school are encouraged to contribute to it. Enrolled full-time students who wish to apply for a loan should discuss this with their faculty advisor and the assistant dean.

**Research and Teaching Assistantships.** Research and teaching assistantships may be available to doctoral students. Additional information is available from the director of the Ph.D. program.

**CONTINUING EDUCATION**

Post-degree study is a vital part of professional work education. The School of Social Work offers a variety of lectures, institutes, and workshops as part of the school’s commitment to enhance social work practice and broaden educational experiences for students, social workers, field instructors, and others in social service delivery systems.

State, regional, and local agencies and institutions frequently identify educational and training needs in content or skill areas for selected staff members. The School, through contractual arrangements, contributes expertise in designing and implementing short-term training courses and materials.

Offerings are planned throughout the year and are available throughout Virginia. For further information about specific continuing education courses, inquiry should be addressed to the Associate Dean for Research Development, School of Social Work, Virginia Commonwealth University, 1001 West Franklin Street, Richmond, VA 23284-2027.

**ALUMNI ASSOCIATION**

The School of Social Work Alumni Association actively supports the program of the school with the alumni association president serving as
Hibbs Loan Fund and continues to contribute to students of the School of Social Work. The association established the H. H. Hibbs Loan Fund and continues to contribute to the support of it. An Alumni Association Scholarship also has been established. The Annual Social Work Symposium is sponsored by the association. Meetings are held throughout the year, and membership is open to all graduates and students of the School of Social Work.

MASTER OF SOCIAL WORK STUDENT ASSOCIATION
The Master of Social Work Student Association is the organization of M.S.W. students enrolled in the school. Established for the purposes of facilitating communication among students and between the student body and the school, it provides a means by which student concerns and ideas can be formulated and acted upon. It also enables students to conduct a variety of social and other activities throughout the year.

This organization plays a vital role in the educational process. Student contributions to the governance and curriculum of the school are of value to both the institution and the students. Participation in the decision-making process is accomplished through student representation on committees. Faculty and students work closely together throughout the year to meet the needs of graduate social work education. Students participate as full members of committees within the school.

BLACK STUDENT ASSOCIATION
The Black Student Association was established to create and maintain an atmosphere of unity and support among black students in the School of Social Work. It serves to assist students in the personal and professional growth and development. Membership in this organization helps students to develop a keen awareness of the acute needs of the black community and the active role that must be assumed by the dedicated black professional social worker in promoting the general welfare of black citizens. To attain these goals, the organization utilizes the educational process and related experiences of students at the school and in field work. Students are encouraged to participate in all phases of the academic environment. Black students are expected to maintain membership in and are members of the M.S.W. Student Association of the school.

DOCTORAL STUDENT ASSOCIATION
The Doctoral Student Association meets on a regular basis, and students participate actively in the governance of the doctoral program and School of Social Work. The association functions with elected members to all standing committees with the school.

MASTER'S DEGREE COURSES IN SOCIAL WORK (SLW)

601 Human Behavior in the Social Environment I. Semester course; 3 lecture hours. 3 credits. First of two foundation courses on human behavior in the social environment, covering the life course from conception through late adolescence. Provides a multidimensional perspective on social work's person-in-environment focus, based on theory and research findings. Includes contributions of biological, psychological, physical, and sociocultural forces to adaption and/or maladaptation. Examines problems of living; impacts of racial, ethnic, class, cultural, religious/spiritual and gender diversity on human behavior; role and contributing effects of the family system; and the reciprocal nature of interactions of persons, social groups, communities, organizations, and institutions in a multicultural society.

602 Social Welfare Policy, Community Planning and Organizational Practice I. Semester course; 3 lecture hours. 3 credits. Corequisite: SLW 601. First of two foundation courses on social welfare policy practice in communities and organizations focusing on social and economic policies in light of the principles of social and economic justice. Introduces the social work role of policy practitioner as change agent in legislative, community, and organizational arenas. Uses social/behavioral knowledge and social work intervention models to create and apply analytical frameworks for assessing program, organizational and policy effectiveness. Surveys historical evolution of social welfare policy and contemporary provision of social welfare services. Establishes historical and current importance of values in policy formulation. Develops skills in identification of need, designing strategies for change, and policy analysis.

603 Social Work and Social Justice. Semester course; 3 lecture hours. 3 credits. Examines historical and current social welfare and social work issues related to oppressed groups in a multicultural society. Presents theoretical models for studying discrimination resulting from persistent social, educational, political, religious, economic and legal inequalities. Addresses misuse of power and resulting oppression. Focuses on oppressed groups in the USA in order to understand their experiences, needs and responses. Uses a strengths approach for the study of all people of color and other oppressed groups often distinguished by gender, age, sexual orientation, ability and class. Enhances understanding of and appreciation for cultural, social, and spiritual diversity. Raises ethical dilemmas and decisions faced by social workers who practice in multicultural settings.

604 Social Work Practice with Individuals, Families and Groups I. Semester course; 3 lecture hours. 3 credits. Pre- or corequisite: SLW 601. The first of two foundation courses on social work practice with individuals, families and groups. Defines and describes the history, context, phases and processes of direct social work practice. Introduces basic knowledge, skills, and values necessary to provide a range of restorative, rehabilitative, maintenance and enhancement services. Emphasizes the multidimensional context in which intervention occurs. Introduces selected practice theories and...
models to guide intervention with an emphasis on work with individuals.

604 Social Work Practice with Individuals, Families and Groups II. Semester course; 3 lecture hours. 3 credits. Prerequisite: SLW 601 and 604. Pre- or corequisite: SLW 610. The second of two foundation courses on social work practice with individuals, families and groups. Extends application of beginning knowledge and skills to the phases of intervention with groups and families. Presents knowledge and skills of environmental intervention and termination. Introduces selected theories and models for social work practice with individuals, families and groups with attention to special population groups.

605 Social Work Practice with Individuals, Families and Group II. Semester course; 3 lecture hours. 3 credits. Prerequisites: SLW 601 and 604. Pre/ or corequisites: SLW 610. Second of two foundation courses on social work practice with individuals, families, and groups. Extends application of beginning knowledge and skills to the phases of intervention with groups and families. Presents knowledge and skills of environmental intervention and termination. Introduces selected theories and models for social work practice with individuals, families and groups with attention to special population groups.

606 Social Welfare Policy, Community Planning and Organizational Practice II. Semester course; 3 lecture hours. 3 credits. Prerequisites: SLW 601 and 602. Corequisites: SLW 610. The second of two foundation courses on social welfare policy and practice in communities and organizations focusing on social and economic policies in light of the principles of social and economic justice. Explores legislative/political processes. Examines values and ethical dilemmas facing professional social workers in organizations and communities. Presents effects of policy on social work practice. Develops skills in legislative lobbying, advocacy, design of change strategies and tactics, policy analysis, and task group leadership.

607 Social Work Practice for Advanced Standing Students. 2 credits. Prerequisite: Admission to the Advanced Standing Program; concurrent enrollment in SLW 608, 611, 612. Reviews approaches, principles, techniques, and phases of micro and macro social work practice. Emphasized commonalities and differences among practice modalities, including differential exploration, assessment, intervention, and evaluation of outcome.

608 Perspectives on Emotional Disorders for Advanced Standing Students. 2 credits. Prerequisite: Admission to the Advanced Standing Program; concurrent enrollment in SLW 607, 611, 612. Reviews social work perspectives on emotional and interpersonal problems. Emphasizes: the etiology and manifestation of emotional disorders; the current system for classifying these problems; and the impact of social, ethnic/racial, and gender differences on the definition of these problems.

609 Foundations of Research in Social Work Practice. Semester course; 3 lecture hours. 3 credits. Introduces the methods of social work research and the roles of the social worker as consumer and scientist/practitioner, including problem formulation, research designs, measurement, data collection, and sampling. Focuses on the application of critical thinking skills and research methods of clinical social work practice effectiveness research, the evaluation of social work programs and services, and developing the knowledge base for social work practice.

610 Human Behavior in the Social Environment II. Semester course; 3 lecture hours. 3 credits. Prerequisite: SLW 601. The second of two foundation courses on human behavior in the social environment, covering the life course from young adulthood through late adulthood and/or death. Provides a multidimensional perspective on social work's person-in-environment focus, based on theory and research. Includes contributions of biological, psychological, physical, and socio-cultural forces to adaptation and/or maladaptation. Examines problems of living; impacts of racial, ethnic, class, cultural, religious/spiritual, and gender diversity on human behavior; role and contributing effects of the family system; and the reciprocal nature of interactions of persons, social groups, communities, organizations, and institutions in a multicultural society.

611 Social Work Research for Advanced Standing Students. 2 credits. Prerequisites: Admission to the Advanced Standing Program; concurrent enrollment in SLW 607, 608, 612. Reviews approaches to scientific inquiry in the development of knowledge for social work practice: problem formulation; concepts and operational definitions; measurement validity and reliability; selected social work research designs; planned data collection strategies and procedures.

612 Advanced Standing Field Instruction. 3 credits. Prerequisites: Admission to the Advanced Standing Program; concurrent enrollment in SLW 607, 608, 611. Reviews foundation-level knowledge, attitudes, and skills acquired through social work education at the undergraduate level. Requires application, refinement, and the active use of content from the Advanced Standing Curriculum in supervised social work practice in a social agency.

691 Topical Seminar. 3 credits. A seminar on current, specialized areas of interest of social work. Content offered will be reflective of current issues in the field. Particular topics for study in any one semester will be determined jointly by students and faculty instructors.

692 Independent Study. 1-4 credits. The student will be required to submit a proposal for investigating some area or problem in social work not ordinarily included in the regular social work curriculum. The results of the student's study will be presented in a report. Open with faculty approval. A maximum of four independent study courses may be included in a student's educational program.

693-694 Foundation Field Instruction I and II. Continuous course. 3-3 credits (2 days/14 hours per week). Pre- or corequisite: SLW 601, 602, 604, 605, 606, 610. Provides opportunities to master essential social work knowledge, values and skills through practice under the direction of an agency based field instructor, monitored by a faculty field liaison. Emphasizes integration of content from all areas of the foundation curriculum. Grade of PR required for continuation from SLW 693 to SLW 694. Final grade of P required to continue in the program.

695 Block Foundation Field Instruction (option for part-time students only). 6 credits (five days a week for one semester). Prerequisites: SLW 601, 602, 603, 604, 605, 606, 609, 610. Provides opportunities to master essential social...
work knowledge, values and skills through practice under the direction of an agency based field instructor, monitored by a faculty field liaison. Emphasizes the integration of content from all areas of the foundation curriculum. Grade of P required to continue in the program.

Required concentration course descriptions were not available when the bulletin was printed. For information on these courses, contact the School of Social Work at (804) 367-8488.

The courses listed below are examples of elective courses which may be offered.

**713 Child Neglect and Abuse: Protective Services.** 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. Focus on theoretical and practical knowledge of the causes, definition and identification, reporting and investigation, and treatment of child neglect and abuse, and child sexual abuse. Emphasis is placed on understanding and differentiating the family dynamics involved in physical and emotional child neglect, abuse, and sexual abuse. Development and enhancement of skills and the use of differential therapeutic measures will be emphasized.

**717 Social Work Practice in School Settings.** 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. History of social work in schools. Issues in social work practice in public school settings, social influences of school and community, alternatives to traditional education, rights of students, pupil personnel team approach, social worker's role in relation to other school disciplines.

**719 Permanency Planning: Foster Care and Adoption.** 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. Focuses on policy and practice related to the implementation of the permanency planning philosophy of child welfare services. Major topics include: services to families to prevent the need for foster care; recruiting, selecting, training, and consulting with foster parents; separation of child and family; services to reunite child and family; termination of parental rights; selecting, preparing, and consulting with adoptive parents; subsidized adoption of special needs children; and outcomes of permanency planning.

**726 Issues in Health Care and Health Social Work.** 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. Student-centered exploration and study of selected issues in health care and health social work. In-depth analysis and presentation of issues of primary concern. Explication of implications for clinical and macro-social work practice in multidisciplinary health settings.

**739 Social Work and the Law.** 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. Overview of fundamental principles of Anglo-American law; structure and function of the legal system and its professional membership. Lawyers and their working relationship with social workers. Emphasis on client-centered problems encountered in confrontation with the legal community and the role social workers can play in helping clients deal with those encounters. Attention to issues relative to client needs as welfare rights, consumer protection, mental health treatment, family-related law, and discrimination relative to education, housing, employment, health care. Legal issues confronting social work, such as confidentiality, licensing, advocacy, witnessing.

**740 Social Work Crisis Intervention and Planned Short-Term Treatment.** 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. The social work practice of crisis intervention and planned short-term treatment in mental health, mental retardation, and substance abuse services. Conceptual and theoretical aspects of the differential use of crisis intervention and planned short-term treatment by social workers with clients who have various emotional disorders within the context of mental health services. Direct interventions, consultation, collaboration, and service delivery issues will be explored. Active involvement in critically developing ongoing knowledge of the subject area.

**741 Emotional Disorders.** 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. Definition of the concepts of mental health, mental illness, and mental retardation, with a view of mental health and mental illness as a continuum. Etiology of emotional disorders and social deviance. Traditional classification systems and newer approaches in use of clinical practice. Alcoholism and other substance abuse in terms of the physiological, psychological, and sociological components of causation, behavior, and treatment. Causes of and treatment modalities in mental retardation and behavior patterns of the mentally retarded. Comparative theories and therapeutic approaches. Impact of racial and ethnic differences on emotional disorders and social deviance. Effect of mental health and the larger community on the behavior of the person.

**745 Social Work Practice with the Long-Term Mentally Ill.** 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. Addresses knowledge and skills necessary for working effectively with several components of community support networks for the long-term mentally ill. Emphasis on epidemiological information; influences of socio-cultural factors within micro and macro systems; individual interventions with the mentally ill; differential interventions with families; consultation with providers of social and community services, work supervisors and employers, and other staff.

**747 Social Work Intervention with Children and Adolescents in Mental Health Settings.** 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. This course is designed for students who are interested in further developing their knowledge, acumen, and techniques of social work intervention with children and adolescents in mental health and mental retardation settings.

**748 Group Therapy in Mental Health Settings.** 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. This course is designed for students who are interested in developing an understanding of group therapy and its use in mental health/mental retardation system. The course will concentrate on theoretical assumptions as well as experiential applications of group therapy principles as they are utilized in the MH/MR settings. Current research and reports from the literature, case records, and experiential exercises will be major teaching vehicles. Psychodynamic and ego-psychological theories will be the conceptual base for the course content.

**749 Social Work Intervention in Substance Abuse.** 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. Exploration of major theoretical contributions to the field of substance abuse. Introduction
751 Social Work Practice and AIDS. 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. Focuses on information, knowledge and skills needed to provide social work services to persons with ARC and AIDS and their families. Emphasizes epidemiological material, psychological and psycho-social aspects of AIDS and ARC for understanding the context of social policies and social work intervention. Addresses differential application of social work roles and functions.

760 Family Theory and Therapy. 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. Presentation of a conceptual base for the practice of family therapy. The course extends knowledge and practice for family specialists and provides a theoretical base and practice applications of family therapy for other interested students.

761 Interpersonal Violence. 3 credits. Prerequisite: second-year MSW program standing or permission of instructor. Focuses on social worker's integral part in society's response to all forms of interpersonal violence at the policy and practice levels. Examines both theoretical and applied responses to rape, child abuse, spouse abuse and elder abuse and is intended to give students knowledge about the definitions, etiology and interventive processes with both victims and perpetrators. Investigates the social work role with the other major actors in the family violence field, such as police, attorneys, judges and other mental health professionals.

765 Supervision. 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. Task components and responsibilities in supervision of the social worker. Emphasis on a conceptual framework for supervision, including knowledge base, methods, and skill in supervision. Attention to affirmative action programs in social service delivery systems.

769 Women's Issues and Social Work Practice. 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. New perspectives on women and their families. Emphasizes epidemiological material, psychological and psycho-social aspects of AIDS and ARC for understanding the context of social policies and social work intervention. Addresses differential application of social work roles and functions.

773 Program Evaluation. 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. Methods, problems, and research findings related to the evaluation of social welfare programs. Research design options and methodologies available for program evaluation.

Organizational and administrative contexts in which evaluation activities are initiated, supported, disseminated, and utilized. Data processing and the roles of data analysis and the computer in the evaluation of social welfare programs.

791 Topical Seminar. 3 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. A seminar on current, specialized areas of interest to social work. Content offered will be reflective of current issues in the field. Particular topics for study in any one semester will be determined jointly by the students and the faculty instructor.

792 Independent Study. 1-4 credits. Prerequisite: second-year M.S.W. program standing or permission of instructor. The student will be required to submit a proposal for investigating some area or problem in social work not ordinarily included in the regular social work curriculum. The results of the student's study will be presented in a report. Open with faculty approval. A maximum of four independent study courses may be included in a student's educational program.

DOCTORAL COURSES IN SOCIAL WORK (SPW)

701 Research Methods I. 3 lecture hours. 3 credits. Prerequisite: graduate standing in social policy and social work or permission of the program. Concentrated study of the principles of research design in experimental and nonexperimental social research. The logic of science, research design, sampling, and measurement will be considered within the context of applied research settings.

702 Research Methods II. Semester course; 3 lecture hours. 3 credits. Prerequisites: SPW 701 and an approved graduate level course in social statistics. Study of principles and problems in the implementation of social research designs. Data collection, measurement issues, and analysis procedures will be considered in a variety of research contexts.

703 Causal Relations and Theory Development in Social Work. Semester course; 3 lecture hours. 3 credits. Prerequisite: graduate standing in social policy and social work or permission of the program director. Introduction to theory construction; the skills of relating social work theory to social work research; methodological and philosophy of science issues; emphasis on social work as an applied discipline.

708 Behavioral Science Theory for Social Work Practice. Semester course; 3 lecture hours. 3 credits. Prerequisite: graduate standing in social policy and social work or permission of the program. This course will survey the major theoretical approaches which examine the psychological determinants of behavior. Emphasis will be on those approaches which have particular relevance for direct social work practice, that is, work with individuals, families, and small groups.

710 Social Thought and Social Policy. Semester course; 3 lecture hours. 3 credits. Prerequisite: admission to doctoral program in social policy and social work or permission of instructor. An exploration of social thought as expressed in economic theory, philosophy, political theory, and social work. Specific emphasis on social thought as influencing social policy in major fields of social work practice, and on the social forces that impact on social reform.

715 Social Work Practice Theory. Semester course; 3 lecture hours. 3 credits. Prerequisite: graduate standing in
social policy and social work or permission of the program. This course will integrate social and behavioral theories with the variety of practice modalities utilized in social work practice with individuals, families, and small groups.

723 Social Work Education: Issues in Teaching. Semester course; 3 lecture hours. 3 credits. Prerequisite: graduate standing in social policy and social work or permission of the program. Focus is on two central and integrated components of professional education: (1) examination of the development and dimensions of social work education and (2) exploration of theories of learning and teaching within the framework of professional social work education.

724 Social Work Models for Social Policy Analysis and Implementation. Fall semester; 3 credits. Prerequisite: completion of core curriculum. Required seminar for doctoral students in the social work/welfare policy specialization. Selected social work models for social policy analysis. Examination of social work roles and functions in relation to social policy formulation, administration, and evaluation. Examination of historical and current social policy issues in selected social problem areas from the perspective of social work values, ethics, and professional standards.

729 Program Evaluation for Social Welfare Practice. Semester course; 3 credits. Prerequisites: SPW 701 and 702 or permission of instructor. Design options in program evaluation for social welfare. Statistical procedures as related to design options. Models of program evaluation and the interface of such models with design options. The politics of program evaluation for social welfare, including strategies for producing research, dissemination of findings, and the use of findings for organizational planning and change.

791 Topical Seminar. Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Study of the current state of knowledge and research within a specialized area of concern to social policy and social work. May be repeated for credit.

792 Independent Study. Semester course; 1, 2, or 3 credits. May be repeated for a maximum of six credits, which count toward the 36 required credits. May then be taken for an additional 1-12 credits to accommodate the need for continuous enrollment required of all students between completion of required course work and passage of the comprehensive examinations. Prerequisite: permission of the program. Independent reading and study in selected areas under the supervision of a member of the faculty.

793 Teaching Practicum for Doctoral Students. Semester course; 3 credits. Prerequisite: completion of foundation. Optional course available for students interested in teaching as a career. Preparation for and teaching of a course under faculty supervision.

794 Field Study in Social Work/Welfare Policy. Semester course; 3 credits. Prerequisite: SPW 724. Systematic exploration and study in the field of an actual problem, issue, or task germane to the student's social work/welfare policy concentration. Application of specific concepts and approaches to assessment and analysis. Arranged in consultation with the student's program advisor.

797 Directed Research. Semester course; 3 credits. Predissertation research project under faculty supervision.

898 Dissertation Research. Semester course; 1-18 credits. May be repeated for credit. Prerequisite: successful completion of comprehensive examinations or permission of program director. Students are required to complete 18 credit hours. May be taken for additional credits until dissertation is accepted formally.

SCHOOL OF SOCIAL WORK ADVISORY COUNCIL 1993-1994

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Richmond, Virginia

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Virginia Hospital Association  
Commonwealth of Virginia  
Richmond, Virginia

Mr. William Weddington  
Richmond, Virginia

FIELD INSTRUCTION AGENCIES  
1993-1994

11th District Court Service Unit  
13th District Court Service Unit  
15th District Court Service Unit  
16th District Court Service Unit  
Affiliated Sante' Group  
Albemarle County Department of Social Services  
Alexandria City Public Schools  
Alexandria Community Mental Health Center  
Alexandria Community Network Pre-School  
Alexandria Division of Social Services  
Alexandria Hospital  
Arlington County Department of Human Services  
Arlington County Department of Mental Health Association for Retarded Citizens of Northern Virginia  
Association for Retarded Citizens, Petersburg Area, Inc.  
Beaumont Learning Center  
Behavioral Medicine Center  
Beth Sholom Home of Central Virginia  
Blackwell Elementary School  
Blue Ridge Community Services Board  
Blue Ridge Hospice  
Boushall Thomas Middle School  
Braley and Thompson Foster Care, Inc.  
Bristol Regional Counseling Center  
Bristol Regional Medical Center  
Brookside Psychiatric Hospital  
Burgess Lane Middle School  
C. Waldo Scott Center for H.O.P.E.  
Cancer Rehabilitation and Continuing Care  
Caroline County Public Schools  
Catawba Hospital  
Catholic Charities  
Catholic University Counseling Center  
Central State Hospital  
Central Virginia Community Services Board  
Central Virginia HIV Care Consortium  
Charles City County Department of Social Services  
Charlottesville Department of Social Services  
Charter Hospital of Charlottesville  
Charter Westbrook Hospital  
Chesterfield County Public School  
Chesterfield Mental Health and Mental Retardation  
Chesterfield-Colonial Heights Department of Social Services
Chestnut Lodge
Child Development Clinic of Roanoke Valley
Children's Home Society
Children's Hospital National Medical Center
Children's Specialty Services
Chippenham Medical Center
Citizens Against Family Violence
Colonial Mental Health Center
Community Based Services, Inc.
Community Connections
Comprehensive Mental Health Services
Connections
Coordinators/2, Inc.
Crossing Place
Crossroads Services
Cumberland Hospital
D.C. Commission on Mental Health Services
D.C. Institute for Mental Health
D.C. Rape Crisis Center
Daily Planet
DeJarnette Center
Department for Rights of Virginians with Disabilities
Department of Housing and Community Development
DeWitt Army Community Hospital
District 19 Community Services Board
Dominion Hospital
Duke University Medical Center
Dungannon Development Corporation
Essex County Department of Social Services
Fairfax County Department of Human Development
Fairfax County Public Schools
Fairfax Hospital
Fairfax-Falls Church Community Services Board/Community Corrections
Family and Child Services of Washington, DC
Family and Children's Services of Richmond
Family Care, Inc.
Family Institute of Virginia
Family Resource Program
Family Service of Roanoke Valley
Family Services, Inc.
Family Stress Clinic/UVA
Friends Association for Children
George Washington University Medical Center
Goochland-Powhatan Community Services
Goodwin House
Group Health Association
Hampton-Newport News Community Services Board
Hanover County Community Services Board
Hanover County Public Schools
Head Injury Services Partnership, Inc.
Health South Medical Center
Henrico Community Diversion Incentive Program
Henrico County Department of Social Services
Henrico County Public Schools
Henrico Mental Health and Retardation Services
Highlands Community Services Board
Hiram W. Davis Medical Center
Hospice of the Piedmont
Human Resources, Inc.
Infant Intervention Services
Institute for Family Centered Services
James City County Department of Social Services
Jewish Community Center of Northern Virginia
Jewish Family Services
Jewish Family Services of Tidewater
Jewish Foundation for Group Homes
Jewish Social Service
JMU/Shenandoah Valley Child Development Center
John Randolph Hospital
Johns Hopkins Hospital
Johnson City Medical Center
Johnston Willis Hospital
Kenner Army Hospital
L.D.S. Family Service
Lakeside House
Lewis Gale Psychiatric Center
Loudoun County Mental Health Center
Loudoun County Public Schools
Louisa County Public Schools
Malcolm Grow USAF Medical Center
McGuire Veterans Affairs Medical Center
Meals on Wheels
Medical and Counseling Associates
Medical College of Virginia
Memorial Guidance Clinic
Metropolitan Hospital
Middle Peninsula Northern-Neck Family Counseling Center
Montgomery County Department of Social Services
Montgomery County Government Department of Addiction, Victim & Mental Health Services
Montgomery County Public Schools
Mosby Middle School
Mt. Vernon Center for Community Mental Health
National Association of Social Workers/National Office and Virginia Chapter
National Center on Institutions and Alternatives
National Institutes of Health
New River Valley Community Services Board
Newport News Department of Social Services
Northern Virginia Family Service
Northern Virginia Mental Health Institute
Northern Virginia Training Center
Northwest Center for Community Mental Health
On Our Own, Charlottesville, Inc.
Peninsula Hospital
Phoenix Project
Piedmont Geriatric Hospital
Pinnacle Employee Assistance Program
Poplar Springs Hospital
Potomac Hospital
Powhatan Correctional Center
Powhatan Public Schools
Prince George Department of Social Services
Prince William Community Services Board
Prince William Department of Social Services
Prince William Hospital
R-CAP Head Start
Rappahannock Area Community Services Board
Rappahannock-Rapidan Community Services Board
Reach Employee Assistance Program
Region X Community Services Board
Regional Institute for Children and Adolescents
Retreat Hospital
Richmond AIDS Ministry
Richmond Community Diversion Incentive Program
Richmond Department of Mental Health/Mental Retardation
Richmond Department of Social Services
Richmond Memorial Hospital
Richmond Public Schools
Richmond Senior Center
Riverside Convalescent Care Center
Riverside Psychiatric Hospital
Roanoke City Social Services
Rockbridge Area Community Services Board
Rubicon
Russell County Department of Social Services
Saint Albans Psychiatric Hospital
Scott County Management Team/Family Preservation Services
Smyth County Department of Social Services
Snowden at Fredericksburg
Social Center for Psychiatric Rehabilitation
Southside Community Diversion Incentive Program
Southside Regional Medical Center
Southside Virginia Training Center
Southwestern Virginia Mental Health Institute
SRO Housing of Richmond, Inc.
St. Joseph’s Villa
St. Mary’s Hospital
Staunton-Augusta County Department of Social Services
Stuart Circle Center
Superior Home Health Care of East Tennessee
Sycamore Center
Tazewell County Health Department
Tennessee Department of Human Services
The Virginia Home
The Women’s Center of Northern Virginia
Threshold Services, Inc.
United Community Ministries
United Methodist Family Services
University Counseling Center-VCU
University of Virginia Medical Center
University Physician Pediatrics
Urban League of Greater Richmond
Veterans Affairs Medical Center
Veterans Outreach Center
Virginia Alliance for the Mentally Ill
Virginia Department for the Aging
Virginia Department of Mental Health/Mental Retardation/Substance Abuse
Virginia Department of Social Services
Virginia Home for Boys
Virginia Treatment Center for Children
Volunteers of America
Washington Hospital Center
Westminster Canterbury Health Care Center
Whitman-Walker Clinic
William Byrd Community House
Williamsburg-James City County Public Schools
Wilson Inn Residence
Winchester Medical Center
Woodbridge Hospital
Woodburn Center for Community Mental Health
Youth Emergency Shelter
Youth Services Commission
YWCA

AFFILIATED FIELD INSTRUCTION
FACULTY 1993-1994
Carl Ackerman, MSW
Debbie Ackerman, MSW
Chuck Adcock, MSW
Julian Aikin, MSW
Donna Marie Alexander, MSW
Marilyn Allison, MSW
Harry Almond, MSW
Toby Anderson, MSW
Janet Armstrong, MSW
Mary Anne Armstrong, MSW
Marilyn Allison, MSW
Harry Almond, MSW
Allen Anderson, MSW
Toby Anderson, MSW
Janet Armstrong, MSW
Jeannie Armstrong, MSW
Deirdre Arnowitz, MSW
James Aultman, MSW
Diane Bailey, MSW
Joe Baker, MSW
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<tr>
<td>Dan F. McDonald</td>
<td>University Retail Operations Manager</td>
</tr>
<tr>
<td>Martha S. McFadden, A.A., A.B., Ph.D.</td>
<td>Coordinator, Academic Counseling Office</td>
</tr>
<tr>
<td>John C. Moldovan, B.S.E.E., M.B.A.</td>
<td>Director of Management Services</td>
</tr>
<tr>
<td>Donald C. Moore</td>
<td>Director of Stores and Shops</td>
</tr>
<tr>
<td>Ellen D. Pearson</td>
<td>Assistant Dean of Student Affairs</td>
</tr>
<tr>
<td>Henry G. Rhone, B.A., M.Ed., Ed.D.</td>
<td>Interim Vice Provost for Student Affairs</td>
</tr>
<tr>
<td>William A. Robertson, B.S., M.Ed.</td>
<td>Executive Deputy Director, University</td>
</tr>
<tr>
<td>Donald G. Roebuck, B.A., M.S. Ed.</td>
<td>Academic Skills Counselor and Coordinator for Handicapped Services (MCV Campus)</td>
</tr>
<tr>
<td>Steven A. Saltzberg, B.A., M.S.</td>
<td>Director of Academic Campus Computing Services</td>
</tr>
<tr>
<td>Richard Sander, B.S., M.S., Ph.D.</td>
<td>Director of Intercollegiate Athletics</td>
</tr>
<tr>
<td>Phyllis C. Self</td>
<td>Assistant Director for Health Sciences User and Head of Tompkins-McCaw Library, ULS</td>
</tr>
<tr>
<td>Susan B. Spencer, B.S.</td>
<td>Associate Director of University Career Center</td>
</tr>
<tr>
<td>Thomas L. Tucker</td>
<td>Director, Health Careers Opportunity Program, MCV Campus</td>
</tr>
<tr>
<td>Sarah B. Watstein, B.A., M.L.A., M.P.A.</td>
<td>Assistant Director for Academic User and Head of James Branch Cabell Library, ULS</td>
</tr>
<tr>
<td>Velma J. Williams</td>
<td>Director of EEO/AA Services</td>
</tr>
<tr>
<td>Horace W. Wooldridge, Jr., B.A., M.Ed.</td>
<td>Director for UES/Admissions</td>
</tr>
<tr>
<td>Jean M. Yerian, A.B., Higher Diploma, M.A.</td>
<td>Associate Dean of Student Affairs</td>
</tr>
<tr>
<td>James B. Yucha, B.S., M.S</td>
<td>Associate Director, Academic Campus Computing Services</td>
</tr>
</tbody>
</table>

**INDEX OF GRADUATE FACULTY**

<table>
<thead>
<tr>
<th>Name</th>
<th>Department or Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abd-Ehattah, Anwars</td>
<td>181</td>
</tr>
<tr>
<td>Abood, Mary E.</td>
<td>181</td>
</tr>
<tr>
<td>Abraham, Donald J.</td>
<td>171, 173, 297</td>
</tr>
<tr>
<td>Abubaker, A. Omar</td>
<td>170</td>
</tr>
<tr>
<td>Accordinio, John</td>
<td>232</td>
</tr>
<tr>
<td>Aceto, Mario D.</td>
<td>181</td>
</tr>
<tr>
<td>Ackley, R. Jon</td>
<td>193</td>
</tr>
<tr>
<td>Adelaar, Robert S.</td>
<td>173</td>
</tr>
<tr>
<td>Adler, Martin D.</td>
<td>301</td>
</tr>
<tr>
<td>Adler, Stuart P.</td>
<td>178</td>
</tr>
<tr>
<td>Aiken, Peter</td>
<td>193</td>
</tr>
<tr>
<td>Alimard, Amin</td>
<td>216, 224</td>
</tr>
<tr>
<td>Allan, Richard E.</td>
<td>59</td>
</tr>
<tr>
<td>Allen, Milton J.</td>
<td>46, 49</td>
</tr>
<tr>
<td>Allison, Scott T.</td>
<td>69</td>
</tr>
<tr>
<td>Ames, James E.</td>
<td>59</td>
</tr>
<tr>
<td>Andrews, Robert L.</td>
<td>193</td>
</tr>
<tr>
<td>Ansello, Edward F.</td>
<td>85</td>
</tr>
<tr>
<td>Apgar, Nicolas</td>
<td>149</td>
</tr>
<tr>
<td>Archer, Gordon L.</td>
<td>178</td>
</tr>
<tr>
<td>Archer, Phillip W.</td>
<td>184</td>
</tr>
<tr>
<td>Ariga, Toshio</td>
<td>171</td>
</tr>
<tr>
<td>Armour, Robert A.</td>
<td>52</td>
</tr>
<tr>
<td>Asmerom, Ghidewon Abay</td>
<td>58</td>
</tr>
<tr>
<td>Astruc, Juan A.</td>
<td>170</td>
</tr>
<tr>
<td>Auerbach, Stephen M.</td>
<td>69</td>
</tr>
<tr>
<td>Austin, Terry L.</td>
<td>152</td>
</tr>
<tr>
<td>Bailey, James W.</td>
<td>247</td>
</tr>
<tr>
<td>Bailey, Kent G.</td>
<td>69</td>
</tr>
<tr>
<td>Baker, Stanley E.</td>
<td>253</td>
</tr>
<tr>
<td>Balster, Robert L.</td>
<td>181</td>
</tr>
<tr>
<td>Banks, William L., Jr.</td>
<td>171</td>
</tr>
<tr>
<td>Barbour, Suzanne E.</td>
<td>178</td>
</tr>
<tr>
<td>Barker, Randolph T.</td>
<td>193</td>
</tr>
<tr>
<td>Barker, Thomas C.</td>
<td>83, 90</td>
</tr>
<tr>
<td>Barnes, John A.</td>
<td>59</td>
</tr>
<tr>
<td>Barr, William H.</td>
<td>298</td>
</tr>
<tr>
<td>Barrell, Lorna M.</td>
<td>287</td>
</tr>
<tr>
<td>Bass, Robert G.</td>
<td>49</td>
</tr>
<tr>
<td>Batty, L. Wayne</td>
<td>152</td>
</tr>
<tr>
<td>Bauer, David F.</td>
<td>59, 175</td>
</tr>
<tr>
<td>Baumgarten, Clive M.</td>
<td>173</td>
</tr>
<tr>
<td>Beale, Andrew V.</td>
<td>247</td>
</tr>
<tr>
<td>Beall, Larry G.</td>
<td>193</td>
</tr>
<tr>
<td>Bear, Harry D.</td>
<td>179</td>
</tr>
<tr>
<td>Beardsley, Patrick M.</td>
<td>181</td>
</tr>
<tr>
<td>Name</td>
<td>Page</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------</td>
</tr>
<tr>
<td>Becker, Lawrence</td>
<td>141</td>
</tr>
<tr>
<td>Beckett, Joyce O.</td>
<td>301</td>
</tr>
<tr>
<td>Begun, James W.</td>
<td>90</td>
</tr>
<tr>
<td>Bendersky, Joseph W.</td>
<td>56</td>
</tr>
<tr>
<td>Bentley, Kia</td>
<td>301</td>
</tr>
<tr>
<td>Berglund, John F.</td>
<td>58</td>
</tr>
<tr>
<td>Berry, Boyd M.</td>
<td>52</td>
</tr>
<tr>
<td>Berry, Sam G.</td>
<td>193</td>
</tr>
<tr>
<td>Bialto, Alvin M. III</td>
<td>175</td>
</tr>
<tr>
<td>Bevilaqua, William D.</td>
<td>149</td>
</tr>
<tr>
<td>Bhutanagar, Ajay S.</td>
<td>184</td>
</tr>
<tr>
<td>Biber, Thomas U.L.</td>
<td>173, 184</td>
</tr>
<tr>
<td>Bick, Donald</td>
<td>152</td>
</tr>
<tr>
<td>Bigbee, John W.</td>
<td>170</td>
</tr>
<tr>
<td>Biggerstaff, Marilyn A.</td>
<td>301</td>
</tr>
<tr>
<td>Bilyeu, Francile</td>
<td>152</td>
</tr>
<tr>
<td>Bilyeu, Landon</td>
<td>152</td>
</tr>
<tr>
<td>Bishop, Marilyn F.</td>
<td>66</td>
</tr>
<tr>
<td>Black, Susan</td>
<td>177</td>
</tr>
<tr>
<td>Blake, William E., Jr.</td>
<td>56</td>
</tr>
<tr>
<td>Blank, Allan</td>
<td>152</td>
</tr>
<tr>
<td>Blanke, Robert V.</td>
<td>181</td>
</tr>
<tr>
<td>Blankenship, M. Elise</td>
<td>253</td>
</tr>
<tr>
<td>Blanks, Edwin E.</td>
<td>193</td>
</tr>
<tr>
<td>Bleick, Charles F.</td>
<td>138</td>
</tr>
<tr>
<td>Blem, Charles R.</td>
<td>46</td>
</tr>
<tr>
<td>Boadle-Biber, Margaret</td>
<td>184</td>
</tr>
<tr>
<td>Bodurtha, Joann</td>
<td>177</td>
</tr>
<tr>
<td>Bohle, Robert H.</td>
<td>44</td>
</tr>
<tr>
<td>Bolduan, Ruth</td>
<td>156</td>
</tr>
<tr>
<td>Bonds, Maurice</td>
<td>140</td>
</tr>
<tr>
<td>Boots, Marvin R.</td>
<td>297</td>
</tr>
<tr>
<td>Boraks, Nancy E.</td>
<td>253</td>
</tr>
<tr>
<td>Borgard, John H.</td>
<td>41</td>
</tr>
<tr>
<td>Borzelleca, Joseph F.</td>
<td>181</td>
</tr>
<tr>
<td>Bost, William A.</td>
<td>247</td>
</tr>
<tr>
<td>Bostic, Alexander</td>
<td>149</td>
</tr>
<tr>
<td>Bowman, John H.</td>
<td>193</td>
</tr>
<tr>
<td>Boykin, James H.</td>
<td>193</td>
</tr>
<tr>
<td>Bradford, James A.</td>
<td>156</td>
</tr>
<tr>
<td>Bradley, S. Gaylen</td>
<td>179, 181</td>
</tr>
<tr>
<td>Brandt, Richard B.</td>
<td>171</td>
</tr>
<tr>
<td>Breindel, Charles L.</td>
<td>90</td>
</tr>
<tr>
<td>Bremer, David M.</td>
<td>151</td>
</tr>
<tr>
<td>Briceland, Alan V.</td>
<td>56</td>
</tr>
<tr>
<td>Briggs, F. Norman</td>
<td>184</td>
</tr>
<tr>
<td>Briggs, Frances M.</td>
<td>247</td>
</tr>
<tr>
<td>Brilliant, Susan S.</td>
<td>59</td>
</tr>
<tr>
<td>Brinks, Lindsay</td>
<td>149</td>
</tr>
<tr>
<td>Brittain, Mary M.</td>
<td>253</td>
</tr>
<tr>
<td>Brolio, Lawrence</td>
<td>158</td>
</tr>
<tr>
<td>Brollier, Chestina L.</td>
<td>109</td>
</tr>
<tr>
<td>Bromley, David</td>
<td>76</td>
</tr>
<tr>
<td>Brooks, Christopher</td>
<td>152</td>
</tr>
<tr>
<td>Brooks, Michael P.</td>
<td>232</td>
</tr>
<tr>
<td>Brown, Bonnie</td>
<td>44</td>
</tr>
<tr>
<td>Brown, Darrel R.</td>
<td>193</td>
</tr>
<tr>
<td>Brown, Judith A.</td>
<td>177</td>
</tr>
<tr>
<td>Brownell, Charles E.</td>
<td>140</td>
</tr>
<tr>
<td>Brunjes, Peter C.</td>
<td>184</td>
</tr>
<tr>
<td>Brunk, Molly</td>
<td>69</td>
</tr>
<tr>
<td>Bryon, Peter R.</td>
<td>173</td>
</tr>
<tr>
<td>Buck, Gregory A.</td>
<td>179</td>
</tr>
<tr>
<td>Bumgardner, James A.</td>
<td>156</td>
</tr>
<tr>
<td>Burns, James C.</td>
<td>179</td>
</tr>
<tr>
<td>Burton, David</td>
<td>138</td>
</tr>
<tr>
<td>Burton, Gregory A.</td>
<td>179</td>
</tr>
<tr>
<td>Butterly, C. M. G.</td>
<td>32</td>
</tr>
<tr>
<td>Byles, Charles M.</td>
<td>193</td>
</tr>
<tr>
<td>Byron, Peter R.</td>
<td>173, 298</td>
</tr>
<tr>
<td>Cabral, Guy A.</td>
<td>179</td>
</tr>
<tr>
<td>Cain, Marlyne G.</td>
<td>115</td>
</tr>
<tr>
<td>Campbell, Jewett</td>
<td>156</td>
</tr>
<tr>
<td>Campbell, Kenneth</td>
<td>158</td>
</tr>
<tr>
<td>Canavos, George C.</td>
<td>193</td>
</tr>
<tr>
<td>Carchman, Richard A.</td>
<td>46, 175</td>
</tr>
<tr>
<td>Cardea, John A.</td>
<td>173</td>
</tr>
<tr>
<td>Carlyon, Richard</td>
<td>150</td>
</tr>
<tr>
<td>Carrier, Loran</td>
<td>152</td>
</tr>
<tr>
<td>Carroll, Norman</td>
<td>298</td>
</tr>
<tr>
<td>Carter, Anthony D.</td>
<td>177</td>
</tr>
<tr>
<td>Carter, Robert</td>
<td>150</td>
</tr>
<tr>
<td>Carter, Walter H., Jr.</td>
<td>173, 175, 181</td>
</tr>
<tr>
<td>Cash, Sandra H.</td>
<td>109</td>
</tr>
<tr>
<td>Cauley, Kathleen M.</td>
<td>247</td>
</tr>
<tr>
<td>Chandler, Anne L.</td>
<td>125</td>
</tr>
<tr>
<td>Chapman, Regis L.</td>
<td>216</td>
</tr>
<tr>
<td>Charchman, Richard A.</td>
<td>46</td>
</tr>
<tr>
<td>Chartrand, Judy</td>
<td>68</td>
</tr>
<tr>
<td>Cheng, Chao-Kun</td>
<td>59</td>
</tr>
<tr>
<td>Chinchilli, Vernon M.</td>
<td>175</td>
</tr>
<tr>
<td>Chinnici, Joseph P.</td>
<td>46, 177</td>
</tr>
<tr>
<td>Chlebowski, Jan F.</td>
<td>49, 171, 173</td>
</tr>
<tr>
<td>Choi, Sung C.</td>
<td>175</td>
</tr>
<tr>
<td>Christenbury, Leila</td>
<td>253</td>
</tr>
<tr>
<td>Christie, Gail E.</td>
<td>179</td>
</tr>
<tr>
<td>Christman, Carole W.</td>
<td>170</td>
</tr>
<tr>
<td>Clark, Maxine L.</td>
<td>68</td>
</tr>
<tr>
<td>Cleary, Stephen F.</td>
<td>173, 184</td>
</tr>
<tr>
<td>Clement, Delores G.</td>
<td>90</td>
</tr>
<tr>
<td>Clement, Jan P.</td>
<td>90</td>
</tr>
<tr>
<td>Clement, Mary</td>
<td>216, 219</td>
</tr>
<tr>
<td>Clemo, S. Henry</td>
<td>184</td>
</tr>
<tr>
<td>Cobb, Eloise</td>
<td>69</td>
</tr>
<tr>
<td>Coffman, Edward N.</td>
<td>193</td>
</tr>
<tr>
<td>Cohen, Robert J.</td>
<td>69</td>
</tr>
<tr>
<td>Colbs, Sandy L.</td>
<td>69</td>
</tr>
<tr>
<td>Coleman, Philip H.</td>
<td>179</td>
</tr>
<tr>
<td>Collins, James M.</td>
<td>171</td>
</tr>
<tr>
<td>Compton, David R.</td>
<td>181</td>
</tr>
<tr>
<td>Name</td>
<td>Page</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Conrad, Daniel H.</td>
<td>179</td>
</tr>
<tr>
<td>Conway, Carolyn M.</td>
<td>46</td>
</tr>
<tr>
<td>Cooper, Elizabeth</td>
<td>52</td>
</tr>
<tr>
<td>Coppedge, Walter R.</td>
<td>52</td>
</tr>
<tr>
<td>Coppins, Richard J.</td>
<td>193</td>
</tr>
<tr>
<td>Corazzini, John G.</td>
<td>68</td>
</tr>
<tr>
<td>Cordle, David</td>
<td>152</td>
</tr>
<tr>
<td>Corey, Linda A.</td>
<td>177</td>
</tr>
<tr>
<td>Corley, Karl C.</td>
<td>184</td>
</tr>
<tr>
<td>Corley, Mary C.</td>
<td>287</td>
</tr>
<tr>
<td>Cormack, Malcom</td>
<td>141</td>
</tr>
<tr>
<td>Cornis-Pope, Marcel</td>
<td>52</td>
</tr>
<tr>
<td>Costanzo, Linda S.</td>
<td>184</td>
</tr>
<tr>
<td>Costanzo, Richard M.</td>
<td>184</td>
</tr>
<tr>
<td>Coulter, Douglas A.</td>
<td>184</td>
</tr>
<tr>
<td>Cowles, Deborah L.</td>
<td>193</td>
</tr>
<tr>
<td>Craig, Shirley S.</td>
<td>170</td>
</tr>
<tr>
<td>Craver, Samuel M.</td>
<td>247</td>
</tr>
<tr>
<td>Creighton-Zollar, Ann</td>
<td>76</td>
</tr>
<tr>
<td>Cromey, Robert D.</td>
<td>56</td>
</tr>
<tr>
<td>Crowe, Ann G.</td>
<td>140</td>
</tr>
<tr>
<td>Crowe, Frank</td>
<td>69</td>
</tr>
<tr>
<td>Crutchfield, George T.</td>
<td>44</td>
</tr>
<tr>
<td>Cullen, Benjamin T., Jr.</td>
<td>90</td>
</tr>
<tr>
<td>Dalton, Amy H.</td>
<td>193</td>
</tr>
<tr>
<td>Dalton, Harry P.</td>
<td>179, 185</td>
</tr>
<tr>
<td>Damiano, Ralph J., Jr.</td>
<td>173</td>
</tr>
<tr>
<td>Dance, Daryl C.</td>
<td>52</td>
</tr>
<tr>
<td>Daniels, Kenneth N.</td>
<td>193</td>
</tr>
<tr>
<td>Danish, Steven J.</td>
<td>68</td>
</tr>
<tr>
<td>Dattalo, Patrick</td>
<td>301</td>
</tr>
<tr>
<td>Daughtrey, William H., Jr.</td>
<td>193</td>
</tr>
<tr>
<td>Davenport, James M.</td>
<td>59</td>
</tr>
<tr>
<td>Davis, Douglas D.</td>
<td>193</td>
</tr>
<tr>
<td>Davis, King E.</td>
<td>301</td>
</tr>
<tr>
<td>Davis, Michael D.</td>
<td>254, 263</td>
</tr>
<tr>
<td>Davis, Robert G.</td>
<td>253</td>
</tr>
<tr>
<td>Day, Ben</td>
<td>150</td>
</tr>
<tr>
<td>Day, Melanie K.</td>
<td>152</td>
</tr>
<tr>
<td>Dean, Larrie J.</td>
<td>83, 90</td>
</tr>
<tr>
<td>DeGenaro, Guy J.</td>
<td>193</td>
</tr>
<tr>
<td>DeHaven, Tom</td>
<td>52, 53</td>
</tr>
<tr>
<td>DeLillis, Anthony D.</td>
<td>87</td>
</tr>
<tr>
<td>DeLorenzo, Robert J.</td>
<td>181</td>
</tr>
<tr>
<td>DeMao, John</td>
<td>150</td>
</tr>
<tr>
<td>DePillars, Murry N.</td>
<td>135</td>
</tr>
<tr>
<td>DeRiemer, Cynthia</td>
<td>44</td>
</tr>
<tr>
<td>DeSimone, John A.</td>
<td>173, 184</td>
</tr>
<tr>
<td>DeSmidt, Thomas H.</td>
<td>135</td>
</tr>
<tr>
<td>Deveney, James K.</td>
<td>58</td>
</tr>
<tr>
<td>DeVries, George H.</td>
<td>171</td>
</tr>
<tr>
<td>Dewey, William L.</td>
<td>163, 181</td>
</tr>
<tr>
<td>Diana, Lewis</td>
<td>76</td>
</tr>
<tr>
<td>Diegelman, Robert F.</td>
<td>171</td>
</tr>
<tr>
<td>Diehl, Scott</td>
<td>177</td>
</tr>
<tr>
<td>Dilts, Robert P., Jr.</td>
<td>184</td>
</tr>
<tr>
<td>Dilworth, Robert L.</td>
<td>247</td>
</tr>
<tr>
<td>Dintiman, George B.</td>
<td>253</td>
</tr>
<tr>
<td>Dixon, Clifton</td>
<td>151</td>
</tr>
<tr>
<td>Donato, Gerald M.</td>
<td>156</td>
</tr>
<tr>
<td>Donnell, Cynthia S.</td>
<td>152</td>
</tr>
<tr>
<td>Donohue, Thomas R.</td>
<td>41, 44</td>
</tr>
<tr>
<td>Donovan, Gregory E.</td>
<td>52, 53</td>
</tr>
<tr>
<td>Dorsa, Edward A.</td>
<td>148</td>
</tr>
<tr>
<td>Dougherty, Linda M.</td>
<td>68, 85</td>
</tr>
<tr>
<td>Doyle, Daniel</td>
<td>69</td>
</tr>
<tr>
<td>Drain, Cecil B.</td>
<td>106</td>
</tr>
<tr>
<td>Drought, Michael</td>
<td>156</td>
</tr>
<tr>
<td>Duke, Elizabeth F.</td>
<td>52</td>
</tr>
<tr>
<td>Duke, Maurice</td>
<td>52</td>
</tr>
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<td>Duncan, Jack A.</td>
<td>241, 247, 263</td>
</tr>
<tr>
<td>Duncan, Patricia H.</td>
<td>254</td>
</tr>
<tr>
<td>Dungee-Anderson, Elizabeth A.</td>
<td>301</td>
</tr>
<tr>
<td>Eastman, Allan A.</td>
<td>146</td>
</tr>
<tr>
<td>Eaves, Lindon J.</td>
<td>177</td>
</tr>
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<td>Eberly, Bruce</td>
<td>69</td>
</tr>
<tr>
<td>Eberly, Carol</td>
<td>69</td>
</tr>
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<td>Eckberg, Dwain L.</td>
<td>184</td>
</tr>
<tr>
<td>Edmunds, Wayne L.</td>
<td>193</td>
</tr>
<tr>
<td>Edwards, Donna</td>
<td>118</td>
</tr>
<tr>
<td>Egelhoff, William F.</td>
<td>85</td>
</tr>
<tr>
<td>Eggleston, William B.</td>
<td>46</td>
</tr>
<tr>
<td>Egle, John L., Jr.</td>
<td>181</td>
</tr>
<tr>
<td>Elliott, Clifford, J.</td>
<td>193</td>
</tr>
<tr>
<td>Ellis, Earl F.</td>
<td>181</td>
</tr>
<tr>
<td>Ellison, Mary D.</td>
<td>170</td>
</tr>
<tr>
<td>El-Shall, M. Samy</td>
<td>49</td>
</tr>
<tr>
<td>Elston, Jackie</td>
<td>41</td>
</tr>
<tr>
<td>Elswick, Ronald K.</td>
<td>175</td>
</tr>
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<td>Ely, Vivien K.</td>
<td>247</td>
</tr>
<tr>
<td>Embrey, James</td>
<td>106</td>
</tr>
<tr>
<td>Engel, Arthur J.</td>
<td>56</td>
</tr>
<tr>
<td>Ennis, Daniel</td>
<td>184</td>
</tr>
<tr>
<td>Epps, Ruth W.</td>
<td>193</td>
</tr>
<tr>
<td>Erickson, Marilyn T.</td>
<td>68</td>
</tr>
<tr>
<td>Erickson, Maurice Leonard</td>
<td>158</td>
</tr>
<tr>
<td>Evans, Herbert J.</td>
<td>171</td>
</tr>
<tr>
<td>Evans, William B.</td>
<td>59</td>
</tr>
<tr>
<td>Everett, John O.</td>
<td>193</td>
</tr>
<tr>
<td>Fabiato, Alexandre</td>
<td>184</td>
</tr>
<tr>
<td>Fallen, Nancy H.</td>
<td>254</td>
</tr>
<tr>
<td>Fallenho, Gilbert W.</td>
<td>224</td>
</tr>
<tr>
<td>Fallen, Nancy H.</td>
<td>254</td>
</tr>
<tr>
<td>Fariss, Marc W.</td>
<td>185</td>
</tr>
<tr>
<td>Farley, Reuben W.</td>
<td>58</td>
</tr>
<tr>
<td>Farmer, David J.</td>
<td>216, 224</td>
</tr>
<tr>
<td>Farmer, James D.</td>
<td>216, 140</td>
</tr>
<tr>
<td>Farrell, Albert D.</td>
<td>68</td>
</tr>
<tr>
<td>Farrell, Nicholas P.</td>
<td>49</td>
</tr>
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<td>Fatouros, Panos</td>
<td>173</td>
</tr>
<tr>
<td>Fauri, David P.</td>
<td>301</td>
</tr>
<tr>
<td>Name</td>
<td>Page(s)</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Feher, Joseph J.</td>
<td>184</td>
</tr>
<tr>
<td>Fei, Ding-yu</td>
<td>173</td>
</tr>
<tr>
<td>Feldman, George</td>
<td>184</td>
</tr>
<tr>
<td>Ferguson, Jerry T.</td>
<td>193</td>
</tr>
<tr>
<td>Ferris, Michael</td>
<td>138</td>
</tr>
<tr>
<td>Field, Jerry J.</td>
<td>148</td>
</tr>
<tr>
<td>Fillmore, Dorothy E.</td>
<td>31</td>
</tr>
<tr>
<td>Fine, Michael L.</td>
<td>46, 184</td>
</tr>
<tr>
<td>Fine, Richard A.</td>
<td>52</td>
</tr>
<tr>
<td>Finley, Ruth B.</td>
<td>85</td>
</tr>
<tr>
<td>Finucane, Sheryl</td>
<td>118</td>
</tr>
<tr>
<td>Fisher, Robert W.</td>
<td>46</td>
</tr>
<tr>
<td>Fleming, Gladys A.</td>
<td>254</td>
</tr>
<tr>
<td>Fleming, Robert S.</td>
<td>247</td>
</tr>
<tr>
<td>Flora, Roger E.</td>
<td>175</td>
</tr>
<tr>
<td>Ford, George D.</td>
<td>184</td>
</tr>
<tr>
<td>Ford-Smith, Cheryl</td>
<td>118</td>
</tr>
<tr>
<td>Formica, Joseph V.</td>
<td>179</td>
</tr>
<tr>
<td>Forsyth, Donelson R.</td>
<td>69</td>
</tr>
<tr>
<td>Franks, David D.</td>
<td>76</td>
</tr>
<tr>
<td>Franson, Richard C.</td>
<td>171</td>
</tr>
<tr>
<td>Franzak, Frank J.</td>
<td>193</td>
</tr>
<tr>
<td>Freed David C.</td>
<td>156</td>
</tr>
<tr>
<td>Freer, Richard J.</td>
<td>173, 181</td>
</tr>
<tr>
<td>Fuchs, Bruce A.</td>
<td>181</td>
</tr>
<tr>
<td>Fuhrmann, Barbara S.</td>
<td>247</td>
</tr>
<tr>
<td>Fuhs, F. Paul</td>
<td>193</td>
</tr>
<tr>
<td>Funai, John T.</td>
<td>173</td>
</tr>
<tr>
<td>Gallagher, Charles J.</td>
<td>189, 193</td>
</tr>
<tr>
<td>Gandy, Gerald L.</td>
<td>125, 217</td>
</tr>
<tr>
<td>Garcia, Margot W.</td>
<td>46, 232</td>
</tr>
<tr>
<td>Garman, Gregory C.</td>
<td>46</td>
</tr>
<tr>
<td>Garner, Howard G.</td>
<td>254</td>
</tr>
<tr>
<td>Garnett, William R.</td>
<td>298</td>
</tr>
<tr>
<td>Garrett, C. T.</td>
<td>185</td>
</tr>
<tr>
<td>Gasen, Jean B.</td>
<td>193</td>
</tr>
<tr>
<td>Gates, James E.</td>
<td>46, 179</td>
</tr>
<tr>
<td>Gayle, Richard</td>
<td>253</td>
</tr>
<tr>
<td>Geary, David P.</td>
<td>219</td>
</tr>
<tr>
<td>Gennings, Chris</td>
<td>175</td>
</tr>
<tr>
<td>Gerber, Paul J.</td>
<td>247, 254</td>
</tr>
<tr>
<td>Gewirtz, David A.</td>
<td>181</td>
</tr>
<tr>
<td>Ghosh, Shobha</td>
<td>171</td>
</tr>
<tr>
<td>Giacobbe, George A.</td>
<td>254</td>
</tr>
<tr>
<td>Gilbreath, Glenn H.</td>
<td>193</td>
</tr>
<tr>
<td>Gilson, Stephen</td>
<td>301</td>
</tr>
<tr>
<td>Gillespie, Carmen R.</td>
<td>52</td>
</tr>
<tr>
<td>Glennon, Richard A.</td>
<td>181, 297</td>
</tr>
<tr>
<td>Glynn, William A.</td>
<td>58</td>
</tr>
<tr>
<td>Goggin, William F.</td>
<td>254</td>
</tr>
<tr>
<td>Goldberg, Stephen J.</td>
<td>170</td>
</tr>
<tr>
<td>Goldman, I. David</td>
<td>181</td>
</tr>
<tr>
<td>Gonzales-Ros, Jose Manuel</td>
<td>171</td>
</tr>
<tr>
<td>Goren, Suzanne</td>
<td>287</td>
</tr>
<tr>
<td>Gowdy, Robert H.</td>
<td>66, 173</td>
</tr>
<tr>
<td>Name</td>
<td>Page Numbers</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Henry, JoAnne K.</td>
<td>287</td>
</tr>
<tr>
<td>Henry, Laurin L.</td>
<td>224</td>
</tr>
<tr>
<td>Henry, Neil W.</td>
<td>55, 76</td>
</tr>
<tr>
<td>Hephner, Thomas A.</td>
<td>241, 247</td>
</tr>
<tr>
<td>Heroy, John</td>
<td>151</td>
</tr>
<tr>
<td>Herr, Steven L.</td>
<td>66</td>
</tr>
<tr>
<td>Hess, Michael L.</td>
<td>184</td>
</tr>
<tr>
<td>Hiley, David R.</td>
<td>41</td>
</tr>
<tr>
<td>Hill, Ada D.</td>
<td>254</td>
</tr>
<tr>
<td>Hill, David L.</td>
<td>184</td>
</tr>
<tr>
<td>Hill, Sharon J.</td>
<td>140</td>
</tr>
<tr>
<td>Hilton, John T.</td>
<td>150</td>
</tr>
<tr>
<td>Hine, Michael</td>
<td>193</td>
</tr>
<tr>
<td>Hirt, Susanne</td>
<td>118</td>
</tr>
<tr>
<td>Hobbs, Robert C.</td>
<td>140</td>
</tr>
<tr>
<td>Hodge, Bartow</td>
<td>193</td>
</tr>
<tr>
<td>Hodges, Elizabeth</td>
<td>52</td>
</tr>
<tr>
<td>Hodges, James O.</td>
<td>254</td>
</tr>
<tr>
<td>Hoffer, George E.</td>
<td>193</td>
</tr>
<tr>
<td>Holley, Charles L.</td>
<td>193</td>
</tr>
<tr>
<td>Holloway, C. Thomas</td>
<td>158</td>
</tr>
<tr>
<td>Holmes, Raymond T., Jr.</td>
<td>193</td>
</tr>
<tr>
<td>Holmes, W. Michael</td>
<td>177, 179</td>
</tr>
<tr>
<td>Holsapple, Michael P.</td>
<td>182</td>
</tr>
<tr>
<td>Holsworth, Robert D.</td>
<td>217</td>
</tr>
<tr>
<td>Honnold, Julie A.</td>
<td>76</td>
</tr>
<tr>
<td>Hooker, James E.</td>
<td>219</td>
</tr>
<tr>
<td>Hopkins, Warren</td>
<td>69</td>
</tr>
<tr>
<td>Hopper, Elizabeth</td>
<td>158</td>
</tr>
<tr>
<td>Hopper, Gary</td>
<td>158</td>
</tr>
<tr>
<td>Horvatic, Paula</td>
<td>69</td>
</tr>
<tr>
<td>Hotchkiss, Melissa</td>
<td>106</td>
</tr>
<tr>
<td>Howard, Catherine W.</td>
<td>69</td>
</tr>
<tr>
<td>Howard-Peebles, Patricia</td>
<td>177</td>
</tr>
<tr>
<td>Hsu, Hsiu-Sheng</td>
<td>179</td>
</tr>
<tr>
<td>Hubbard, Elbert W.</td>
<td>193</td>
</tr>
<tr>
<td>Huff, Thomas F.</td>
<td>179</td>
</tr>
<tr>
<td>Hughes, Robert</td>
<td>44</td>
</tr>
<tr>
<td>Hull, Rita P.</td>
<td>193</td>
</tr>
<tr>
<td>Humphrey, Reed H.</td>
<td>118</td>
</tr>
<tr>
<td>Hunt, Eugene H.</td>
<td>193</td>
</tr>
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<td>Hurley, Robert E.</td>
<td>90</td>
</tr>
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<td>301</td>
</tr>
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<td>Hutchinson, Janet</td>
<td>224</td>
</tr>
<tr>
<td>Hylemon, Phillip B.</td>
<td>179</td>
</tr>
<tr>
<td>Hyason, Priscilla C.</td>
<td>139</td>
</tr>
<tr>
<td>Ibrahim, Ibrahim A.</td>
<td>32</td>
</tr>
<tr>
<td>Ilsen, Kent F.</td>
<td>146</td>
</tr>
<tr>
<td>Iverson, Susan L.</td>
<td>146</td>
</tr>
<tr>
<td>Jackson, Caroline G.</td>
<td>170</td>
</tr>
<tr>
<td>Jackson, J. Howard</td>
<td>193</td>
</tr>
<tr>
<td>Jackson-Cook, Colleen</td>
<td>177</td>
</tr>
<tr>
<td>Jacobs, Fredrika H.</td>
<td>140</td>
</tr>
<tr>
<td>Jacobson, Eric S.</td>
<td>179</td>
</tr>
<tr>
<td>Jakoi, Emma</td>
<td>184</td>
</tr>
<tr>
<td>Name</td>
<td>Page Numbers</td>
</tr>
<tr>
<td>-------------------------------</td>
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</tr>
<tr>
<td>La Fratta, Mary Anna</td>
<td>150</td>
</tr>
<tr>
<td>Lamb, Robert G.</td>
<td>173, 182</td>
</tr>
<tr>
<td>Lamb, Robert L.</td>
<td>118</td>
</tr>
<tr>
<td>Lamb, Ron</td>
<td>59</td>
</tr>
<tr>
<td>Lambert, John D.</td>
<td>193</td>
</tr>
<tr>
<td>Landis, Alan L.</td>
<td>139</td>
</tr>
<tr>
<td>Lanier, Jack O.</td>
<td>32</td>
</tr>
<tr>
<td>Langston, Nancy F.</td>
<td>281, 287</td>
</tr>
<tr>
<td>Latane, David E.</td>
<td>52</td>
</tr>
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<td>Lawal, Babatunde</td>
<td>140</td>
</tr>
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<td>Lawton, Marcia J.</td>
<td>125</td>
</tr>
<tr>
<td>Leahey, Thomas H.</td>
<td>69</td>
</tr>
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<td>Lebman, Deborah A.</td>
<td>179</td>
</tr>
<tr>
<td>Leichnetz, George R.</td>
<td>170</td>
</tr>
<tr>
<td>Leleno, Joanna M.</td>
<td>59</td>
</tr>
<tr>
<td>Lensen-Tomasson, Nancy</td>
<td>173</td>
</tr>
<tr>
<td>Lewis, Annabel</td>
<td>118</td>
</tr>
<tr>
<td>Lewis, Andrew M.</td>
<td>58</td>
</tr>
<tr>
<td>Libert, Joseph P.</td>
<td>172</td>
</tr>
<tr>
<td>Litchman, Aron H.</td>
<td>182</td>
</tr>
<tr>
<td>Lin, Peck-Sun</td>
<td>46</td>
</tr>
<tr>
<td>Linder, Fredric I.</td>
<td>247</td>
</tr>
<tr>
<td>Lindsey, Barbara J.</td>
<td>103</td>
</tr>
<tr>
<td>Liu, L. M.</td>
<td>184</td>
</tr>
<tr>
<td>Little, Michael W.</td>
<td>193</td>
</tr>
<tr>
<td>Lloyd, Joyce</td>
<td>177</td>
</tr>
<tr>
<td>Lohr, C. Michael</td>
<td>58, 254</td>
</tr>
<tr>
<td>Lohuis, Ardyth</td>
<td>152</td>
</tr>
<tr>
<td>Lokerson, Jean E.</td>
<td>254, 263</td>
</tr>
<tr>
<td>Londoner, Carroll A.</td>
<td>247, 263</td>
</tr>
<tr>
<td>Long, James T.</td>
<td>148</td>
</tr>
<tr>
<td>Longest, George C.</td>
<td>53</td>
</tr>
<tr>
<td>Loria, Roger M.</td>
<td>179</td>
</tr>
<tr>
<td>Lounsby, Carl R.</td>
<td>141</td>
</tr>
<tr>
<td>Luck, Richard S.</td>
<td>125</td>
</tr>
<tr>
<td>Luke, Roice D.</td>
<td>90</td>
</tr>
<tr>
<td>Lutz, Harry A.</td>
<td>173</td>
</tr>
<tr>
<td>Lyall, Vijay</td>
<td>184</td>
</tr>
<tr>
<td>Lyeth, Bruce</td>
<td>69</td>
</tr>
<tr>
<td>Lyng, Stephen</td>
<td>76</td>
</tr>
<tr>
<td>MacLean, Charles</td>
<td>177</td>
</tr>
<tr>
<td>Macrina, Francis L.</td>
<td>179</td>
</tr>
<tr>
<td>Madigan, M. Jeanne</td>
<td>109</td>
</tr>
<tr>
<td>Maggio, Bruno</td>
<td>172</td>
</tr>
<tr>
<td>Mahoney, John M.</td>
<td>69</td>
</tr>
<tr>
<td>Malinoski, John B.</td>
<td>150</td>
</tr>
<tr>
<td>Mangum, A. Bryant</td>
<td>53</td>
</tr>
<tr>
<td>Marciano-Cabral, Francine</td>
<td>179</td>
</tr>
<tr>
<td>Mark, Barbara A.</td>
<td>287</td>
</tr>
<tr>
<td>Markello, Thomas C.</td>
<td>177</td>
</tr>
<tr>
<td>Markowitz, Sheldon</td>
<td>179</td>
</tr>
<tr>
<td>Marlow, Craig H.</td>
<td>148</td>
</tr>
<tr>
<td>Marmarou, Anthony</td>
<td>173, 184</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Page</td>
</tr>
<tr>
<td>-----------------------------</td>
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</tr>
<tr>
<td>Minor, Elliott D. III</td>
<td>193</td>
</tr>
<tr>
<td>Minton, Paul D.</td>
<td>175</td>
</tr>
<tr>
<td>Mitchell, Shannon K.</td>
<td>193</td>
</tr>
<tr>
<td>Moeser, John V.</td>
<td>232</td>
</tr>
<tr>
<td>Monaco, John J.</td>
<td>179</td>
</tr>
<tr>
<td>Moon, Peter</td>
<td>173</td>
</tr>
<tr>
<td>Mooney, Chaterine M.</td>
<td>56</td>
</tr>
<tr>
<td>Moore, James T.</td>
<td>56</td>
</tr>
<tr>
<td>Moran, Richard G.</td>
<td>182</td>
</tr>
<tr>
<td>Morecroft, Josephine F. G.</td>
<td>194</td>
</tr>
<tr>
<td>Moriarty, Laura J.</td>
<td>219</td>
</tr>
<tr>
<td>Morris, J. Richard</td>
<td>58</td>
</tr>
<tr>
<td>Morse, Charlotte C.</td>
<td>53</td>
</tr>
<tr>
<td>Moss, Jon</td>
<td>69</td>
</tr>
<tr>
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<td>85</td>
</tr>
<tr>
<td>Munjas, Barbara A.</td>
<td>287</td>
</tr>
<tr>
<td>Munro, George E.</td>
<td>56</td>
</tr>
<tr>
<td>Munson, Albert E.</td>
<td>182</td>
</tr>
<tr>
<td>Murphy, Neil B.</td>
<td>194</td>
</tr>
<tr>
<td>Murray, Robert P.</td>
<td>152</td>
</tr>
<tr>
<td>Murrill, Branson W.</td>
<td>59</td>
</tr>
<tr>
<td>Musulin, Michael</td>
<td>298</td>
</tr>
<tr>
<td>Myers, Barbara J.</td>
<td>69</td>
</tr>
<tr>
<td>Myers, Donald W.</td>
<td>194</td>
</tr>
<tr>
<td>Myers, Phyllis S.</td>
<td>194</td>
</tr>
<tr>
<td>Nadder, Teresa S.</td>
<td>103</td>
</tr>
<tr>
<td>Nan, George</td>
<td>151</td>
</tr>
<tr>
<td>Nance, Walter E.</td>
<td>177</td>
</tr>
<tr>
<td>Narasimhachari, Nedathur</td>
<td>182</td>
</tr>
<tr>
<td>Narula, Subhash C.</td>
<td>194</td>
</tr>
<tr>
<td>Navard, Sharon E.</td>
<td>59</td>
</tr>
<tr>
<td>Neff-Smith, Martha N.</td>
<td>32</td>
</tr>
<tr>
<td>Nelson, Craig E.</td>
<td>109</td>
</tr>
<tr>
<td>Nelson, Lynn D.</td>
<td>76</td>
</tr>
<tr>
<td>Nelson, William R.</td>
<td>32</td>
</tr>
<tr>
<td>Netting, Florence E.</td>
<td>301</td>
</tr>
<tr>
<td>Newdick, Richard L.</td>
<td>158</td>
</tr>
<tr>
<td>Newlin, Dika</td>
<td>152</td>
</tr>
<tr>
<td>Newman, Sammy</td>
<td>172</td>
</tr>
<tr>
<td>Nichols-Casebolt, Ann</td>
<td>301</td>
</tr>
<tr>
<td>Niculescu, Vasile Adam</td>
<td>66</td>
</tr>
<tr>
<td>North, Harold E.</td>
<td>157</td>
</tr>
<tr>
<td>Norville, Jerry L.</td>
<td>90</td>
</tr>
<tr>
<td>Nutall, Sandra B.</td>
<td>31</td>
</tr>
<tr>
<td>Oehler, John S., Jr.</td>
<td>173</td>
</tr>
<tr>
<td>Oesch, Alfred</td>
<td>241, 254</td>
</tr>
<tr>
<td>Oechler, John S., Jr.</td>
<td>241, 254</td>
</tr>
<tr>
<td>Oggen, L. Terry</td>
<td>53</td>
</tr>
<tr>
<td>Olds, Philip R.</td>
<td>194</td>
</tr>
<tr>
<td>O’Neal, Charles H.</td>
<td>179</td>
</tr>
<tr>
<td>Orel, Fred P.</td>
<td>254</td>
</tr>
<tr>
<td>Osgood, Nancy J.</td>
<td>85</td>
</tr>
<tr>
<td>O’Toole, Dennis M.</td>
<td>194</td>
</tr>
<tr>
<td>Ottenbrone, Raphael M.</td>
<td>49, 174</td>
</tr>
<tr>
<td>Ouchi, Akira</td>
<td>150</td>
</tr>
<tr>
<td>Owens, Noel O.</td>
<td>170</td>
</tr>
<tr>
<td>Ozcan, Yasar A.</td>
<td>90</td>
</tr>
<tr>
<td>Ozmon, Howard A.</td>
<td>247</td>
</tr>
<tr>
<td>Pagels, John F.</td>
<td>47</td>
</tr>
<tr>
<td>Pakurar, Alice S.</td>
<td>170</td>
</tr>
<tr>
<td>Palen, J. John</td>
<td>76</td>
</tr>
<tr>
<td>Pappas, David P.</td>
<td>66</td>
</tr>
<tr>
<td>Parham, Iris A.</td>
<td>69, 85</td>
</tr>
<tr>
<td>Parker, James W.</td>
<td>158</td>
</tr>
<tr>
<td>Parker, Lorraine M.</td>
<td>59</td>
</tr>
<tr>
<td>Patrick, Graham A.</td>
<td>182</td>
</tr>
<tr>
<td>Patykula, John</td>
<td>152</td>
</tr>
<tr>
<td>Payton, Otto D.</td>
<td>118</td>
</tr>
<tr>
<td>Peace, Karl E.</td>
<td>175</td>
</tr>
<tr>
<td>Pearce, C. Glenn</td>
<td>194</td>
</tr>
<tr>
<td>Peay, Robert</td>
<td>301</td>
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<tr>
<td>Peck, Edward</td>
<td>69</td>
</tr>
<tr>
<td>Peeples, Edward H.</td>
<td>32</td>
</tr>
<tr>
<td>Pelfrey, William V.</td>
<td>219</td>
</tr>
<tr>
<td>Pendleton, James D.</td>
<td>53</td>
</tr>
<tr>
<td>Pennington, Jude C.</td>
<td>253</td>
</tr>
<tr>
<td>Perry, Patricia H.</td>
<td>53</td>
</tr>
<tr>
<td>Perry, Regenia A.</td>
<td>140</td>
</tr>
<tr>
<td>Peters, Gerald A.</td>
<td>47</td>
</tr>
<tr>
<td>Peterson, Carol Ann</td>
<td>215, 217, 230</td>
</tr>
<tr>
<td>Peterson, Darrell L.</td>
<td>172</td>
</tr>
<tr>
<td>Peterson, Steven P.</td>
<td>194</td>
</tr>
<tr>
<td>Petrie, Paul E.</td>
<td>148</td>
</tr>
<tr>
<td>Philipsen, Maike</td>
<td>247</td>
</tr>
<tr>
<td>Phillips, Linda L.</td>
<td>170</td>
</tr>
<tr>
<td>Pickler, Rita H.</td>
<td>288</td>
</tr>
<tr>
<td>Pieper, Alice M.</td>
<td>254</td>
</tr>
<tr>
<td>Pittman, Roland N.</td>
<td>241, 247</td>
</tr>
<tr>
<td>Pitts, Michael W.</td>
<td>194</td>
</tr>
<tr>
<td>Poklis, Alphonse</td>
<td>182, 186</td>
</tr>
<tr>
<td>Poland, James L.</td>
<td>184</td>
</tr>
<tr>
<td>Pollak, Theresa</td>
<td>156</td>
</tr>
<tr>
<td>Pontiflet, Addie R.</td>
<td>106</td>
</tr>
<tr>
<td>Porter, Joseph H.</td>
<td>47, 69</td>
</tr>
<tr>
<td>Povirk, Lawrence F.</td>
<td>179, 182</td>
</tr>
<tr>
<td>Povlishock, John T.</td>
<td>170</td>
</tr>
<tr>
<td>Poynor, Wesley, J.</td>
<td>298</td>
</tr>
<tr>
<td>Pratt, LeEtta</td>
<td>253</td>
</tr>
<tr>
<td>Pratt, Michael D.</td>
<td>189, 194</td>
</tr>
<tr>
<td>Prentice, Katherine A.</td>
<td>103</td>
</tr>
<tr>
<td>Price, Donald D.</td>
<td>184</td>
</tr>
<tr>
<td>Price, Steven</td>
<td>184</td>
</tr>
<tr>
<td>Priebe, Richard K.</td>
<td>53</td>
</tr>
<tr>
<td>Pyles, Michael A.</td>
<td>86</td>
</tr>
<tr>
<td>Quarterman, Dale</td>
<td>151</td>
</tr>
<tr>
<td>Quarterman, Kathleen</td>
<td>150</td>
</tr>
<tr>
<td>Qureshi, Ghulam D.</td>
<td>184</td>
</tr>
<tr>
<td>Ramoa, Ary S.</td>
<td>170</td>
</tr>
<tr>
<td>Rao, Bijan K.</td>
<td>66</td>
</tr>
<tr>
<td>Rasmussen, William S.</td>
<td>141</td>
</tr>
</tbody>
</table>
Rasnic, Carol D.
Raychowdhury, Pratip N.
Ready, Keith F.
Redmond, Richard T.
Reed, Daisy F.
Reese, Charles A.
Reese, Finetta
Reeves, Daniel
Reeves, Jane
Regelson, William
Reilly, Robert J.
Rein, Steven R.
Reinders, Thomas P.
Resler, Daniel R.
Retchin, Sheldon M.
Rexroad, Dennis H.
Reynolds, Elizabeth R.
Reynolds, Ronald P.
Rezba, Richard J.
Richards, Douglas J.
Richardson, Judy S.
Riddle, Daniel L.
Ridgway, Ellis B.
Riehl, Julian W.
Rimler, George W.
Risatti, Howard A.
Ritter, Joseph K.
Rizzo, William B.
Roakes, Susan L.
Robbins, Steven B.
Robinson, J. Lawrence
Robinson, Susan E.
Rodgers, Janet B.
Rodwell, Mary K.
Roesser, James R.
Ropelewski, Debra A.
Rosecrans, John A.
Rosenbaum, Allan
Rosenblum, Amy
Rosenblum, Phillip
Rosenblum, William I.
Rosenkranz, Mark S.
Ross, Paul K.
Rossi, John A.
Rossiter, Louis F.
Roth, Karl S.
Ruch, Charles P.
Ruder, Suzanne M.
Ruddy, Shaun J.
Rugg, Robert D.
Ruggiero, John S.
Rule, Warren R.
Russell, Milo F.
Rutans, Sarah C.
Saady, Joseph J.
Saito, Megumi
Salandro, Daniel P.
Salen, Katie
Sange, Gary R.
Sarrett, David C.
Satin, Leslie S.
Sauer, Ronald L.
Saunders, David N.
Sawin, Kathleen
Scalin, Charles
Scarsdale, Neel
Schedler, David A.
Schenkein, Harvey A.
Schexnider, Alvin J.
Schlitz, Jack H.
Schirch, LaVerne G.
Schmeek, John F.
Schneck, Daniel
Schneider, Robert L.
Schnoll, Sidney H.
Schoolwerth, Anton C.
Schulz, Peter
Schumacher, Salley A.
Schwartz, Bill N.
Schwartz, Lawrence B.
Schwartz, Martin S.
Schwartz, Sanford
Schwarz, Philip J.
Scott, Robert B.
Scully, Diana H.
Seaber, James R.
Sedagh, Hassan
Seibel, Hugo R.
Seidenberg, Arthur J.
Seipel, Joseph H.
Semus, Simon F.
Seyfarth, John T.
Shadomy, H. Jean
Sharman, Charles C.
Sharp, Nicholas A.
Sharshar, Abdelaleem M.
Shelton, Keith R.
Shepherd, Jayne T.
Sheridan, Michael
Sherron, Ronald H.
Shillady, Donald D.
Shin, Tai S.
Shivachar, Amruthesh C.
Sholley, Milton M.
Shukla, Ramesh K.
Shulman, Joseph D.
Silberg, Judy L.
Silliman, Christopher
Silver, Christopher
Silvers, Stuart J.
<table>
<thead>
<tr>
<th>Name</th>
<th>Page(s)</th>
<th>Name</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simon, Diane J.</td>
<td>241, 254</td>
<td>Thompson, Nancy K.</td>
<td>146</td>
</tr>
<tr>
<td>Sirica, Alphonse E.</td>
<td>186</td>
<td>Tisinger, Betty</td>
<td>139</td>
</tr>
<tr>
<td>Sleeth, Randall G.</td>
<td>194</td>
<td>Tisserat, Barbara</td>
<td>156</td>
</tr>
<tr>
<td>Smetana, Frantisek</td>
<td>152</td>
<td>Tondkar, Rasoul H.</td>
<td>194</td>
</tr>
<tr>
<td>Smith, Alfred L., Jr.</td>
<td>194</td>
<td>Topich, Joseph</td>
<td>49</td>
</tr>
<tr>
<td>Smith, Charles H.</td>
<td>194</td>
<td>Towberman, Donna B.</td>
<td>219</td>
</tr>
<tr>
<td>Smith, Elske v.P.</td>
<td>66</td>
<td>Trani, Eugene, P.</td>
<td>56</td>
</tr>
<tr>
<td>Smith, Forrest L.</td>
<td>182</td>
<td>Trumble, Robert R.</td>
<td>194</td>
</tr>
<tr>
<td>Smith, Harold L.</td>
<td>298</td>
<td>Tucker, Woodie L.</td>
<td>194</td>
</tr>
<tr>
<td>Smith, Martha N.</td>
<td>288</td>
<td>Tuckman, Howard P.</td>
<td>194</td>
</tr>
<tr>
<td>Smith, Ted J.</td>
<td>44</td>
<td>Tunell, Ted</td>
<td>57</td>
</tr>
<tr>
<td>Smock, Leonard A.</td>
<td>47</td>
<td>Turner, Jean</td>
<td>285</td>
</tr>
<tr>
<td>Sneden, Albert T.</td>
<td>49</td>
<td>Upton, David E.</td>
<td>194</td>
</tr>
<tr>
<td>Snellings, Eleanor C.</td>
<td>194</td>
<td>Urban, David J.</td>
<td>194</td>
</tr>
<tr>
<td>Snyder, Mary S.</td>
<td>118</td>
<td>Urofsky, Melvin I.</td>
<td>57</td>
</tr>
<tr>
<td>Soine, William H.</td>
<td>297</td>
<td>Vacca, Richard S.</td>
<td>248</td>
</tr>
<tr>
<td>Sommer, David W.</td>
<td>194</td>
<td>Valarie, Kristoffer</td>
<td>180</td>
</tr>
<tr>
<td>Sommer, Sandra R.</td>
<td>103</td>
<td>Vallarino, Lidia M.</td>
<td>49</td>
</tr>
<tr>
<td>Sonnenberg, Dale F.</td>
<td>302</td>
<td>Van de Walle, John A.</td>
<td>254</td>
</tr>
<tr>
<td>Sparks, Howard L.</td>
<td>254</td>
<td>Van Tuyle, Glenn C.</td>
<td>172</td>
</tr>
<tr>
<td>Spede, Edward C.</td>
<td>194</td>
<td>Van Winkle, Lester</td>
<td>157</td>
</tr>
<tr>
<td>Spencer, Robert F.</td>
<td>171</td>
<td>Vance, Leonard R.</td>
<td>32, 182</td>
</tr>
<tr>
<td>Sperry, John B.</td>
<td>194</td>
<td>Venitz, Jurgen</td>
<td>298</td>
</tr>
<tr>
<td>Spindle, Roxanne</td>
<td>194</td>
<td>Vlahcevic, Sonia K.</td>
<td>152</td>
</tr>
<tr>
<td>Spinelli, Michael A.</td>
<td>194</td>
<td>Walker, Ruby C.</td>
<td>302</td>
</tr>
<tr>
<td>Spratt, John A.</td>
<td>174</td>
<td>Walsh, Joseph</td>
<td>302</td>
</tr>
<tr>
<td>Staples, Catherine</td>
<td>194</td>
<td>Walsh, Scott W.</td>
<td>184</td>
</tr>
<tr>
<td>Stasson, Mark F.</td>
<td>69</td>
<td>Wan, Thomas T. H.</td>
<td>91</td>
</tr>
<tr>
<td>Stein, Barry F.</td>
<td>184</td>
<td>Ware, Joy L.</td>
<td>186</td>
</tr>
<tr>
<td>Stewart, Jennifer K.</td>
<td>47, 184</td>
<td>Waters, Haidee F.</td>
<td>288</td>
</tr>
<tr>
<td>Stolberg, Arnold L.</td>
<td>69</td>
<td>Watts, Janet H.</td>
<td>109</td>
</tr>
<tr>
<td>Strandberg, Warren D.</td>
<td>247</td>
<td>Wayne, Jennifer S.</td>
<td>174</td>
</tr>
<tr>
<td>Strauss, Sarah S.</td>
<td>288</td>
<td>Webb, Stanley R.</td>
<td>47</td>
</tr>
<tr>
<td>Strommer, Joan</td>
<td>151</td>
<td>Wechsler, Andrew S.</td>
<td>185</td>
</tr>
<tr>
<td>Strong, Stanley R.</td>
<td>69</td>
<td>Wehman, Paul H.</td>
<td>254</td>
</tr>
<tr>
<td>Stryk, Lydia D.</td>
<td>53</td>
<td>Weistroffer, Heinz R.</td>
<td>194</td>
</tr>
<tr>
<td>Stubbins, James F.</td>
<td>297</td>
<td>Weitzman, Lauren</td>
<td>69</td>
</tr>
<tr>
<td>Sullivan, Scott</td>
<td>118</td>
<td>Welch, Rizpah L.</td>
<td>254</td>
</tr>
<tr>
<td>Sung, San-Sang J.</td>
<td>180</td>
<td>Welch, Sandra P.</td>
<td>182</td>
</tr>
<tr>
<td>Sutherland, John W.</td>
<td>194</td>
<td>Wergin, Jon F.</td>
<td>248</td>
</tr>
<tr>
<td>Swerdlow, Paul S.</td>
<td>180</td>
<td>West, Charles</td>
<td>152</td>
</tr>
<tr>
<td>Swisher, Karen W.</td>
<td>91</td>
<td>West, Lawrence W.</td>
<td>59</td>
</tr>
<tr>
<td>Swyers, William R.</td>
<td>254</td>
<td>Westin, Eric H.</td>
<td>180, 182</td>
</tr>
<tr>
<td>Szakal, András K.</td>
<td>171</td>
<td>WestKaeumper, Richard B.</td>
<td>297</td>
</tr>
<tr>
<td>Szari, Louis J.</td>
<td>158</td>
<td>Wetton, Phillip S.</td>
<td>156</td>
</tr>
<tr>
<td>Talbert, Robert M.</td>
<td>56</td>
<td>Wetzel, James N.</td>
<td>194</td>
</tr>
<tr>
<td>Tapia, Javier</td>
<td>156</td>
<td>Weymouth, L.A.</td>
<td>186</td>
</tr>
<tr>
<td>Tarter, Martin A.</td>
<td>254</td>
<td>White, Doris</td>
<td>254</td>
</tr>
<tr>
<td>Taylor, Shirley M.</td>
<td>180</td>
<td>White, C. Eugene</td>
<td>295</td>
</tr>
<tr>
<td>Terner, James</td>
<td>49</td>
<td>White, Kimber L., Jr.</td>
<td>174, 182</td>
</tr>
<tr>
<td>Terrell, William J.</td>
<td>58</td>
<td>Whitehead, Camden</td>
<td>148</td>
</tr>
<tr>
<td>Tew, John G.</td>
<td>180</td>
<td>Whitesell, J. Edwin</td>
<td>53</td>
</tr>
<tr>
<td>Thomas, Clarence</td>
<td>44</td>
<td>Whitlock, A. Gaynelle</td>
<td>248</td>
</tr>
<tr>
<td>Thompson, Gary</td>
<td>58</td>
<td>Wier, Benson</td>
<td>194</td>
</tr>
<tr>
<td>Thompson, Lydia</td>
<td>135</td>
<td>Wijnholds, Heine, DeB.</td>
<td>194</td>
</tr>
<tr>
<td>Name</td>
<td>Page(s)</td>
<td>Name</td>
<td>Page(s)</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------</td>
<td>--------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Wilkinson, David S.</td>
<td>186</td>
<td>Wooldridge, Blue E.</td>
<td>217, 224</td>
</tr>
<tr>
<td>Williams, Cecelia M.</td>
<td>115</td>
<td>Worthington, Everett L.</td>
<td>69</td>
</tr>
<tr>
<td>Williams, J. Sherwood</td>
<td>76</td>
<td>Wright, Christine S.</td>
<td>172</td>
</tr>
<tr>
<td>Williams, Julie</td>
<td>69</td>
<td>Wright, H. Tonie</td>
<td>172</td>
</tr>
<tr>
<td>Williamson, Patricia Pepple</td>
<td>59</td>
<td>Wright, James</td>
<td>139</td>
</tr>
<tr>
<td>Willis, Hayes E.</td>
<td>32</td>
<td>Wright, Keith C.</td>
<td>126</td>
</tr>
<tr>
<td>Wilson, Howard B.</td>
<td>194</td>
<td>Wu, Fang-Sheng</td>
<td>47</td>
</tr>
<tr>
<td>Wilson, Neil</td>
<td>152</td>
<td>Wyman, Jean F.</td>
<td>288</td>
</tr>
<tr>
<td>Windridge, Graham C.</td>
<td>295, 297</td>
<td>Wynne, A. James</td>
<td>189, 194</td>
</tr>
<tr>
<td>Winters, Lawrence J.</td>
<td>49</td>
<td>Wysocki, Vicki H.</td>
<td>49</td>
</tr>
<tr>
<td>Wirt, Wilma H.</td>
<td>44</td>
<td>Yager, Dorne R.</td>
<td>180</td>
</tr>
<tr>
<td>Wise, Michael S.</td>
<td>230</td>
<td>Yarowsky, Morris</td>
<td>156</td>
</tr>
<tr>
<td>Witherspoon, John M.</td>
<td>91</td>
<td>Young, Donald R.</td>
<td>47</td>
</tr>
<tr>
<td>Witorsch, Raphael J.</td>
<td>185</td>
<td>Young, Reuben B.</td>
<td>177</td>
</tr>
<tr>
<td>Wolf, Barry</td>
<td>177</td>
<td>Young, Robert A., Jr.</td>
<td>115</td>
</tr>
<tr>
<td>Wolfe, Eleanor V.</td>
<td>109</td>
<td>Younger, Janet B.</td>
<td>288</td>
</tr>
<tr>
<td>Wood, D. Robley, Jr.</td>
<td>194</td>
<td>Youngkin, Ellis Q.</td>
<td>288</td>
</tr>
<tr>
<td>Wood, James A.</td>
<td>58</td>
<td>Yu, Robert K.</td>
<td>49, 172</td>
</tr>
<tr>
<td>Wood, Joan B.</td>
<td>86</td>
<td>Yung, Ringo</td>
<td>149</td>
</tr>
<tr>
<td>Wood, John H.</td>
<td>298</td>
<td>Zaret, Esther S.</td>
<td>254</td>
</tr>
<tr>
<td>Wood, Judy W.</td>
<td>254</td>
<td>Zehner, Zendra E.</td>
<td>172</td>
</tr>
<tr>
<td>Woodlief, Ann M.</td>
<td>53</td>
<td>Zuelzar, Wilhelm</td>
<td>174</td>
</tr>
<tr>
<td>Woods, Lauren A.</td>
<td>182</td>
<td>Zwicker, Marcia F.</td>
<td>31</td>
</tr>
<tr>
<td>Woodward, John J.</td>
<td>182</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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, 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 list of education records maintained by the University is available from University Enrollment Services/Records and Registration. 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 are also available from University Enrollment Services/Records and Registration.

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 is also 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 and Regulations Office, U.S. Department of Education, Washington, D.C. 20202.
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 July 1, 1984, the statute provides:

§23-7.4. Eligibility for in-state tuition charges. — A. For purpose of this section 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 parents or legal guardian.

"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 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 or forty hours at minimum wage.

"Independent student" means one whose parents have surrendered the right to his care, custody, and earnings, have ceased to support him, and have not claimed him as a dependent on federal and state income tax returns for at least twelve months prior to the date of the alleged entitlement.

"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 in paragraph G of this section.

"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. In order 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.

In order 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.

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, location of checking or passbook savings accounts, 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.

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.

C. The domicile of a married person shall be determined in the same manner as the domicile of an unmarried person.

The domicile of an emancipated minor shall be established in the same manner as any other independent 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.

A matriculating student who has entered an institution classified as out-of-state 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 domicile.

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 or 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. 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 changes 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 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 process procedure required by paragraph H. below.

E. 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 stationed or 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 depen-
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 federal authorities have a valid contract for students for whom the employer or federal authorities are paying the tuition charges.

All such contracts shall be registered with the State Council of Higher Education to assure accurate tabulation of the domiciles of the students.

All special arrangement contracts with authorities controlling federal installations or agencies shall include a specific number of students to be served at reduced rates. In any fiscal year, the total number of such students at all state-supported institutions of higher education shall not exceed one-half of one percent of the projected annual full-time equivalent student enrollment in the state-supported institutions of higher education.

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.

H. Each public institution of higher education shall establish an appeals process for those students who are aggrieved by decisions on eligibility for in-state tuition charges. The Administrative Process Act (9-6.14:1 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, to be supported by substantial evidence and not to be arbitrary, capricious, or otherwise contrary to law.

I. In order 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 revised 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 (9-6.14:1 et seq.) of this Code.

An advisory committee, composed of ten representatives of the public institutions, 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.

The first set of such guidelines shall be issued September 1, 1984.
Virginia Commonwealth University
1994-1995 Graduate Curriculum Requirements
Chart and Directory

***Revised July 1994 — Supersedes All Other***
Curricula and Deadlines

The chart on the following pages lists the graduate programs offered at Virginia Commonwealth University. When completing an application to graduate study, refer to this chart for the type of degree awarded, terms of entry, application deadline dates, test and other special admission requirements. Transfer to the application the EXACT titles of curriculum, specialization and track (if applicable), and degree. For additional admission requirements and a detailed explanation of the requirements, applicants are encouraged to contact the school/department sponsoring the intended program of study at the numbers listed in the chart. Other important phone numbers are listed below. (Area code 804).

Admissions
Graduate Application Assistance and Information ................................................................. 828-6916
International Student Assistance and Information ................................................................. 828-1829

Academic Advising, Office of .................................................................................................. 367-0200

Assistantships and Fellowships (Contact the department to which you are applying — see numbers listed in chart)

Catalogs
Graduate .................................................................................................................................. 828-6916
Undergraduate ......................................................................................................................... 367-1222

Disabled Students Assistance ..................................................................................................... 367-1650

Financial Aid Information and Applications
Academic Campus ..................................................................................................................... 828-6669
MCV Campus ............................................................................................................................ 828-0523

Housing Assistance
On Campus
Academic Campus ..................................................................................................................... 367-6495
MCV Campus ............................................................................................................................ 828-1800
Off Campus ................................................................................................................................ 828-6492

Information (General)
Academic Campus ..................................................................................................................... 367-0100
MCV Campus ............................................................................................................................ 786-9000

Registration
Academic Campus ..................................................................................................................... 828-1349
MCV Campus ............................................................................................................................ 828-9800

School of Graduate Studies
Academic Campus ..................................................................................................................... 828-6916
MCV Campus ............................................................................................................................ 828-0732

Standardized Entrance Examinations
GRE and GMAT (Information and Applications) ..................................................................... 828-6916
Miller Analogies Test (MAT) ..................................................................................................... 828-6277

Student Accounts
Academic Campus ..................................................................................................................... 828-2228
MCV Campus ............................................................................................................................ 828-0749

Veterans Affairs ......................................................................................................................... 828-6166
## VIRGINIA COMMONWEALTH UNIVERSITY
### 1994-1995 GRADUATE CURRICULUM REQUIREMENTS CHART AND DIRECTORY

**REVISED JULY 1994 — SUPERSEDES ALL OTHER CURRICULA AND DEADLINES**

<table>
<thead>
<tr>
<th>CURRICULUM (IN BOLD TYPE)</th>
<th>DEPARTMENT/PHONE (AREA CODE 804)</th>
<th>DEGREE</th>
<th>TERMS OF DEGREE ENTRY</th>
<th>DEADLINE DATES</th>
<th>TEST REQUIREMENTS</th>
<th>SPECIAL REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCOUNTANCY</td>
<td>Business (367-1741)</td>
<td>M.Acc.</td>
<td>All terms</td>
<td>8 weeks prior to beginning of term</td>
<td>GMAT</td>
<td></td>
</tr>
<tr>
<td>ADMINISTRATION AND SUPERVISION</td>
<td>Educational Studies (828-1332)</td>
<td>M.Ed.</td>
<td>Fall</td>
<td>July 1</td>
<td>GRE or MAT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indicate specialization: Administration, Supervision, Dual Major in</td>
<td></td>
<td>Spring</td>
<td>November 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADMINISTRATION OF JUSTICE</td>
<td>Justice and Risk Administration (828-1050)</td>
<td>M.S.</td>
<td>All terms</td>
<td>May 1</td>
<td>GRE, LSAT, or MAT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indicate specialization: Forensic Science, Justice</td>
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</tr>
<tr>
<td>ADULT EDUCATION</td>
<td>Educational Studies (828-1305)</td>
<td>M.Ed.</td>
<td>Fall</td>
<td>July 1</td>
<td>GRE or MAT</td>
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<td></td>
<td></td>
<td>Spring</td>
<td>November 1</td>
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<td></td>
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<td></td>
<td>Summer</td>
<td>May 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGING STUDIES</td>
<td>Gerontology (786-1565)</td>
<td>Certificate</td>
<td>All terms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANATOMY</td>
<td>Anatomy (786-9623)</td>
<td>M.S., Ph.D.</td>
<td>Fall preferred</td>
<td>June 1</td>
<td>GRE, *MCAT, or DAT</td>
<td></td>
</tr>
<tr>
<td>ANATOMY/PHYSICAL THERAPY</td>
<td>Anatomy/Physical Therapy (828-0234)</td>
<td>Ph.D.</td>
<td>Fall</td>
<td>May 1</td>
<td>GRE</td>
<td>Contact Physical Therapy Department for specific admission requirements.</td>
</tr>
<tr>
<td>DOCTORAL PROGRAM</td>
<td></td>
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</tr>
<tr>
<td>APPLIED SOCIAL RESEARCH</td>
<td>Sociology (367-1026)</td>
<td>Certificate</td>
<td>Fall</td>
<td>August 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ART**

(See Art Education, Art History, Crafts, Design, Music, Painting and Printmaking, Sculpture, and Theatre)

*The Medical College Admission Test or Dental Aptitude Test is acceptable in lieu of the Graduate Record Examination for combined professional/academic degree programs.
<table>
<thead>
<tr>
<th>CURRICULUM (IN BOLD TYPE)</th>
<th>DEPARTMENT/PHONE (AREA CODE 804)</th>
<th>DEGREE</th>
<th>TERMS OF ENTRY</th>
<th>DEADLINE DATES</th>
<th>TEST REQUIREMENTS</th>
<th>SPECIAL REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART EDUCATION</td>
<td>Art Education (828-1996)</td>
<td>M.A.E.</td>
<td>Fall</td>
<td>July 1 (March 15 for financial assistance)</td>
<td></td>
<td><strong>Portfolio</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Spring</td>
<td>December 1 (Nov. 1 for financial assistance)</td>
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<td></td>
<td></td>
<td>Summer</td>
<td>May 1</td>
<td></td>
</tr>
<tr>
<td>ART HISTORY</td>
<td>Art History (828-2265)</td>
<td>M.A., Ph.D.</td>
<td>Fall</td>
<td>July 1 (March 15 for financial assistance)</td>
<td>GRE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indicate specialization: Architectural History, Historical Studies, Museum Summer</td>
<td></td>
<td>Spring</td>
<td>December 1 (Nov. 1 for financial assistance)</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>May 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOCHEMISTRY</td>
<td>Biochemistry and Molecular Biophysics (828-9762)</td>
<td>M.S., Ph.D.</td>
<td>Fall preferred</td>
<td>May 1</td>
<td>GRE, *MCAT, or DAT</td>
<td></td>
</tr>
<tr>
<td>BIOLOGY</td>
<td>Biology (367-1562)</td>
<td>M.S.</td>
<td>Fall</td>
<td>July 1</td>
<td>GRE—General and Subject</td>
<td></td>
</tr>
<tr>
<td>Biomedical Engineering</td>
<td>Biomedical Engineering (828-2592)</td>
<td>M.S., Ph.D.</td>
<td>Fall preferred</td>
<td>April 15 (for support)</td>
<td>GRE</td>
<td>Contact department for Biomedical Engineering brochure.</td>
</tr>
<tr>
<td>Doctoral track also available through Biomedical Engineering in cooperation with Biostatistics. List Biostatistics as curriculum, Biomedical Engineering as specialization.</td>
<td>Biomedical Engineering (828-2592), Biostatistics (828-9824)</td>
<td>Ph.D.</td>
<td>Fall preferred</td>
<td>April 15 (for support)</td>
<td>GRE</td>
<td>Contact department for Biomedical Engineering brochure.</td>
</tr>
<tr>
<td>BIOSTATISTICS</td>
<td>Biostatistics (828-9824)</td>
<td>M.S., Ph.D.</td>
<td>Fall preferred</td>
<td>Applications received prior to February 15 given priority consideration.</td>
<td>GRE, *MCAT, or DAT</td>
<td>Contact department for Biostatistics brochure.</td>
</tr>
</tbody>
</table>

*The Medical College Admission Test or Dental Aptitude Test is acceptable in lieu of the Graduate Record Examination for combined professional/academic degree programs.

**Audition tapes or portfolio required for programs in the School of the Arts should be sent to the Office of Graduate Studies, School of the Arts, Pollak Building, Room 230, Richmond, VA 23284-2519. Please be sure to send self-addressed, stamped envelopes for return of portfolios.
<table>
<thead>
<tr>
<th>DEPARTMENT/PHONEL (AREA CODE 804)</th>
<th>DEGREE</th>
<th>TERMS OF ENTRY</th>
<th>DEADLINE DATES</th>
<th>TEST REQUIREMENTS</th>
<th>SPECIAL REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BUSINESS</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>(See Accountancy, Business-M.S., Business-Ph.D., Business Administration-M.B.A., Economics and Taxation)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>BUSINESS-M.S.</strong></td>
<td>Business (367-7141)</td>
<td>M.S.</td>
<td>All terms</td>
<td>8 weeks prior to beginning of term</td>
<td>GMAT</td>
</tr>
<tr>
<td><strong>BUSINESS-Ph.D.</strong></td>
<td>Business (367-7141)</td>
<td>Ph.D.</td>
<td>Fall</td>
<td>February 15</td>
<td>GMAT</td>
</tr>
<tr>
<td>Select one major specialization and one minor track: Accounting/Taxation, Decision Sciences, Finance, Information Systems, Management. The minor may also include: International Business and Marketing. With prior approval from the School of Business, a minor may be from another school or department offering a doctoral program.</td>
<td></td>
<td>Spring</td>
<td>October 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BUSINESS ADMINISTRATION-M.B.A.</strong></td>
<td>Business (367-7141)</td>
<td>M.B.A.</td>
<td>All terms</td>
<td>8 weeks prior to GMAT beginning of term (rolling admissions for P.M.B.A.)</td>
<td></td>
</tr>
<tr>
<td>Indicate specialization: M.B.A. General, or M.B.A. with a concentration, or Professional M.B.A.</td>
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</tr>
<tr>
<td><strong>CHEMISTRY</strong></td>
<td>Chemistry (367-1298)</td>
<td>M.S., Ph.D.</td>
<td>Fall</td>
<td>March 15</td>
<td>GRE</td>
</tr>
<tr>
<td>Indicate specialization: Analytical, Inorganic, Organic, Physical, Chemical Physics (Ph.D. only)</td>
<td></td>
<td>Spring</td>
<td>November 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CURRICULUM (IN BOLD TYPE)</td>
<td>DEPARTMENT/ PHONE (AREA CODE 804)</td>
<td>DEGREE</td>
<td>TERMS OF ENTRY</td>
<td>DEADLINE DATES</td>
<td>TEST REQUIREMENTS</td>
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</tr>
<tr>
<td>CLINICAL LABORATORY SCIENCES (formerly Medical Technology) Indicate specialization: Advanced Master's Program; Categorical Master's Program</td>
<td>Clinical Laboratory Sciences (828-9469)</td>
<td>M.S.</td>
<td>Fall</td>
<td>July 1</td>
<td>GRE</td>
</tr>
<tr>
<td>COMPUTER SCIENCE</td>
<td>Mathematical Sciences (367-1301)</td>
<td>M.S.</td>
<td>Fall</td>
<td>July 1</td>
<td>GRE—General and Subject</td>
</tr>
<tr>
<td>COUNSELOR EDUCATION</td>
<td>Educational Services (828-1305)</td>
<td>M.Ed.</td>
<td>Fall</td>
<td>July 1</td>
<td>GRE or MAT</td>
</tr>
<tr>
<td></td>
<td>Indicate specialization: Classroom Guidance Concentration, Guidance and Counseling, Dual Certification in Counselor and Visiting Teacher</td>
<td></td>
<td>Spring</td>
<td>November 15</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Summer</td>
<td>May 1</td>
<td></td>
</tr>
<tr>
<td>CRAFTS</td>
<td>Crafts (367-1477)</td>
<td>M.F.A.</td>
<td>Fall</td>
<td>March 15</td>
<td><strong>Portfolio</strong></td>
</tr>
<tr>
<td></td>
<td>Indicate specialization: Ceramics, Furniture Design, Glassworking, Jewelry or Metalworking, Textiles</td>
<td></td>
<td>Spring (on space available basis)</td>
<td>October 1</td>
<td></td>
</tr>
<tr>
<td>CREATIVE WRITING</td>
<td>English (828-1331)</td>
<td>M.F.A.</td>
<td>Fall</td>
<td>March 1</td>
<td>GRE</td>
</tr>
<tr>
<td></td>
<td>Indicate specialization: Fiction, Poetry, or both genres</td>
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<td></td>
</tr>
<tr>
<td>CRIMINAL JUSTICE ADMINISTRATION</td>
<td>Justice and Risk Administration (828-1050)</td>
<td>Certificate</td>
<td>All terms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CURRICULUM AND INSTRUCTION</td>
<td>Teacher Education (828-1945)</td>
<td>M.Ed.</td>
<td>Fall</td>
<td>July 1</td>
<td>GRE or MAT</td>
</tr>
<tr>
<td></td>
<td>Indicate specialization: Early Education, Middle Education, Secondary Education, or Instructional Technology (including Library/Media)</td>
<td></td>
<td>Spring</td>
<td>November 15</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Summer</td>
<td>May 1</td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Specialty</th>
<th>Department/Phone (Area Code 804)</th>
<th>Degree</th>
<th>Terms of Entry</th>
<th>Deadline Dates</th>
<th>Test Requirements</th>
<th>Special Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESIGN</td>
<td>Interior Design (367-1713)</td>
<td>M.F.A.</td>
<td>Fall</td>
<td>July 1 (March 15 for financial assistance)</td>
<td><strong>Portfolio</strong></td>
<td>Interview recommended for Visual Communications.</td>
</tr>
<tr>
<td></td>
<td>Photography (367-1695)</td>
<td></td>
<td>Spring</td>
<td>December 1 (Nov. 1 for financial assistance)</td>
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<tr>
<td></td>
<td>Communications Arts and Design (367-1709)</td>
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<tr>
<td>ECONOMICS</td>
<td>Business (367-1741)</td>
<td>M.A.</td>
<td>All terms</td>
<td>8 weeks prior to beginning of term</td>
<td>GRE—General</td>
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</tr>
<tr>
<td>EDUCATION</td>
<td>English (828-1331)</td>
<td>M.A.</td>
<td>Summer, Fall</td>
<td>April 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>English (828-1331)</td>
<td></td>
<td>Spring</td>
<td>November 15</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Forensic Science (See Administration of Justice)</td>
<td></td>
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<tr>
<td></td>
<td>Genetic Counseling (786-9632)</td>
<td>M.S.</td>
<td>Fall preferred</td>
<td>February 15</td>
<td>GRE, *MCAT, or DAT</td>
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<tr>
<td></td>
<td>Gerontology (786-1565)</td>
<td>M.S.</td>
<td>All terms</td>
<td>March 15</td>
<td>GRE or GMAT</td>
<td>Contact department for specific admission requirements.</td>
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<tr>
<td></td>
<td>Health Administration (828-0719)</td>
<td>M.S.H.A.</td>
<td>Summer</td>
<td>March 15</td>
<td>GRE or GMAT</td>
<td>Contact department for specific admission requirements.</td>
</tr>
<tr>
<td></td>
<td>Health Services Administration (828-9466)</td>
<td>M.H.A.</td>
<td>Fall</td>
<td>July 15</td>
<td>GRE or GMAT</td>
<td>Contact department for specific admission requirements.</td>
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<td></td>
<td>Applications received prior to May 15 given priority consideration.</td>
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</tr>
</tbody>
</table>

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<tr>
<th>CURRICULUM (IN BOLD TYPE)</th>
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<th>DEADLINE DATES</th>
<th>TEST REQUIREMENTS</th>
<th>SPECIAL REQUIREMENTS</th>
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<tbody>
<tr>
<td>HEALTH SERVICES ORGANIZATION AND RESEARCH</td>
<td>Health Administration (828-5218)</td>
<td>Ph.D.</td>
<td>Fall preferred</td>
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<td>GRE</td>
<td>Contact department for specific admission requirements.</td>
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<tr>
<td>HISTORY</td>
<td>History (828-2211)</td>
<td>M.A.</td>
<td>Fall</td>
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<td>GRE</td>
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<td>Spring</td>
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<td>Summer</td>
<td>May 1</td>
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<tr>
<td>HUMAN GENETICS (See also Genetic Counseling)</td>
<td>Human Genetics (786-9632)</td>
<td>M.S., Ph.D.</td>
<td>Fall preferred</td>
<td>February 15</td>
<td>GRE, *MCAT, or DAT</td>
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<tr>
<td>IMMUNOLOGY (See Microbiology/Immunology)</td>
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<tr>
<td>INTERDISCIPLINARY STUDIES</td>
<td>Adult and Nontraditional Programs (367-0200)</td>
<td>M.I.S.</td>
<td>Fall</td>
<td>July 1</td>
<td>GRE</td>
<td>Essay required (Request topics from the Graduate School, if not included with application).</td>
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<td>Spring</td>
<td>December 1</td>
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<td>Summer</td>
<td>May 1</td>
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<tr>
<td>LIBRARY MEDIA (See Curriculum and Instruction) List</td>
<td>Teacher Education (828-1945)</td>
<td>M.Ed.</td>
<td>Fall</td>
<td>July 1</td>
<td>GRE or MAT</td>
<td>Certification as a teacher</td>
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<td>Spring</td>
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<td>Summer</td>
<td>May 1</td>
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<tr>
<td>MASS COMMUNICATIONS</td>
<td>Mass Communications (828-2660)</td>
<td>M.S.</td>
<td>Fall</td>
<td>July 1</td>
<td>GRE</td>
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<td>Spring</td>
<td>November 15</td>
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<tr>
<td>MATHEMATICAL SCIENCES</td>
<td>Mathematical Sciences (367-1301)</td>
<td>M.S.</td>
<td>Fall</td>
<td>July 1</td>
<td>GRE—General and Subject</td>
<td>Contact director of graduate studies for specific admission requirements.</td>
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<tr>
<td>Indicate specialization: Applied</td>
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<td>November 15</td>
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<tr>
<td>Mathematics, Mathematics, Operations</td>
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<td>Summer</td>
<td>May 1</td>
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<tr>
<td>Research, Statistics</td>
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<td>MATHEMATICS EDUCATION</td>
<td>Teacher Education (828-1945)</td>
<td>M.Ed.</td>
<td>Fall</td>
<td>July 1</td>
<td>GRE or MAT</td>
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<td>Spring</td>
<td>November 15</td>
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<td>Summer</td>
<td>May 1</td>
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<tr>
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<th>TERMS OF ENTRY</th>
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<th>TEST REQUIREMENTS</th>
<th>SPECIAL REQUIREMENTS</th>
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<tbody>
<tr>
<td><strong>MEDICAL TECHNOLOGY</strong></td>
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<tr>
<td>(See Clinical Laboratory Sciences)</td>
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<td><strong>MEDICINAL CHEMISTRY</strong></td>
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<tr>
<td>Medicinal Chemistry (786-8483)</td>
<td>M.S., Ph.D.</td>
<td>Fall preferred</td>
<td></td>
<td>GRE</td>
<td>Submission of Subject GRE scores is suggested but not required.</td>
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<tr>
<td><strong>MICROBIOLOGY/IMMUNOLOGY</strong></td>
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<tr>
<td>Microbiology/Immunology (828-9728)</td>
<td>M.S., Ph.D.</td>
<td>Fall preferred</td>
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<td>GRE, *MCAT, or DAT</td>
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<td><strong>MUSIC</strong></td>
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<tr>
<td>Indicate specialization: Composition; Education; Performance, including conducting.</td>
<td>M.M.</td>
<td>Fall</td>
<td>July 1 (March 15 for financial assistance)</td>
<td>See special requirements</td>
<td>**Audition or audition tapes and department exam or GRE Subject Music exam required. (Request department exam from Graduate School, if not included with application). **Composition also requires a portfolio.</td>
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<tr>
<td>Music (367-1165)</td>
<td></td>
<td>Spring</td>
<td>December 1 (Nov. 1 for financial assistance)</td>
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<td>Summer</td>
<td>May 1</td>
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<tr>
<td><strong>NURSE ANESTHESIA</strong></td>
<td></td>
<td></td>
<td></td>
<td>GRE</td>
<td>Contact department for specific admission requirements.</td>
</tr>
<tr>
<td>Nurse Anesthesia (828-9808)</td>
<td>M.S.N.A.</td>
<td>Fall only</td>
<td>January 31</td>
<td>GRE</td>
<td>Contact department for specific admission requirements.</td>
</tr>
<tr>
<td><strong>NURSE ANESTHESIA, POST-GRADUATE CERTIFIED REGISTERED NURSE ANESTHETIST PROGRAM</strong></td>
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</tr>
<tr>
<td>Nurse Anesthesia (828-9808)</td>
<td>M.S.</td>
<td>Fall only</td>
<td>January 31</td>
<td>GRE</td>
<td>Contact department for specific admission requirements.</td>
</tr>
</tbody>
</table>

**Audition tapes or portfolios required for programs in the School of the Arts should be sent to the Office of Graduate Studies, School of the Arts, Pollak Building, Room 230, Richmond, VA 23284-2519. Please be sure to send self-addressed, stamped envelopes for return of portfolios.**
<table>
<thead>
<tr>
<th>CURRICULUM (IN BOLD TYPE)</th>
<th>DEPARTMENT/PHONE (AREA CODE 804)</th>
<th>DEGREE</th>
<th>TERMS OF ENTRY</th>
<th>DEADLINE DATES</th>
<th>TEST REQUIREMENTS</th>
<th>SPECIAL REQUIREMENTS</th>
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<tbody>
<tr>
<td>NURSING-M.S.</td>
<td>Nursing (828-0724)</td>
<td>M.S.</td>
<td>All terms</td>
<td></td>
<td>GRE</td>
<td>Contact the school for specific admission requirements.</td>
</tr>
<tr>
<td>Indicate specialization: Community Health Nursing; Gerontologic Nursing; Maternal-Child Nursing (indicate Perinatal Clinician or Infant/Child Clinician as track); Medical-Surgical Nursing; Nursing Administration (indicate Nurse Executive or Clinical Manager as track); Oncologic Nursing; Primary Care Nurse Specialist (indicate Adult, Family, Gerontologic, OB/GYN, or Pediatric as track); or Psychiatric Mental Health Nursing (For Psychiatric Mental Health specialization, indicate Child/Family track, if applicable).</td>
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<tr>
<td>NURSING-Ph.D.</td>
<td>Nursing (828-0724)</td>
<td>Ph.D.</td>
<td>All terms</td>
<td>April 1</td>
<td>GRE</td>
<td>Contact the school for specific admission requirements.</td>
</tr>
<tr>
<td>Indicate specialization: Nursing Administration; Clinical Science</td>
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<tr>
<td>OCCUPATIONAL THERAPY—PROFESSIONAL</td>
<td>Occupational Therapy (828-2219)</td>
<td>M.S.O.T.</td>
<td>Summer only</td>
<td>February 1</td>
<td>GRE</td>
<td>See Graduate Bulletin or contact department for specific admission requirements.</td>
</tr>
<tr>
<td>(For the qualified student who has earned a bachelor’s degree in a related field)</td>
<td></td>
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<td></td>
<td>Also, complete supplemental program information sheet (Request from Graduate School, if not included with application).</td>
</tr>
<tr>
<td>Note: Entering class begins the first Monday in June each year.</td>
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<tr>
<td>OCCUPATIONAL THERAPY—POST-PROFESSIONAL</td>
<td>Occupational Therapy (828-2219)</td>
<td>M.S.</td>
<td>Fall preferred</td>
<td></td>
<td>GRE</td>
<td>Contact department for specific admission requirements.</td>
</tr>
<tr>
<td>(An advanced masters program for registered occupational therapists) List “OT” as curriculum, “Post-Professional” as specialization, and M.S. as degree. Indicate track: Administration, Education, Gerontology; Hand Management, Pediatrics, Physical Disabilities, Psychosocial Dysfunction</td>
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<tr>
<td>CURRICULUM (IN BOLD TYPE)</td>
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<td>SPECIAL REQUIREMENTS</td>
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<tr>
<td>PAINTING AND PRINTMAKING</td>
<td>Painting and Printmaking (367-1696)</td>
<td>M.F.A.</td>
<td>Fall</td>
<td>March 15</td>
<td>GRE, *MCAT, or DAT</td>
<td>**Portfolio</td>
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<td>Spring</td>
<td>October 1</td>
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<td>(on space available basis)</td>
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<tr>
<td>PATHOLOGY</td>
<td>Pathology (786-0252)</td>
<td>M.S., Ph.D.</td>
<td>Fall preferred</td>
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<td>GRE, *MCAT, or DAT</td>
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<tr>
<td>PATIENT COUNSELING</td>
<td>Patient Counseling (828-0928)</td>
<td>Certificate</td>
<td>Fall and Spring</td>
<td></td>
<td>GRE, *MCAT, or DAT</td>
<td>See Graduate Bulletin for description of each program. Contact department for specific admission requirements.</td>
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<tr>
<td></td>
<td>Indicate specialization: Extended Program, Residency Programs, Summer Programs</td>
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<tr>
<td>PHARMACOLOGY</td>
<td>Pharmacology/Toxicology (828-2075)</td>
<td>M.S., Ph.D.</td>
<td>Fall preferred</td>
<td>April 15</td>
<td>GRE, *MCAT, or DAT</td>
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<tr>
<td></td>
<td>Submission of application by March 1 highly recommended.</td>
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<tr>
<td>PHARMACY AND PHARMACEUTICS</td>
<td>Pharmacy and Pharmaceutics (786-8334)</td>
<td>M.S., Ph.D.</td>
<td>Fall preferred</td>
<td></td>
<td>GRE</td>
<td>International applicants must score at least 600 on the TOEFL.</td>
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<tr>
<td>PHYSICAL EDUCATION</td>
<td>Health and Physical Education (828-1948)</td>
<td>M.S.</td>
<td>Fall</td>
<td>July 1</td>
<td>GRE or MAT</td>
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<td>Spring</td>
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<td>Summer</td>
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<th>SPECIAL REQUIREMENTS</th>
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<tbody>
<tr>
<td>PHYSICAL THERAPY—ENTRY-LEVEL</td>
<td>Physical Therapy (828-0234)</td>
<td>M.S.</td>
<td>Fall</td>
<td>February 1</td>
<td>GRE</td>
<td>See Graduate Bulletin or contact department for specific admission requirements.</td>
</tr>
<tr>
<td>(A 3-year professional program based on 3 years of previous college work. Applicant may or may not have a bachelor's degree). List &quot;PT&quot; as curriculum and &quot;entry-level&quot; as specialization. Leave track blank.</td>
<td></td>
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<td>Also, complete supplemental program information sheet (Request from Graduate School, if not included with application).</td>
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<tr>
<td>PHYSICAL THERAPY—ADVANCED</td>
<td>Physical Therapy (828-0234)</td>
<td>M.S.</td>
<td>Fall preferred</td>
<td>August 1</td>
<td>GRE</td>
<td>See Graduate Bulletin or contact department for specific admissions requirements.</td>
</tr>
<tr>
<td>(An advanced masters program for licensed physical therapists who have graduated from a PT program approved by the APTA) List &quot;PT&quot; as curriculum, &quot;Advanced&quot; as specialization, and indicate track: Orthopedic Physical Therapy, Kinesiology and Biomechanics, Hand Management, Neurologic Physical Therapy, Pediatric Physical Therapy</td>
<td></td>
<td></td>
<td>Spring</td>
<td>December 1</td>
<td></td>
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<tr>
<td>PHYSICAL THERAPY/ANATOMY DOCTORAL PROGRAM</td>
<td>Anatomy/Physical Therapy (828-0234)</td>
<td>Ph.D.</td>
<td>Fall</td>
<td>May 1</td>
<td>GRE</td>
<td>Contact Physical Therapy Department for specific admissions requirements.</td>
</tr>
<tr>
<td>PHYSICS</td>
<td>Physics (828-1818)</td>
<td>M.S.</td>
<td>Fall</td>
<td>August 1</td>
<td>GRE</td>
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<tr>
<td>Indicate specialization: Instrumentation, Physics of Materials, Physics Research</td>
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<td>Spring</td>
<td>December 1</td>
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<tr>
<td>PHYSIOLOGY</td>
<td>Physiology (828-9756)</td>
<td>M.S., Ph.D.</td>
<td>Fall preferred</td>
<td></td>
<td>GRE, *MCAT, or DAT</td>
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<td>PLANNING INFORMATION SYSTEMS</td>
<td>Urban Studies and Planning (828-2489)</td>
<td>Certificate</td>
<td>Fall</td>
<td>June 1</td>
<td>GRE</td>
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</tbody>
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<th>DEGREE</th>
<th>TERMS OF ENTRY</th>
<th>DEADLINE DATES</th>
<th>TEST REQUIREMENTS</th>
<th>SPECIAL REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYCHOLOGY</td>
<td>Psychology, Clinical, Counseling, General</td>
<td>Ph.D.</td>
<td>Fall only</td>
<td>February 15</td>
<td>GRE-General</td>
<td>Applicants should apply to the Ph.D. program only. Psychology does not offer a terminal master’s degree. Personal interview may be required for the clinical program.</td>
</tr>
<tr>
<td>PUBLIC ADMINISTRATION</td>
<td>Public Administration</td>
<td>M.P.A.</td>
<td>Fall</td>
<td>July 15</td>
<td>GRE, GMAT, or LSAT</td>
<td>Personal Interview</td>
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<td>Spring</td>
<td>November 1</td>
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<td>Summer</td>
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<td>D.P.A.</td>
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<td>Fall</td>
<td>March 15</td>
<td>GRE, GMAT, LSAT</td>
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<td></td>
<td></td>
<td></td>
<td>Spring</td>
<td>October 15</td>
<td></td>
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<tr>
<td>PUBLIC HEALTH</td>
<td>Preventive Medicine/Community Health</td>
<td>M.P.H.</td>
<td>Fall only</td>
<td>April 1</td>
<td>GRE, *MCAT, or DAT</td>
<td>Contact department for specific information.</td>
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<td>(786-9785)</td>
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<tr>
<td>PUBLIC MANAGEMENT</td>
<td>Public Administration</td>
<td>Certificate</td>
<td>Fall</td>
<td>July 15</td>
<td>GRE or MAT</td>
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<td>(828-1047)</td>
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<td>Spring</td>
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<td>Summer</td>
<td>March 1</td>
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<tr>
<td>READING</td>
<td>Teacher Education</td>
<td>M.Ed.</td>
<td>Fall</td>
<td>July 1</td>
<td>GRE or MAT</td>
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<td>Spring</td>
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<td>Summer</td>
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<tr>
<td>RECREATION, PARKS AND TOURISM</td>
<td>Recreation, Parks, and Tourism</td>
<td>M.S.</td>
<td>Fall</td>
<td>June 30</td>
<td>GRE</td>
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<td>Spring</td>
<td>December 1</td>
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<tr>
<td>REHABILITATION COUNSELING</td>
<td>Rehabilitation Counseling</td>
<td>M.S.</td>
<td>Fall</td>
<td>August 1</td>
<td>GRE or MAT</td>
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<tr>
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<td>(828-1132)</td>
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<td>Spring</td>
<td>December 1</td>
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<td>Summer</td>
<td>May 1</td>
<td></td>
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<tr>
<td>REHABILITATION COUNSELING/PROFESSIONAL COUNSELING CERTIFICATE PROGRAM</td>
<td>Rehabilitation Counseling</td>
<td>Certificate</td>
<td>Fall</td>
<td>August 1</td>
<td>Personal interview required.</td>
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<td>(828-1132)</td>
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<td>Spring</td>
<td>December 1</td>
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<td>Summer</td>
<td>May 1</td>
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</tbody>
</table>

*The Medical College Admission Test or Dental Aptitude Test is acceptable in lieu of the Graduate Record Examination for combined professional/academic degree programs.*
<table>
<thead>
<tr>
<th>DEPARTMENT/PHONE (AREA CODE 804)</th>
<th>DEGREE</th>
<th>TERMS OF ENTRY</th>
<th>DEADLINE DATES</th>
<th>TEST REQUIREMENTS</th>
<th>SPECIAL REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCULPTURE Sculpture (828-1511)</td>
<td>M.F.A.</td>
<td>Fall Spring</td>
<td>March 15 October 15</td>
<td></td>
<td><strong>Portfolio</strong></td>
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<tr>
<td>SOCIAL WORK Social Policy and Social Work (828-0715)</td>
<td>Ph.D.</td>
<td>Full-time—Fall only Part-time—Fall and Spring</td>
<td>May 1 for financial aid</td>
<td>GRE</td>
<td>Written exercise required. Clinical concentration requires 3 years post-masters, full-time supervised clinical experience.</td>
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<tr>
<td>SOCIAL WORK—ADVANCED STANDING Social Work (828-0703)</td>
<td>M.S.W.</td>
<td>Summer only—Richmond campus</td>
<td>December 31</td>
<td></td>
<td>If applying for off-campus program, for second year, indicate location in item 6 on application.</td>
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<tr>
<td>SOCIAL WORK—REGULAR STANDING Social Work (828-0703)</td>
<td>M.S.W.</td>
<td>Full-time—Fall Part-time—Fall</td>
<td>March 1</td>
<td>If applying for off-campus program, indicate location in item 6 on application.</td>
<td></td>
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<tr>
<td>SOCIETY Sociology (367-1026)</td>
<td>M.S.</td>
<td>Fall Spring</td>
<td>July 1 November 15</td>
<td>GRE</td>
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<tr>
<td>SOCIAL EDUCATION Teacher Education (828-1945)</td>
<td>M.Ed.</td>
<td>Fall Spring Summer</td>
<td>July 1 November 15 May 1</td>
<td>GRE or MAT</td>
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<tr>
<td>TAXATION Business (367-1741)</td>
<td>M.Tax.</td>
<td>All terms</td>
<td>8 weeks prior to beginning of term</td>
<td>GMAT</td>
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</tr>
</tbody>
</table>

**Audition tapes or portfolio required for programs in the School of the Arts should be sent to the Office of Graduate Studies, School of the Arts, Pollak Building, Room 230, Richmond, VA 23284-2519. Please be sure to send self-addressed, stamped envelopes for return of portfolios.**
<table>
<thead>
<tr>
<th>CURRICULUM (IN BOLD TYPE)</th>
<th>DEPARTMENT/PHONE (AREA CODE 804)</th>
<th>DEGREE</th>
<th>TERMS OF ENTRY</th>
<th>DEADLINE DATES</th>
<th>TEST REQUIREMENTS</th>
<th>SPECIAL REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEACHING (A 5-year program combining undergraduate and graduate study)</td>
<td>Teacher Education (828-1945)</td>
<td>M.T.</td>
<td>Fall</td>
<td>March 1</td>
<td>GRE or MAT</td>
<td>Contact Division of Teacher Education for further information.</td>
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<tr>
<td>Indicate specialization: Early Education NK-4, Middle Education 4-8, Secondary Education 8-12, or Special Education.</td>
<td>Teacher Education (828-1945)</td>
<td>Certificate</td>
<td>Fall, Spring, Summer</td>
<td>July 1, November 15, May 1</td>
<td>GRE or MAT</td>
<td>Contact Division of Teacher Education for further information.</td>
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<tr>
<td>THEATRE</td>
<td>Theatre (828-1514)</td>
<td>M.F.A.</td>
<td>Fall</td>
<td>July 1 (March 15 for financial assistance)</td>
<td>GRE or LSAT</td>
<td>**Audition or portfolio and personal interview required. Contact department for additional admission requirements.</td>
</tr>
<tr>
<td>Indicate specialization: Acting, Costume Design, Directing, Stage Design/Technical Theatre, Theatre Education.</td>
<td>Theatre (828-1514)</td>
<td></td>
<td>Spring</td>
<td>December 1 (Nov. 1 for financial assistance)</td>
<td>GRE or LSAT</td>
<td>**Audition or portfolio and personal interview required. Contact department for additional admission requirements.</td>
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<tr>
<td>TOXICOLOGY</td>
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<td>(See Pharmacology/Toxicology)</td>
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<td>GRE or LSAT</td>
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<td>URBAN AND REGIONAL PLANNING</td>
<td>Urban Studies and Planning (828-2489)</td>
<td>M.U.R.P.</td>
<td>Fall</td>
<td>April 15</td>
<td>GRE or LSAT</td>
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<td>URBAN REVITALIZATION PLANNING INFORMATION</td>
<td>Urban Studies and Planning (828-2489)</td>
<td>Certificate</td>
<td>Fall, Spring</td>
<td>June 1, December 1</td>
<td>GRE or LSAT</td>
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<tr>
<td>URBAN SERVICES</td>
<td>Education (828-6530)</td>
<td>Ph.D.</td>
<td>Summer, Fall, Spring</td>
<td>March 15, October 15</td>
<td>GRE</td>
<td>Personal interview and writing sample required. Also, supplemental work experience and educational goals statements (Request from the Graduate School, if not included with application), a professional vita (resume), and current supervisor contact information.</td>
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<tr>
<td>Indicate specialization: Adult Education and Training; Urban Services Leadership; Instructional Leadership; or Educational Leadership.</td>
<td>Education (828-6530)</td>
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<td>GRE</td>
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</tr>
</tbody>
</table>

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## Index

| Academic Common Market                        | 14 |
| Academic Regulations, General                | 15 |
| Academic Services, Office of, School of Education | 243 |
| Accounting, Post-Baccalaureate Certification in | 204 |
| Accreditation                                | 3  |
| Add/Drop                                    | 17 |
| Administration, University                   | 325 |
| Administration and Supervision, Master of Education Programs in | 248 |
| Admission Requirements                       | 6  |
| Admissions                                  | 6  |
| Adult Education, Master of Education Programs in | 251 |
| Advising                                    | 16 |
| Aging Studies, Certificate Program in        | 36 |
| Aging Studies, M.S.W. and Gerontology        | 36 |
| Allied Health Professions, Courses in        | 85 |
| Allied Health Professions, Graduate Programs in | 84 |
| Allied Health Professions, School of         | 83 |
| Anatomy, Department of                       | 170 |
| Appeals, Admissions                          | 8  |
| Appeals for Exceptions to Graduate School Policies | 16 |
| Application Procedures                       | 8  |
| Applied Mathematics                          | 58 |
| Applied Social Research, Certificate Program in | 37 |
| Art Education, Department of                 | 138 |
| Art History, Department of                   | 140 |
| Arts, Graduate Programs in                   | 135 |
| Arts, School of the                         | 135 |
| Arts, School of the, Admission Requirements  | 136 |
| Assistantships and Fellowships, Graduate     | 11 |
| Attendance and Continuance Policies          | 16 |
| Audit, Grade of                              | 22 |
| Automobiles                                  | 28 |
| Basic Health Sciences, Graduate              | 163 |
| Basic Health Sciences, Departmental Research Interests | 169 |
| Basic Health Sciences, School of             | 163 |
| Basic Health Sciences, School of, Admission Requirements | 164 |
| Biochemistry and Molecular Biophysics, Department of | 171 |
| Biology, Department of                       | 46 |
| Biomedical Engineering, Program in           | 173 |
| Biostatistics, Department of                 | 175 |
| Board of Visitors                            | 325 |
| Business Administration, Master of Business Administration | 195 |
| Business Administration, Professional Master of | 189 |
| Business, Doctoral Program in                | 197 |
| Business, Master of Science in               | 190 |
| Business, Graduate Programs in               | 189 |
| Business, School of, Admission Requirements  | 189 |
| Calendar                                    | iii |
| Cancellation of Registration                 | 17 |
| Career Services                              | 27 |
| Change in Registration                       | 17 |
| Change of Discipline                         | 19 |
| Chemistry, Department of                     | 49 |
| Clinical Laboratory Sciences, Department of  | 103 |
| (formerly Medical Technology)                | 103 |
| Communication Arts and Design, Department of | 149 |
Community and Public Affairs,  
Programs in 215
Community and Public Affairs, School of  
Grade Review Procedure 215
Community and Public Affairs, School of,  
Admission Requirements 215
Community Health, Department of Preventive Medicine and  
Computer Science, Certificate Program in 61
Computer Science, Courses in 63
Computing and Information Resources 24
Continued, Grade of 22
Continuous Enrollment  
(Attendance and Continuance) 16
Counseling 26
Counselor Education, Master of  
Education Programs in 251
Course Interpretation 22
Course Listings 22
Course Numbering 23
Crafts, Department of 146
Creative Writing, Program in 53
Criminal Justice Administration,  
Post-Baccalaureate Certificate in 220
Curriculum and Instruction, Master of Education Programs in 255
Curriculum Requirements  
Chart and Directory, Graduate 344
Degree Listing 3
Degree Requirements 16
Degree-Seeking Student 7
Delinquent Accounts 15
Design, Master of Fine Arts in 147
Disabilities, Persons with 6
Dishonored Checks 15
Economics, Master of Arts in 195
Education, Graduate Programs in 244
Education, School of 241
Education, School of, Admission Requirements 245
Educational Studies, Division of 247
Effective Bulletin 16
Engineering, Cooperative Graduate  
Program in 35
English, Department of 52
English, Master of Arts Program in 53
Examinations, Entrance 7
Exceptions to Graduate School Policies 16
Expenses 13
Faculty 325
Fellowships, Graduate 11
Financial Aid 9
Financial Aid Academic Requirements 11
Financial Aid, Application for 10
Financial Responsibility, Statement of 15
Full-time, Part-time Graduate Study 14
Genetics Counseling (See Human Genetics)  
Geriatric Physical Therapy, Program in 36
Gerontology, Department of 85
Grade-Point Average 21
Grade Reports 21
Grade Review Procedure 21
Grades 21
Grades in Research, Thesis, and  
Dissertation Courses 22
Grading System 21
Graduate Assistantships and Fellowships 11
Graduate Programs 3
Graduate Studies, School of 1
Graduation Requirements 20
Guaranteed Admissions 7
Health Administration, Department of 90
Health and Physical Education, Division of 253
Health Services and Insurance 26
History, Department of  
History, Master of Arts Program in 7
Housing 26
Human Genetics, Department of 177
Humanities and Sciences, College of 41
Humanities and Sciences, College of,  
Admission Requirements 42
Humanities and Sciences, College of,  
Graduate Programs in 42
Identification Cards 28
Identification of Symbols, Courses 22
Immigrants 9
Immunization Requirements 17
Incomplete, Grade of 22
Information Systems, Post-Baccalaureate Certificate in 204
In-state Residency 14
Interdisciplinary and Cooperatively  
Offered Graduate Degree — Master of Interdisciplinary Studies 31
Interdisciplinary and Cooperatively  
Offered Graduate Program — Aging Studies 36
Interdisciplinary and Cooperatively  
Offered Graduate Program — Geriatric Physical Therapy 36
Interior Design, Department of 148
International Students 9
International Students, Financial Aid 13
Justice and Risk Administration,  
Department of 218
Leave of Absence 18
Libraries 23
Loan Programs, Financial Aid 10
Mail Service 29
Maps, Campus and Facility/Service Directories 362
Mass Communications, School of 44
Master of Interdisciplinary Studies 31
Mathematical Sciences, Department of 58
Mathematics, Courses in 61
Mathematics Education, Master of  
Education Program in 255
Medical Technology, Department of  
(See Clinical Laboratory Sciences) 103
Medicinal Chemistry, Department of 297
INDEX

Microbiology and Immunology, Department of 178
Mission, University 2
Multiple Admissions 8
Music, Department of 152
Nondegree-seeking Student 7
Nonimmigrants 9
Nurse Anesthesia, Department of 106
Nurse Anesthesia, Postgraduate Certified Registered Nurse Anesthetist Program 107
Nursing, Programs in 281
Nursing Scholarship 283
Nursing, School of 281
Nursing, School of, Admission Requirements 282
Nursing Services Administration, Graduate Program in 284
Occupational Therapy, Department of 109
Off-Campus Graduate Instruction 6
Operations Research, Courses in 37
Operations Research, Programs in 37
Organizations 28
Painting and Printmaking, Department of 156
Pass, Grade of 22
Patient Counseling, Graduate Certificate Program in 115
Pharmacology and Toxicology, Department of 181
Pharmacy, Graduate Programs in 296
Pharmacy and Pharmaceutics, Department of 298
Pharmacy, School of 295
Pharmacy, School of, Admission Requirements 296
Photography and Film, Department of 151
Physical Education, Master of Science Program in 253
Physical Therapy, Department of 118
Physics, Department of 66
Physiology, Department of 184
Planning Information Systems, Post-Baccalaureate Certificate Program in 234
President, Letter from vii
Preventive Medicine and Community Health, Department of 339
Privacy Rights, Annual Notice to Students 339
Provisional Student 7
Psychology, Department of 68
Public Administration Program, Doctor of 216
Public Administration, Department of 224
Public Health, Master of 32
Reading, Master of Education Program in 255
Real Estate and Urban Land Development 198
Reasonable Academic Progress Policy for Recipients of Financial Aid 11
Rebates, Refunds 14
Recreation, Parks, and Tourism, Department of 230
Recreational Facilities 27
Refund of Financial Aid 12
Refund of Tuition 14
Registration, Cancellation of 17
Registration, Changes in 17
Rehabilitation Counseling, Department of 232
Repeated Courses 21
Request for Refund 14
Research 24
Residence for Ph.D. Programs 17
Residency 14
Resident Directors and Resident Assistants 13
Resources and Services 23
Rules and Procedures 15
Sculpture, Department of 157
Short Term Loans 10
Social Policy and Social Work, Program in 309
Social Work, Programs in 303
Social Work, School of 301
Social Work, School of, Admission Requirements 303
Social Work Specializations 307
Sociology and Anthropology, Department of 76
Special Education, Master of Education Programs in 256
Stafford Student Loans, Financial Aid 10
Statistics, Courses in 64
Statistics, Programs in 37
Student Commons 28
Student Load 16
Student Services 23
Summer Financial Aid 12
Taxation, Master of 199
Teacher Education, Division of 253
Teaching, Master of 260
Teaching, Post-Baccalaureate Certificate, Program in 262
Theatre, Department of 158
Thesis/Dissertation Examinations 19
Time Limit for Completion of Degrees 21
Transcripts 21
Transfer Credits 19
Tuition and Fees 13
Tuition, Determination of Student Classification 340
Types of Admission 6
Undergraduate Students 9
University, General Information 1
University Graduate Council 3
Urban Revitalization, Post-Baccalaureate Certificate Program in 234
Urban Services, Ph.D. in 263
Urban Studies and Planning, Department of 232
Veterans Educational Benefits 13
Virginia Center on Aging 26
Virginia Institute for Developmental Disabilities 38
Withdrawals from the University | 18 | Withdrawn, Grade of | 22
Withdrawals, Health Related | 18 | Work-Study Employment | 11
CAMPUS MAP AND FACILITY/SERVICE DIRECTORY ▼ 381

Code Building

2 Williams House, 800 W. Franklin St.
3 Franklin Street Gymnasium, 817 W. Franklin St.
4 Founders Hall, 827 W. Franklin St.
5 President’s House, 910 W. Franklin St.
7 Ginter House, 901 W. Franklin St.
8 Anderson House, 913 W. Franklin St.
9 Kearney House, 921 W. Franklin St.
10 Scherer Hall, 923 W. Franklin St.
11 1814 W. Main St.
12 Anderson Gallery, 9071/2 W. Franklin St.
13 Life Sciences Building, 816 Park Ave.
14 Ritter-Hickok House, 821 W. Franklin St.
15 609 W. Main St.
16 General Purpose Academic Building, 901 W. Main St.
17 McAdams House, 914 W. Franklin St.
18 1326-28 W. Main St.
19 1315 Floyd Ave.
20 Adkins House, 824 Park Ave.
21 Hibbs Building, 900 Park Ave.
22 Shafer Street Playhouse, 221 N. Shafer St.
23 Lafayette Hall, 312 N. Shafer St.
24 VCU Music Center, 1015 Grove Ave.
25 Stark House, 915 W. Franklin St.
26 Education Annex, 109 N. Harrison St.
27 Younger House, 919 W. Franklin St.
28 Student Commons, 907 Floyd Ave.
29 1312 W. Main St.
30 Treehouse Apartments, 5701 Pony Farm Dr.
31 Sports Medicine Center, 104 N. Belvidere Dr.
32 Bowe House, 917 W. Franklin St.
33 611 W. Main St.
34 Thurston House, 808 W. Franklin St.
35 621 W. Main St.
36 Meredith House, 1014 W. Franklin St.
37 401 E. Main St., Purchasing
38 Johnson Hall, 801 W. Franklin St.
39 Lindsay House, 600 W. Franklin St.
40 Millhiser House, 916 W. Franklin St.
41 916 W. Franklin St. (rear)
42 Sitterding House, 901 Floyd Ave.
43 310 N. Shafer St.
44 White House, 806 W. Franklin St.
45 Stokes House, 918 W. Franklin St.
46 Stagg House, 912 W. Franklin St.
47 1128 Floyd Ave.
48 107 N. Morris St.
49 Holiday Inn, 301 W. Franklin St.
50 Raleigh Building, 1001 W. Franklin St.
51 Cary Street Recreational Facilities, 911 W. Cary St.
52 Buford House, 922 W. Franklin St.
53 Franklin Terrace, 812-14 W. Franklin St.
54 Hunton House, 810 W. Franklin St.
55 Valentine House, 920 W. Franklin St.

Academic Campus Locator

2 Williams House, 800 W. Franklin St.
3 Franklin Street Gymnasium, 817 W. Franklin St.
4 Founders Hall, 827 W. Franklin St.
5 President’s House, 910 W. Franklin St.
7 Ginter House, 901 W. Franklin St.
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24 VCU Music Center, 1015 Grove Ave.
25 Stark House, 915 W. Franklin St.
26 Education Annex, 109 N. Harrison St.
27 Younger House, 919 W. Franklin St.
28 Student Commons, 907 Floyd Ave.
29 1312 W. Main St.
30 Treehouse Apartments, 5701 Pony Farm Dr.
31 Sports Medicine Center, 104 N. Belvidere Dr.
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46 Stagg House, 912 W. Franklin St.
47 1128 Floyd Ave.
48 107 N. Morris St.
49 Holiday Inn, 301 W. Franklin St.
50 Raleigh Building, 1001 W. Franklin St.
51 Cary Street Recreational Facilities, 911 W. Cary St.
52 Buford House, 922 W. Franklin St.
53 Franklin Terrace, 812-14 W. Franklin St.
54 Hunton House, 810 W. Franklin St.
55 Valentine House, 920 W. Franklin St.

112 Rhodes Hall, 710 W. Franklin St.
115 VCU Public Parking
116 Bird House, 820 W. Franklin St.
117 Physical Plant Warehouse, 6 S. Linden St.
120 Harrison House, 816 W. Franklin St.
121 327 W. Main St., Financial Operations
122 Fine Arts Center, 601 W. Main St.
123 Blanton House, 826-28 W. Franklin St.
124 VCU Meeting Center, 101 N. Harrison St.
135 Physical Plant Shops, 10 S. Linden St.
138 James Branch Cabell Library, 901 Park Ave.
139 Pollak Building, 325 N. Harrison St.
149 School of Business, 1015 Floyd Ave., Business School Auditorium, 14 N. Linden St.
150 VCU Dance Center, 10 N. Brunswick St.
160 Bocock House, 909 W. Franklin St.
163 Oliver Hall-Physical Sciences Wing, 1001 W. Main St.
164 Gladding Residence Center, 711 W. Main St.
166 Performing Arts Center, 922 Park Ave.
167 Oliver Hall-Education Wing, 1015 W. Main St.
169 1001 W. Broad St.
170 1314 W. Main St.
202 Mosque
### ACADEMIC CAMPUS

#### Alphabetical Index

<table>
<thead>
<tr>
<th>Page</th>
<th>Service/Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>4, 121</td>
<td>Cashier</td>
</tr>
<tr>
<td>96</td>
<td>Academic Advising</td>
</tr>
<tr>
<td>7</td>
<td>Academic Affairs</td>
</tr>
<tr>
<td>138</td>
<td>Academic Computing</td>
</tr>
<tr>
<td>4</td>
<td>Academic Records</td>
</tr>
<tr>
<td>26</td>
<td>Academic Support, Office of</td>
</tr>
<tr>
<td>149</td>
<td>Accounting, Department of</td>
</tr>
<tr>
<td>121</td>
<td>Accounting Office</td>
</tr>
<tr>
<td>5</td>
<td>Administration, Senior Vice-President for</td>
</tr>
<tr>
<td>123</td>
<td>Advancement, Vice-President for</td>
</tr>
<tr>
<td>23</td>
<td>African-American Studies Program</td>
</tr>
<tr>
<td>123</td>
<td>Alumni Activities</td>
</tr>
<tr>
<td>12</td>
<td>Anderson Art Gallery</td>
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<tr>
<td>123</td>
<td>Annual Fund</td>
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<td>Archeological Services Center</td>
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<td>Art History</td>
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<td>Arts, School of the</td>
</tr>
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<td>Athletic Department</td>
</tr>
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<td>Audiovisual Services</td>
</tr>
<tr>
<td>149</td>
<td>Auditorium, School of Business</td>
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<td>Biology, Department of</td>
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<td>Business &amp; Economic Development</td>
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<tr>
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<td>Business, School of</td>
</tr>
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</tr>
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<td>Cafeteria, Park Place</td>
</tr>
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<td>14</td>
<td>Campus Tours</td>
</tr>
<tr>
<td>7</td>
<td>Career Planning &amp; Placement</td>
</tr>
<tr>
<td>68</td>
<td>Cary Street Recreational Facilities</td>
</tr>
<tr>
<td>121</td>
<td>Cash Operations</td>
</tr>
<tr>
<td>121</td>
<td>Cashier</td>
</tr>
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<td>163</td>
<td>Chemistry, Department of</td>
</tr>
<tr>
<td>96</td>
<td>CLEP</td>
</tr>
<tr>
<td>167</td>
<td>GRE, NTE Test Services (Office of Student Services)</td>
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<tr>
<td>121</td>
<td>Collection Unit</td>
</tr>
<tr>
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<td>Common Ground Eatery</td>
</tr>
<tr>
<td>139</td>
<td>Communication Arts &amp; Design</td>
</tr>
<tr>
<td>27</td>
<td>Community &amp; Public Affairs, School of</td>
</tr>
<tr>
<td>24</td>
<td>Community School of the Performing Arts</td>
</tr>
<tr>
<td>167</td>
<td>Continuing Education &amp; Field Services</td>
</tr>
<tr>
<td>4</td>
<td>Continuing Studies &amp; Public Services</td>
</tr>
<tr>
<td>121</td>
<td>Controller</td>
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<tr>
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<td>Cooperative Graduate Engineering Program</td>
</tr>
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<td>Crafts, Department of</td>
</tr>
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<td>19</td>
<td>Dance, Department of</td>
</tr>
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<td>150</td>
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<td>Decision Sciences &amp; Business Law</td>
</tr>
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<td>Development, Office of</td>
</tr>
<tr>
<td>26</td>
<td>Services for Students with Disabilities</td>
</tr>
<tr>
<td>164</td>
<td>Dormitory, Gladding Residence Center</td>
</tr>
<tr>
<td>41</td>
<td>Dormitory, Johnson Hall</td>
</tr>
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<td>Dormitory, Rhodes Hall</td>
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<tr>
<td>149</td>
<td>Economics, Department of</td>
</tr>
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<td>167</td>
<td>Education, School of</td>
</tr>
<tr>
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<td>Educational Development &amp; Faculty Resources</td>
</tr>
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<td>167</td>
<td>Educational Services, Division of</td>
</tr>
<tr>
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<td>Educational Studies, Division of</td>
</tr>
<tr>
<td>42</td>
<td>Employment Applications</td>
</tr>
<tr>
<td>21</td>
<td>English, Department of</td>
</tr>
<tr>
<td>31</td>
<td>Environmental Health &amp; Safety, Office of</td>
</tr>
<tr>
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<td>Evening Studies</td>
</tr>
<tr>
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<td>Facilities Management</td>
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<td>Fashion, Department of</td>
</tr>
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<td>Financial Aid, Counseling/Information Center</td>
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<td>Foreign Languages, Department of</td>
</tr>
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<td>General Accounting</td>
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<td>Governmental Relations, Office of</td>
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<td>Grants &amp; Contracts Accounting</td>
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<td>Health &amp; Physical Education, Division of</td>
</tr>
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<td>History &amp; Geography, Department of</td>
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<td>44</td>
<td>Honors Program</td>
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<td>Housing Office</td>
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</tr>
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<td>Human Resource Systems</td>
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</tr>
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</tr>
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<td>Marketing, Department of</td>
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<td>16</td>
<td>Mass Communications, School of</td>
</tr>
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<td>163</td>
<td>Mathematical Sciences</td>
</tr>
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<td>15</td>
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</tr>
<tr>
<td>166</td>
<td>Music, Department of</td>
</tr>
<tr>
<td>139</td>
<td>Painting &amp; Printmaking, Department of</td>
</tr>
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<td>37</td>
<td>Parking Office</td>
</tr>
<tr>
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<td>Payroll</td>
</tr>
<tr>
<td>166</td>
<td>Performing Arts Center</td>
</tr>
<tr>
<td>25</td>
<td>Philosophy &amp; Religious Studies, Department of</td>
</tr>
<tr>
<td>139</td>
<td>Photography, Department of</td>
</tr>
<tr>
<td>163</td>
<td>Physics, Department of</td>
</tr>
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<td>17</td>
<td>Planning &amp; Budget</td>
</tr>
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<td>Police Department</td>
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<td>Police &amp; Fire Emergencies</td>
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</tr>
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<td>Postal Services</td>
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<td>Psychological Services and Development Center</td>
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<td>36</td>
<td>Psychology, Department of</td>
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<td>Publications</td>
</tr>
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<td>Rehabilitation Counseling, Department of</td>
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<td>Rehabilitation Research &amp; Training Center</td>
</tr>
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<td>Sculpture, Department of</td>
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<td>Social Work, School of</td>
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<td>Student Accounts</td>
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<tr>
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<td>Student Activities Office</td>
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<td>46</td>
<td>Student Affairs, Dean of</td>
</tr>
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<td>Student Affairs, Vice-Provost for</td>
</tr>
<tr>
<td>28</td>
<td>Student Commons, University</td>
</tr>
<tr>
<td>164</td>
<td>Student Health Services</td>
</tr>
<tr>
<td>4</td>
<td>Summer Sessions</td>
</tr>
<tr>
<td>7</td>
<td>Survey Research Center</td>
</tr>
<tr>
<td>167</td>
<td>Teacher Education, Division of</td>
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<td>166</td>
<td>Theatre, Department of</td>
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<tr>
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<td>Transcript Request</td>
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<td>37</td>
<td>Transportation, Department of (College)</td>
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<td>Treasurer</td>
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<tr>
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</tr>
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<td>University Enrollment Services/Admissions</td>
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<td>University Enrollment Services/Records &amp; Registration</td>
</tr>
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<td>University Relations</td>
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<td>Veterans Affairs</td>
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<td>Virginia Institute of Developmental Disabilities</td>
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</table>
**Medical College of Virginia Campus Locater**

1. Bear Hall, 10th & Leigh Sts.
2. Nursing Education Building, 1220 E. Broad St.
5. Egyptian Building, 1223 E. Marshall St.
6. Pathological Incinerator, 316 College St.
7. Facilities Management Shops Building, 659 N. 8th St.
8. Leigh House, 1000 E. Clay St.
9. McGuire Hall, 1112 E. Clay St.
10. McRae Hall, 10th & Leigh Sts.
11. Sanger Hall, 1101 E. Marshall St.
12. Ambulatory Care Center, 408 N. 12th St.
13. MCV/VCU Visitor/Patient Parking Deck, 1220 E. Clay St.
15. MCV Alumni House, 1105 E. Clay St.
17. Randolph-Minor Annex, 301 College St.
18. Rudd Hall, 10th & Leigh Sts.
19. Sheltering Arms Building, 1008 E. Clay St.
20. Strauss Research Laboratory, 527 N. 12th St.
21. Monumental Church, 1224 E. Broad St.
22. Tompkins-McCaw Library, 509 N. 12th St.
23. Warner Hall, 10th & Leigh Sts.
24. Wood Memorial Building, 521 N. 11th St.
25. Massey Cancer Center, 401 College St.
26. Larrick Student Center, 641 N. 8th St.
27. Cabaniss Hall, 600 N. 8th St.
28. Lyons Dental Building, 520 N. 12th St.
30. Consolidated Lab. Building, 9 N. 14th St.
32. First Baptist Church, 323 N. 12th St.
33. A. D. Williams Memorial Clinic, 1201 E. Marshall St.
34. VCU Day Nursery, 610 N. 9th St.
35. West Hospital, 1200 E. Broad St.

**Code Building**

1. Bear Hall, 10th & Leigh Sts.
2. Nursing Education Building, 1220 E. Broad St.
5. Egyptian Building, 1223 E. Marshall St.
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**Medical College of Virginia Campus Locater**

1. East Hospital, 1215 E. Marshall St.
2. Nelson Clinic, 401-09 N. 11th St.
3. North Hospital, 1300 E. Marshall St.
4. Virginia Treatment Center, 515 N. 10th St.
5. MCV Hospitals Heliport
6. Faculty/Staff Parking Deck (Lot D), 515 N. 13th St.
7. MCV Hospital Clinical Support Center, 403 N. 13th St.
8. George Ben Johnston Auditorium, 305 N. 12th St.
9. Richmond Plaza Building, 1105. 7th St.
11. Zeigler House, 1006-08 E. Marshall St.
14. Main MCV Hospital, 401 N. 12th St.
15. Faculty/Staff Parking Deck (Lot E), N. 12th St.
16. Finance Building, 327 W. Main St.
## MCV CAMPUS

### Academic

| 13 | Academic Computing, Department of |
| 13 | Academic Pathology |
| 64 | Administrative Offices, MCV Campus |
| 11 | Adult Learning Center |
| 6 | Allied Health Professions, Administrative Offices |
| 6 | Allied Health Professions, School of |
| 13 | Anatomy, Department of |
| 49 | Anesthesiology, Department of |
| 6 | Baruch Auditorium |
| 13 | Basic Health Sciences, Administrative Offices |
| 6 | Basic Health Sciences, School of |
| 1 | Bear Hall, Dormitory |
| 13 | Biochemistry & Molecular Biophysics, Department of |
| 13 | Biostatistics, Department of |
| 32 | Business Offices, MCV Student Accounts |
| 212 | Business Offices, University |
| 31 | Cabaniss Hall |
| 45 | Campus Room Restaurant |
| 49 | Cardiac & Thoracic Surgery |
| 13 | Cardiology |
| 13 | Cardiopulmonary Labs & Research |
| 22 | Center on Aging |
| 13 | Preventive Medicine/Community Health, Department of |
| 3 | Community & Psychiatric Nursing, Department of |
| 6 | Continuing Medical Education |
| 32 | Dental Hygiene Program |
| 32 | Dentistry, Administrative Offices |
| 28 | Dentistry, School of |
| 13 | Dermatology, Department of |
| 31 | Cabaniss Hall, Dormitory |
| 21 | Rudd Hall, Dormitory |
| 62 | Educational Development & Faculty Resources, Center for |
| 6 | Egyptian Building |
| 13 | Endocrinology & Metabolism |
| 32 | Endodontics, Department of |
| 49 | Family Practice, Department of |
| 45 | Financial Aid Office, Student, MCV |
| 13 | Gastroenterology |
| 60 | George Ben Johnston Auditorium |
| 64 | Gerontology |
| 13 | Graduate Studies, School of |
| 32 | Gymnasium |
| 20 | Health Administration, Department of |
| 64 | Health Sciences, Vice-President for |
| 13 | Hematology & Oncology |
| 63 | Hospitality House, MCVH |
| 1 | Housing, Division of Student Services |
| 13 | Human Genetics, Department of |
| 13 | Immunology & Connective Tissue Disease |
| 13 | Infectious Disease 1 |
| 1 | Innovative Technology, Center for |
| 13 | Internal Medicine, Department of |
| 30 | Larrick Student Center |
| 38 | Legal Medicine, Department of |
| 9 | Leigh House |
| 25 | Library, Tompkins-McCaw |
| 32 | Lyons Dental Building |
| 3 | Maternal-Child Nursing, Department of |
| 11 | McGuire Hall |
| 12 | McRae Hall, Dormitory |
| 13 | Medical Oncology |
| 3 | Medical-Surgical Nursing, Department of |
| 20 | Medical Technology (SAHP), Department of |
| 4 | Medicinal Chemistry, Department of |

### Hospitals

| 46 | A. D. Williams Memorial Clinic |
| 68 | Administration, MCVH |

### Auxiliary

| 49 | Alumni Association, MCV |
| 52 | Bank of Virginia Branch |
| 11 | Bookstore |
| 22 | Campus Police |
| 122 | Computer Center 52 11th Street Cafe |
| 49 | Employee Health Services |
| 13 | Environmental Health & Safety Office |
| 9 | Facilities Management |
| 8 | Facilities Management Shops Building |
| 65 | MCV Foundation |
| 55 | MCV Hospitals, McLeanport |
| 76, 58 | Parking Deck, Faculty/Staff |
| 15 | Parking Deck, MCV/VCU Visitor/ Patient |
| 52 | Parking, Nelson Clinic Patients |
| 62 | Parking Office, MCV |
| 62 | Post Office |
| 45 | Print Shop |
| 47 | VCU Day Nursery |