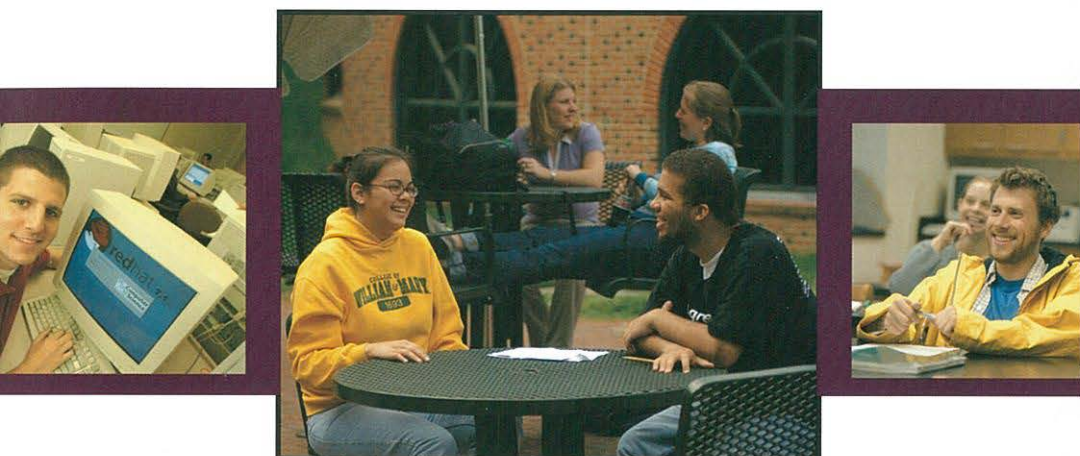


The College of  
**William & Mary**



**2003-2004**

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**Graduate Arts and Sciences  
Program Catalog**



*The College Of*

**WILLIAM & MARY**

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**THE GRADUATE ARTS & SCIENCES  
PROGRAM CATALOG  
2003-2004**

**WILLIAMSBURG, VIRGINIA 23187**

**(757) 221-2467**

**[www.wm.edu/graduate](http://www.wm.edu/graduate)**

## AUGUST 2003

Note: This catalog provides announcements for the 2003-04 academic year. It is current until August 2004. The College reserves the right to make changes in the regulations, charges, and curricula listed herein at any time.

Catalogs are issued for other College programs as follows:

- Undergraduate
- School of Business
- School of Education
- School of Marine Science
- School of Law
- Summer Sessions
- Special Programs

### FINANCIAL BENEFITS FOR VETERANS AND WAR ORPHANS

Programs for Federal and State beneficiaries are available to eligible graduate students who attend the College. Included are educational benefits to veterans, disabled veterans, survivors and dependents. The Virginia War Orphans Act provides assistance to students who are dependents of deceased or totally disabled Virginia veterans. These students may qualify for a maximum of 48 months of tuition-free education. Eligibility requirements and application forms may be obtained from the Office of Student Financial Aid of the Division of War Veteran's Claims, P.O. Box 809, Roanoke, VA 24004. If possible, applications should be submitted at least four (4) months before the expected date of matriculation.

Students who attend the College of William and Mary under the GI Bill are required to pay the tuition fee. Reimbursement is made by the Department of Veterans Administration directly to the student. The application for benefits can be downloaded by logging on to [www.gibill.va.gov](http://www.gibill.va.gov). The Certificate of Eligibility should be sent to the Office of the University Registrar, College of William and Mary, Attn: VA Benefits. The Office of the University Registrar must be notified when it becomes necessary to change an enrollment status.

### WAIVER FOR SENIOR CITIZENS

Under the provisions of the Senior Citizens Higher Education Act, free tuition is available for senior citizens (persons 60 years of age or older) provided that they are residents of Virginia, have a taxable income that does not exceed \$15,000 per year, have met the graduate admission standards of the program or department, and space is available. In addition, any Virginia resident aged 60 or over in any one semester can enroll in 3 non-credit courses free of tuition without regard to income, provided space is available and the individual meets the admissions standards of the College. If the senior citizen has completed 75% of the requirements for the degree, the provision regarding the availability of space does not apply. A Senior Citizen Exemption Certificate is required for anyone who wishes to use the waiver. More information about the Senior Citizen Certificate is located on the following website [www.wm.edu/registrar](http://www.wm.edu/registrar). Individuals wishing to enroll under provisions of this Act should apply to the Dean of Research and Graduate Studies, Arts and Sciences.

# CONTENTS

The College .....	i
The Campus .....	ii
Administrative Officers .....	iii
General Statement of Policy .....	iv
College Calendar .....	v
Graduate Programs .....	1
Facilities .....	1
Student Services .....	10
Student Life .....	12
Graduate Regulations .....	17
Graduate Programs and Course Descriptions .....	29
American Studies Program .....	29
Anthropology .....	38
Applied Science .....	48
Biology .....	56
Chemistry .....	65
Computer Science .....	69
History .....	81
Physics .....	93
Psychology .....	97
Public Policy .....	105
Graduate Center Programs .....	115
College Map .....	Inside Back Cover

# THE COLLEGE

## Mission Statement

The College of William and Mary, a public university in Williamsburg, Virginia, is the second-oldest institution of higher learning in the United States. Established in 1693 by British royal charter, William and Mary is proud of its role as the Alma Mater of generations of American patriots, leaders and public servants. Now, in its fourth century, it continues this tradition of excellence by combining the best features of an undergraduate college with the opportunities offered by a modern research university. Its moderate size, dedicated faculty, and distinctive history give William and Mary a unique character among public institutions, and create a learning environment that fosters close interaction among students and teachers.

The university's predominantly residential undergraduate program provides a broad liberal education in a stimulating academic environment enhanced by a talented and diverse student body. This nationally acclaimed undergraduate program is integrated with selected graduate and professional programs in five faculties - Arts and Sciences, Business, Education, Law, and Marine Science. Masters and doctoral programs in the humanities, the sciences, the social sciences, business, education, and law provide a wide variety of intellectual opportunities for students at both graduate and undergraduate levels.

At William and Mary, teaching, research, and public service are linked through programs designed to preserve, transmit, and expand knowledge. Effective teaching imparts knowledge and encourages the intellectual development of both student and teacher. Quality research supports the educational program by introducing students to the challenge and excitement of original discovery, and is a source of the knowledge and understanding needed for a better society. The university recognizes its special responsibility to the citizens of Virginia through public and community service to the Commonwealth as well as to national and international communities. Teaching, research, and public service are all integral parts of the mission of William and Mary.

## Goals

In fulfilling its mission, William and Mary adopts the following specific goals:

- to attract outstanding students from diverse backgrounds;
- to develop a diverse faculty which is nationally and internationally recognized for excellence in both teaching and research;
- to provide a challenging undergraduate program with a liberal arts and sciences curriculum that encourages creativity, independent thought, and intellectual depth, breadth, and curiosity;
- to offer high quality graduate and professional programs that prepare students for intellectual, professional, and public leadership;
- to instill in its students an appreciation for the human condition, a concern for the public well-being, and a life-long commitment to learning; and
- to use the scholarship and skills of its faculty and students to further human knowledge and understanding, and to address specific problems confronting the Commonwealth of Virginia, the nation, and the world.

## The Campus

William and Mary is a university community, small enough to provide for relationships that allow collaborative teaching and learning, large enough to have the resources to achieve excellence. An important aspect of this community is its location in the beautiful and historic city of Williamsburg, where it constitutes an integral part of the restoration of Colonial Williamsburg. The partnership of the College, the City, and the Restoration, and the educational, cultural, and recreational opportunities afforded to all students by this partnership, add to the quality of life and the quality of education at William and Mary.

The campus, comprising approximately 1,200 acres of land, extends from the western edge of the restored area of Colonial Williamsburg to Lake Matoaka and its surrounding wooded land. Within its boundaries are three contiguous sections known today as the Historic Campus, the Old Campus, and the New Campus, and, a short walk to the southeast, the William and Mary School of Law.

The Historic Campus is the site of three restored pre-Revolutionary buildings. The Sir Christopher Wren Building (1695, restored 1928-31), still in daily classroom use, is the oldest academic building in the United States. The Brafferton (1723, restored 1932), originally a school for Indians established with a bequest from the English scientist Robert Boyle, today contains administrative offices. The third building, the President's House (1732, restored 1931), has served as home for each of the twenty-five presidents of the College.



*Sir Christopher Wren Building*

## ADMINISTRATIVE OFFICERS

### Chancellor

Henry A. Kissinger

### Board of Visitors

Susan A. Magill '72, *Rector*

Hunter B. Andrews '42, LL.D. '93

William P. Barr

Thomas E. Capps

J. Peter Clements, M.B.A. '82

Lawrence S. Eagleburger, D.P.S. '01

John W. Gerdelman '75

Sarah I. Gore '56

Paul C. Jost '76, J.D. '88

Suzann W. Matthews '71

Jeffrey L. McWaters

Joseph J. Plumeri II '66

Anita O. Poston, J.D. '74

Michael K. Powell '85, D.P.S. '02

L. Clifford Schroeder, Sr.

Barbara B. Ukrop '61

Henry C. Wolf '64, J.D. '66

### Student Representatives

Brian R. Cannon

George A. Dodge

College of William and Mary

Richard Bland College

### Administration for Graduate Affairs

Timothy J. Sullivan '66

President

P. Geoffrey Feiss

Provost

Gary A. Kreps

Vice Provost

W. Samuel Sadler '64

Vice President for Student Affairs

Samuel E. Jones '75

Vice President for Finance

Anna B. Martin

Vice President for Administration

Dennis W. Cross

Vice President for University Development

Barbara A. Watkinson

Interim Dean of the Faculty of Arts and Sciences

David Finifter

Dean of Research and Graduate Studies, Faculty of Arts and Sciences

Carlane J. Pittman '03

Assistant Director of Graduate Studies

Hans von Baeyer

Director of the Graduate Center Programs

L. Donelson Wright

Dean and Director, School of Marine Science

Iris C. Anderson

Dean of Graduate Studies, School of Marine Science

Lawrence B. Pulley

Dean, School of Business

John F. Boschen

Associate Dean, School of Business

Howard J. Busbee

Assistant Dean for Undergraduate and Masters of

Accounting Programs, School of Business

Jack Ditrack	Assistant Dean MBA Programs, School of Business
David Murray	Assistant Dean for Information Technology, School of Business
Tammy R. Gainer	Graduate Registrar MBA Programs, School of Business
Cynthia Gelhard	Executive Director of Development and Alumni Relations, School of Business
Kathy W. Pattison	Director of MBA Admissions, School of Business
Franklin E. Robeson	Director of Executive MBA Program, School of Business
Tony Somers	Director of MBA Career Services, School of Business
W. Taylor Reveley III	Dean and Professor of Law, Marshall-Wythe School of Law
Lynda L. Butler	Vice Dean and Professor of Law, Marshall-Wythe School of Law,
I. Trotter Hardy	Associate Dean for Technology and Professor of Law, Marshall-Wythe School of Law
James S. Heller	Director of the Law Library and Professor of Law, Marshall-Wythe School of Law
Lizbeth A.S. Jackson	Associate Dean for Administration/Registrar, Marshall-Wythe School of Law
Robert E. Kaplan	Associate Dean for Career Planning and Placement, Marshall-Wythe School of Law
Sarah F. Kellan	Associate Dean for Development and Alumni Affairs, Marshall-Wythe School of Law
Terri T. Lorincz	Chief Financial Officer, Marshall-Wythe School of Law
Faye F. Shealy	Associate Dean for Admission, Marshall-Wythe School of Law
Virginia L. McLaughlin	Dean, School of Education
Thomas J. Ward	Associate Dean for Academic Programs, School of Education
Christopher R. Gareis	Associate Dean for Professional Services, School of Education
Ronald Hoffman	Director, Omohundro Institute of Early American History and Culture
Connie K. McCarthy	Dean of University Libraries
Edward P. Irish	Director, Student Financial Aid
Carolyn S. Boggs	University Registrar
Patricia Volp	Dean of Students
Mark Constantine	Assistant Vice President for Student Affairs
Virginia Ambler	Assistant Vice President for Student Affairs
Deborah Boykin	Director of Residence Life
Mary Schilling	Director, Career Services
Gail Moses	Director, Student Health Services
Kelly Crace	Director, Counseling Center
Linda Knight	Director, Recreational Sports
Fanchon Glover	Director, Multicultural Affairs

## GENERAL STATEMENT OF POLICY

The College of William and Mary does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, disability or age in its programs and activities. Inquiries regarding the non-discrimination policies should be addressed to:

Ms. Susan S. Grover  
Director of Equal Opportunity  
Hornsby House  
P.O. Box 8795  
Williamsburg, VA 23187-8795  
(757) 221-2615



## COLLEGE CALENDAR

### 2003 FIRST SEMESTER

July 11	Last day to file Notice of Candidacy with Registrar for December 2003 graduation (Friday)
August 14-26	Registration of Graduate Students (Thursday-Tuesday)
August 27	Beginning of Classes: 8 a.m. (Wednesday)
September 5	Last day to add courses (Friday)
October 3	Last day to file Notice of Candidacy with Registrar for May 2004 graduation (Friday)
October 11-14	Fall Break (Saturday-Tuesday)
October 31	End of ninth week of classes (Friday)
Nov 26-Dec 1	Thanksgiving Holiday: 8 a.m. Wednesday - 8 a.m. Monday
December 5	End of Classes: 5 p.m. (Friday)
December 5	Last day to submit theses and dissertations for December conferral of degrees (Friday)
December 6-7	Reading Period (Saturday-Sunday)
December 8-9	Examinations (Monday-Tuesday)
December 10	Reading Period (Wednesday)
December 11-12	Examinations (Thursday-Friday)
December 13-14	Reading Period (Saturday-Sunday)
December 15-18	Examinations (Monday-Thursday)
December 23	December Graduation Date (Monday)

### 2004 SECOND SEMESTER

January 8-20	Registration of Graduate Students (Thursday-Tuesday)
January 21	Beginning of Classes: 8 a.m. (Wednesday)
January 30	Last day to add courses (Friday)
March 6-14	Spring Break (Saturday-Sunday)
March 26	End of ninth week of classes (Friday)
April 9	Last day to file Notice of Candidacy with Registrar for August 2004 graduation (Friday)
April 23	Last day to submit theses and dissertations for May Commencement (Friday)
April 30	End of Classes: 5 p.m. (Friday)
May 1-2	Reading Period (Saturday-Sunday)
May 3-7	Examinations (Monday-Friday)
May 8-9	Reading Period (Saturday-Sunday)
May 10-12	Examinations (Monday-Wednesday)
May 16	Commencement (Sunday)

### SUMMER SESSIONS 2004

June 1	Beginning of First Term (Tuesday)
July 2	End of First Term (Friday)
July 6	Beginning of Second Term (Tuesday)
July 9	Last day to file Notice of Candidacy with Registrar for December 2004 graduation (Friday)
July 16	Last day to submit theses and dissertations for August conferral of degrees (Friday)
August 6	End of Second Term (Friday)
August 9	August Graduation Date (Monday)

17

## GRADUATE PROGRAMS OF THE FACULTY OF ARTS AND SCIENCES

The **Faculty of Arts and Sciences** offers programs leading to the following degrees:

- **Master of Arts.** American Studies, Anthropology, Biology, Chemistry, History, Physics, and Psychology.
- **Master of Science.** Applied Science, Chemistry, Computer Science (including specializations in computational operations research and computational science), and Physics.
- **Master of Public Policy.**
- **Doctor of Philosophy.** American Studies, Anthropology, Applied Science, Computer Science, History and Physics (including a specialization in computational science).
- **Doctor of Psychology.**
- **Joint Degrees.** M.A. in American Studies/J.D. from the School of Law. M.S. in Chemistry/Ph.D. in Applied Science. M.P.P./J.D. from the School of Law. M.P.P./M.B.A. from the School of Business.
- **Concurrent Degrees.** M.P.P./M.S. in Computational Operations Research. M.P.P./M.S. in Marine Science.

William and Mary's other graduate and professional schools offer program leading to the following degrees:

- **School of Law.** J.D. and LL.M. in the American Legal System.
- **School of Business.** M.B.A./Evening M.B.A., Executive M.B.A., M.A.C.
- **School of Education.** M.Ed., M.A.Ed., Ed.S., Ed.D., Ph.D.
- **School of Marine Science.** M.S. and Ph.D. Marine Science.
- **Joint Degrees.** J.D./M.B.A.

### Facilities

P.O. Box 8794  
College of William and Mary  
Williamsburg, VA 23187-8794

The Earl Gregg Swem Library  
Swem Library: (757) 221-INFO  
Web Site: <http://www.swem.wm.edu>

**Connie Kearns McCarthy**, Dean of University Libraries  
Phone: (757) 221-INFO  
Web site: [www.swem.wm.edu](http://www.swem.wm.edu)

**Mission and Services.** The Earl Gregg Swem Library actively participates in the teaching and research missions of the College of William and Mary by providing services, collections, staff, and facilities that enrich and inform the educational experience. The library fulfills this mission by helping students, faculty, staff, and visitors find information and learn research skills; selecting and acquiring the best resources for the College's curricular and research needs; and organizing, preserving, and providing access to these resources efficiently and effectively.

**Collections.** Swem Library's collection includes 1,249,073 cataloged volumes; 1,461,553 microforms; 588,806 government publications; 23,119 maps; 5,724 periodicals and serials; 28,436 multi-media materials; and 11,816 linear feet of manuscripts and archives. In addition to the main library, Swem Library has separate libraries for Biology, Chemistry, Geology, Music, and Physics. Additional William and Mary libraries serve the Schools of Education, Business Law, and Marine Science.

The library offers many electronic resources, including an online catalog (LION) and access to more than 200 databases and 10,000 electronic journals. These are available through Swem's home page ([www.swem.wm.edu](http://www.swem.wm.edu)). For more information, visit the library's home page or contact the Reference Department at (757) 221-3067 or [sweref@wm.edu](mailto:sweref@wm.edu).

**Reference Services.** Reference librarians, available most hours that the library is open, can help identify library resources that are potentially useful for a particular project, explain the use of specific information tools; assist with searching electronic databases, offer group instruction to classes, and provide general advice on using the library. Contact the Reference Department at (757) 221-3067, [sweref@wm.edu](mailto:sweref@wm.edu), or by selecting 'Ask Earl' on Swem's home page.

**Government Information Services.** The Government Information Department provides access to federal, state, and international documents. Swem Library is a depository for publications issued by the United States and Virginia governments. Access to electronic government information on the World Wide Web is provided at the Government Information Department's home page: [www.swem.wm.edu/GOVDOC/docpage.html](http://www.swem.wm.edu/GOVDOC/docpage.html). Specialized indexes for microform collections of government titles are available in the department. Contact the Government Information Department at (757) 221-3064 or [swedoc@wm.edu](mailto:swedoc@wm.edu).

**Circulation Services.** All of the library's collections are available for use within the library, and most items can be borrowed for use outside the building. Graduate students, may borrow books for 120 days; undergraduate students, staff, and faculty have other loan periods. All students, staff, and faculty must present a current college ID card to borrow materials. The use of Swem Library is subject to the principles of the Honor Code. More information about Circulation services can be found at [www.swem.wm.edu/Services/Circ/index.html](http://www.swem.wm.edu/Services/Circ/index.html).

Library users may check their own records to see lists of items they currently have checked out, renew items, and view holds and fines. Please visit [www.swem.wm.edu](http://www.swem.wm.edu) and click on 'Your Records'. Contact the Circulation Department at (757) 221-3072 or [swcirc@wm.edu](mailto:swcirc@wm.edu).

**Reserves.** The library operates a reserves service to assure equitable access to items that professors assign as supplemental class resources. For more information contact the Reserves at (757) 221-3072 or [swresv@wm.edu](mailto:swresv@wm.edu).

**Interlibrary Loans.** If a book, journal article, or other item is not available at William and Mary, it can usually be borrowed from another library. Requests for such materials may be submitted at the Interlibrary Loan Department's office or at [www.swem.wm.edu/Services/ILL/index.html](http://www.swem.wm.edu/Services/ILL/index.html). Students should allow a minimum of two weeks for an interlibrary loan request to be filled. Contact Interlibrary Loan at (757) 221-3089 or [swseill@wm.edu](mailto:swseill@wm.edu).

**Library Hours.** During the regular academic year, Swem Library is open Monday through Thursday 8:00 a.m. to 12:00 midnight, Friday 8:00 a.m. to 6:00 p.m., Saturday 10:00 a.m. to 6:00 p.m., and Sunday 1:00 p.m. to 12:00 midnight. Hours for departments within Swem Library and for branch libraries may vary. Call (757) 221-INFO twenty-four hours a day for more information or to confirm hours, especially during interim periods. Library hours may also be found at [www.swem.wm.edu/Guide/hours.html](http://www.swem.wm.edu/Guide/hours.html).

**Special Collections.** Swem Library's Special Collections Division includes the University Archives, the Manuscripts and Rare Books Department, and the Warren E. Burger Papers. The University Archives documents the history of the College from its founding in 1693 to the present. The department collects publications, photographs, official records, artifacts, memorabilia, and other materials relating to the College. The Manuscripts and Rare Books Department includes books dating back to 1479, eighteenth and

nineteenth century Virginia family papers, papers of distinguished alumni and Virginia political leaders, travel accounts, and local history materials. These books and manuscripts can be located through LION, Swem's online catalog.

Due to the library's expansion and renovation, Special Collections is temporarily located at 8105 Richmond Road, Suite 207, in Toano, a 20-minute drive from the main campus. For the latest information on Special Collections' location and hours, call (757) 253-4841 or visit [www.swem.wm.edu/SpColl/index.html](http://www.swem.wm.edu/SpColl/index.html).

**Study Areas and Facilities.** Swem Library provides a variety of settings for individual and group study.

**Swem Libraries:**

- Biology Library, 112 Millington Hall. Contains current issues of biology journals.
- Chemistry Library, 204 Rogers Hall, (757) 221-2559. Contains approximately 12,000 volumes and 80 current periodical subscriptions.
- Geology Library, 219 McClothlin-Street Hall, (757) 221-2094. Contains 17,000 volumes, 86 current periodical subscriptions, and over 21,000 maps.
- Music Library, 250 Ewell Hall, (757) 221-1090. Contains more than 18,000 sound recordings, 10,000 pieces of printed music, and video recordings of musical performances and musical instruction.
- Physics Library, 161 Small Hall, (757) 221-3539. Contains over 30,000 volumes and 140 current periodical subscriptions. The collections are enhanced through cooperation with the libraries of nearby TJNAF (Thomas Jefferson National Accelerator Facility) and NASA.

For more information, please visit [www.swem.wm.edu/Guide/generalinfo.htm](http://www.swem.wm.edu/Guide/generalinfo.htm).

Other William and Mary libraries include the Business/Professional Resource Center (757) 221-2916, Education/Learning Resource Center (757) 221-2311, Law (757) 221-3255, and Virginia Institute of Marine Science Library (804) 684-7114.

## Information Technology

The College of William and Mary's Information Technology department is devoted to assisting students and providing invaluable resources through one-on-one consultations, the Technology Support Center, and our extensive web site. With these points of interaction, we hope to help faculty, staff, and students become proficient users of campus technology. IT maintains a wide range of computing support for students, from answering questions about personal computers, to PACLabs. We offer guidance and training in the areas of software setup and use, network connection and navigation, and general computer operation.

### PACLabs

Nearly 300 computers with Internet access are available to students in the College's Public Access Computing Labs, located in several buildings across campus. PACLabs feature PCs running Windows XP and laser printers. Students may elect to print in the PACLabs at the rate of 5 cents a page. Some labs are also equipped with scanning stations. IT offers a listing of all PACLabs, complete with software and hardware resources/equipment available at each on its web site.

### Shared File Space

All students, faculty, and staff are provided shared disk space in which they can store mail, word processing, and data files. Students have 20MB of disk space, faculty/staff have 50MB of disk space. Web space is provided by IT, allowing students to publish on the web with ease.

## Academic Software

PACLabs are equipped with numerous software programs, including the more common applications of Eudora Pro for e-mail, Microsoft Office Professional, web browsers, SPSS, and Minitab. Such 'Core Software', useful to faculty and students in all fields, is installed on every machine. More specific 'Courseware', typically requested by professors for a particular class or field of study, is found in select lab stations. A full listing of software available in the PACLabs can be found at <http://www.wm.edu/IT/labs/software.htm>.

Access to select applications may be limited by software license restrictions and the availability of minimum hardware requirements.

## Desktop Support

The IT staff works to ensure every student's ease in computing. We offer advice and training for software applications, e-mail information, registration access, web page creation, troubleshooting, and guidelines for computer purchases.

Current hours of operation for the Technology Support Center are posted on the IT web site at <http://www.wm.edu/IT>.

## The William and Mary Center for Archaeological Research

The William and Mary Center for Archaeological Research provides cultural resource management (CRM) services for public and private organizations. These services include archaeological studies, historical research and interpretation, and a wide variety of related technical services. The Center is staffed with professional archaeologists whose combined expertise encompasses both prehistoric and historic-period sites and artifacts from Canada to the Caribbean. The Center facilities include offices, laboratories, and collection storage with access to specialized computer and materials testing equipment.

The Center performs cultural resource management studies for federal, state, and local government agencies, environmental and engineering firms, and planners and developers. The Center provides professional assistance in the identification of cultural resources, determination of their nature and extent, assessment of their eligibility to the National Register, and data-recovery efforts. This assistance includes archaeological and architectural surveys and evaluations, historical research, preparation of cultural resource planning overviews, and preparation of cultural resources reports. The Center offers undergraduate and graduate students in Anthropology, History and American Studies occasional opportunities for practical training in the growing field of public archaeology. The Center for Archaeological Research produces two publications, Technical Reports and Occasional Papers in Archaeology. The Technical Report series contains technical monographs, emphasizing basic archaeological data. Occasional Papers in Archaeology are synthetic works or volumes of collected essays, having a topical focus. Since the formal establishment of the Center for Archaeological Research in June 1988, over \$13 million in contract awards have been received.

## The William and Mary Archaeological Conservation Center

The William and Mary Archeological Conservation Center, a division of the Department of Anthropology, has as its purposes the conservation of archaeological artifacts from historic sites and the introduction of students to the theory and practice of archaeological conservation. The Conservation Center engages in contract conservation work with federal, state and private agencies. Through the Center's operations, students are given the opportunity to observe and participate in the conservation treatment of metals, organic materials, glass and ceramics from a variety of periods and places, and to pursue interests in conservation through laboratory experience in directed research projects.

## The Omohundro Institute of Early American History and Culture

The Omohundro Institute of Early American History and Culture, the oldest organization in the United States exclusively dedicated to the advancement of study, research, and publications bearing on the history and culture of early America until approximately 1815, marks its sixtieth anniversary in 2003. Founded as the Institute of Early American History and Culture in 1943 by The College of William and Mary and The Colonial Williamsburg Foundation, the Institute, which is still jointly sponsored by those institutions, was renamed in 1996 in recognition of a generous endowment pledged by Mr. and Mrs. Malvern H. Omohundro, Jr. As specifically directed by its constitution, the Institute stimulates interest in the earliest period of American history, assists writers and scholars in their work, maintains the highest standards of historical accuracy and integrity, and furthers an understanding of the early republic. The Institute's focus also encompasses the Caribbean, Latin America, the British Isles, Europe, and Africa, insofar as the study of the histories and cultures of these places is relevant to the mainland of North America from 1500 to 1815.

The Institute's permanent, full-time staff consists of twelve persons, five of whom hold doctorates in either history, American studies, or English. Collectively, these individuals support a variety of research and publication programs. Among these, none is more visible than the William and Mary Quarterly, considered by many scholars to be one of the finest, if not the finest, historical journals published in the United States. More than 3,600 people and institutions currently subscribe to the Quarterly, and of this number, nearly 400 are located abroad. In 1994 the Andrew W. Mellon Foundation defined the Quarterly as one of the five core historical journals published in the English language, and invited the Institute to participate in JSTOR, an ambitious information storage project involving in its initial stages a total of ten journals, five in the field of history and five in economics. A similarly high standard of excellence has made the Institute's book publishing program equally renowned. Many of the 178 titles it has brought into print since 1943 are regarded as classics and have been adopted for classroom use at both the undergraduate and graduate levels. In the last three decades, Institute books, released at an average rate of three a year, have received ninety-one major commendations, including a Pulitzer Prize, a National Book Award, six Bancroft Prizes, two Owsley Prizes, a Jacques Barzun Prize, an Albert J. Beveridge Award, six Dunning Prizes, three Francis Parkman Prizes, three Frederick Jackson Turner Prizes, nine Outstanding Academic Book citations from Choice, and fifty-eight other awards given by prominent professional organizations, among them the American Historical Association, the American Society for Eighteenth-Century Studies, the Economic History Association, the Organization of American Historians, and the Southern Association of Women Historians.

Designated by the National Endowment for the Humanities as one of just eleven Independent Research Institutions in the United States, the Institute offers annually, in conjunction with the NEH, a two-year postdoctoral fellowship designed to give the most accomplished and promising beginning scholars in the nation an opportunity to revise their dissertations into books that will make major contributions to the field of early American studies. In addition, a six-year grant from the Andrew W. Mellon Foundation currently enables the Institute to offer annually a one-year Andrew W. Mellon Postdoctoral Research Fellowship to a scholar whose first-book manuscript has significant potential for enriching the early American field. Through the sponsorship and co-sponsorship of conferences, the Institute provides forums for a rich variety of scholarship on the formative period of United States history. A biannual newsletter, *Uncommon Sense*, an Internet association, H-OIEAHC, and a website (<http://www.wm.edu/oieahc>) keep the Institute's national and international constituency informed about the early American field, and its Kellock Library welcomes amateur and professional researchers alike. The Institute also supports the editing of the papers of Chief Justice John Marshall. Finally, the Institute

cooperates with The Colonial Williamsburg Foundation on projects of mutual interest, a collaboration that makes the creative scholarship of a wide array of early Americanists readily available to the nation's preeminent outdoor public museum.

The Institute's role in advancing the study of early America enriches the intellectual life of The College of William and Mary. Its senior professional staff and the two-year postdoctoral fellows teach graduate-level courses in several departments, among them history, and the American Studies program. As a result, students have ready access to the most current research and writing on early America taking place in these fields. Institute colloquia, which convene monthly during the academic year, feature work in progress by entry-level and senior scholars and encourage the participation of William and Mary graduate students in the discussions. William and Mary graduate students are similarly invited to take part in the Institute's annual conferences. Held in early summer in different regions of the country and organized entirely through calls for papers, these meetings are specifically designed to give graduate students opportunities for presenting their work and are widely known for drawing enthusiastic audiences composed of students working on their dissertations and junior and senior scholars. The Institute also administers, in conjunction with the history department, an editorial apprenticeship program that gives qualified William and Mary graduate students a chance to develop their skills and gain practical experience by working with book manuscripts and William and Mary Quarterly articles.

During the renovation of Swem Library, the Institute is temporarily housed in Bell Hall, located at 109 Cary Street, a block from campus. Its mailing address is Post Office Box 8781, Williamsburg, Virginia 23187-8781.

## Science Laboratory Buildings

The William Small Physical Laboratory, named for Dr. William Small, scientist, mathematician, and particularly influential teacher of Thomas Jefferson, houses the physics department. It contains classrooms, lecture halls, faculty offices, and teaching laboratories. In addition, there are departmental libraries, extensive research laboratories, machine shops and electronics shops, specialized computing facilities, a small astronomical observatory, and office space for all physics graduate students. Research is conducted in nuclear and particle physics, solid state physics, plasma physics, and atomic and molecular scattering. A close working relation exists between the Physics and Applied Science Departments and the Thomas Jefferson National Accelerator Facility (Jefferson Lab) located in Newport News. In addition, other solid state and atmospheric studies are conducted in collaboration with the NASA Langley Research Center in Hampton.

Millington Hall houses the Biology and Psychology departments and includes faculty and graduate student offices, laboratories, support facilities, and classrooms. The planned renovation/expansion will result in additional and better equipped research space and teaching laboratories for both departments. For Biology, there is a rooftop greenhouse complex, a herbarium of vascular plants that contains more than 40,000 specimens, core molecular biology facility, and a variety of spectrophotometer, electron microscope, ultracentrifuge, radioisotope, and other laboratories. The Laboratory of Endocrinology and Population Ecology, located near the Law School on South Henry Street, contains extensive experimental and animal-maintenance installations. For Psychology, there are observation and research rooms, an animal colony, and laboratories for studies in human and animal physiology, perception and cognition, and social psychology. There is also a family therapy teaching laboratory, and after the renovation there will be developmental psychology laboratories devoted to both infant and child and adolescent research. The Eastern State Psychiatric Hospital, two miles from campus, provides additional facilities as well as assistantships for graduate students.

McGlothlin-Street Hall located between Washington Hall and Crim Dell, is now the most technologically sophisticated building on campus. It includes five applied science



labs, four geology labs and a library, and six computer science labs. It boasts more than 13 miles of data and voice cable, sophisticated microscopes and other equipment for studying geological specimens, and state-of-the art projection equipment. McGlothlin-Street Hall houses specialized computational labs dedicated to research and graduate training in computational systems, networks, and high-performance computing.

The Applied Science Department is a partner in the Applied Research Center (ARC) at Jefferson Laboratory, with other area universities, NASA Langley Research Center, and Jefferson Lab. Together they share characterization, processing and test facilities that no one university could ever hope to own because of cost, physical size and operating requirements. The leading example is the world's first high average power free electron laser (FEL). Using this unique resource platform they undertake individual and joint R&D programs for sponsors ranging from the National Science Foundation to major industrial corporations. ARC also houses the Jefferson Lab Library.

Rogers Hall houses the Chemistry department and provides faculty and graduate student offices, laboratories, a library, stockrooms and a glass-blowing shop. In addition, there are multi-nuclear magnetic resonance facilities, a modern chromatography, uv/visible, fluorescence and atomic absorption spectrometer facilities. Studies in polymeric materials are conducted in collaboration with the Applied Science Department and at NASA Langley Research Center in Hampton.

## **School of Marine Science & Virginia Institute of Marine Science**

The School of Marine Science had its inception in the establishment of the Virginia Fisheries Laboratory by the Commonwealth in 1940. In 1950, the first permanent building was erected at Gloucester Point, across the York River from Yorktown, the present location of the School.

From 1940 until 1959 the academic program of the Laboratory was conducted as part of the Department of Biology of the College of William and Mary. The School awarded its first master's degree in 1943, and in 1964 inaugurated a doctoral program in Marine Science.

In 1959 the program was established as the Department of Marine Science, and in 1961 the Board of Visitors established the marine training program as the School of Marine Science. The General Assembly in 1962 reestablished the Virginia Fisheries Laboratory as the Virginia Institute of Marine Science, an independent research and service institution providing educational offerings in the marine sciences. In 1979 Assembly action merged the Institute with the College of William and Mary. Many interactions now exist between Marine Science and the Faculty of Arts and Sciences.

Through offerings of the School of Marine Science, an unusual opportunity is afforded students of all phases of Marine Science (including Biological Science, Coastal and Ocean Policy, Environmental Science, Fisheries Science and Physical Science) to take advanced undergraduate and graduate training at an active, year-round center of marine research. Graduate students from Arts and Sciences are invited to take advantage of the teaching and research programs of the School of Marine Science.

The 38-acre campus is located at Gloucester Point on the York River, an important estuary with easy access to the Chesapeake Bay and the nearby Atlantic Ocean. The Institute and the School are ideally situated to conduct research and teaching in marine, estuarine, and freshwater environments. The campus of the Eastern Shore Branch Laboratory at Wachapreague, Virginia, offers access to the embayments, salt marshes, and barrier beaches of Virginia's Eastern Shore. At Wachapreague are located laboratories for mariculture, aquaculture genetics, and other research as well as dormitory and classroom space.

The Institute has approximately 300 scientists, support technicians and staff. At present there are 53 faculty members and about 130 graduate students within the School of Marine Science; the number of students pursuing MS and PhD degrees is about equal.

The Institute's Gloucester Point campus consists of 9 main buildings devoted to classrooms, laboratories and offices, and more than 20 outlying support buildings. Three buildings have flow-through saltwater systems for experimental use. The library, housed in Watermen's Hall, contains 61,869 volumes and 29,114 titles and more than 530 journal subscriptions primarily devoted to the marine sciences. Chesapeake Bay Hall, completed in 1997, provides an additional 60,000 square-foot research facility including labs for advanced research in chemistry, geochemistry, toxicology, pathobiology, microbiology, genetics, aquaculture, physiology, planktology, nutrient cycling and parasitology.

In 2002, Distance Learning was incorporated into two classrooms. In addition, the Institute operates a fleet of 40 vessels for research, equipped with electronics labs and flow-through seawater and sample collection-analysis labs. In addition to the 65-foot R/V Bay Eagle, 44-foot R/V Langley, and the 29-foot R/V Fish Hawk, there is a sizable trailerable fleet. State-of-the-art electronic systems can be transferred among the smaller boats. A diving facility includes a diver training room and a classroom to support the 40-member dive team.

For further information on the School of Marine Science, write the Dean of Graduate Studies, School of Marine Science, Virginia Institute of Marine Science, College of William and Mary, P.O. Box 1346, Gloucester Point, VA 23062.

## Center for Public Policy Research

The Center for Public Policy Research, the research arm of the College of William and Mary's Thomas Jefferson Program in Public Policy, was established to create cooperative relationships with public and private organizations that result in important learning opportunities for students and opportunities that enhance faculty teaching and scholarship.

The Center has focused on policy research related to science and technology, environment, economic development, and human resources (including labor, crime, education, and health) at the local, state and national levels. By matching faculty, students, and staff of the College's many schools, programs, and departments with policy projects in which they have both interest and expertise, the Center conducts objective, nonpartisan analytical research on a variety of policy issues. Through the Center, students are actively engaged in policy research, working with:

- national organizations (e.g., The Urban Institute, PriceWaterhouseCoopers, International County/City Management Association, NASA-Langley Research Center, Sandia National Laboratories, National Academy of Sciences, U.S. Department of Labor, and the U.S. Congressional Budget Office)
- state-level agencies and organizations (Center for Excellence in Aging and Geriatric Health, Virginia's Joint Legislative Audit and Review Commission, State Council of Higher Education for Virginia, Virginia Birth-Related Neurological Injury Compensation Program, Virginia Department of Education, Virginia Health Care Foundation, Virginia Department of Environmental Quality, Virginia Department of Medical Assistance Services, and the Virginia State Crime Commission)
- local governments (City of Hampton, City of Norfolk, City of Williamsburg, James City County, Arlington County, and York County)
- private foundations (Alfred P. Sloan Foundation, Virginia Environmental Endowment, Employment Policy Foundation, National Pharmaceutical Council, and Williamsburg Health Care Foundation).

Each year, selected graduate students perform work in the Center and are integral members of project teams.

In addition, graduate students have been involved in the production and implementation of surveys on community health and social services assessment, crime, violence in schools, and local recreation services.

For further information on the Center for Public Policy Research, contact Robert B. Archibald, Director, Center for Public Policy Research, 140 Morton Hall, P.O. Box 8795, Williamsburg, VA 23187; telephone 757/221-2368; e-mail [rbarch@wm.edu](mailto:rbarch@wm.edu); fax: 757/221-2390.

## Graduate Center

The mission of the Graduate Center is to support and promote the culture of advanced study at the College of William and Mary. The Graduate Center provides students with up-to-date advice and interdisciplinary opportunities to develop the professional skills needed to take charge of their own careers. Functioning as a focal point between the University and the surrounding community, the Graduate Center will also promote greater public understanding of the role of graduate studies in the life of the University. Student participation in all Graduate Center programs is voluntary. Workshops, seminars and courses are open to all William and Mary graduate students. For more information on the Graduate Center, please contact Hans von Baeyer, Director, at 757/221-1875. See pages 115 and 116.

## Student Services

### Student Health Center

Dr. Gail Moses, *Director*

Appointment Line 221-2998; Front Desk, 221-4386;

E-mail: [sthlth@wm.edu](mailto:sthlth@wm.edu); Web site: <http://www.wm.edu/osa/shc/stuhealth.htm>

The Student Health Center provides high-quality, primary medical care for students becoming ill or experiencing minor emergencies while away from home. The Health Center delivers a wide variety of services, many of which are covered by the Student Health Fee included in the Tuition and General Fee. All matters between a student and the Health Center staff are confidential and, except in the case of life-threatening situations, medical emergencies, severe emotional or psychological distress, or when required by law, will not be released without the student's written consent.

Virginia State law requires all full-time students enrolling for the first time in a four-year public institution to provide a health history and an official immunization record. The College of William and Mary further requires ALL full-time students (including previously matriculated students) to submit a physical examination performed within the twelve months preceding the student's enrollment or re-enrollment, as well as providing documentation of meeting the same immunization requirements. Previously enrolled students re-entering as full-time students after an absence from campus of greater than 10 years, must also revalidate their immunization record. This information **MUST** be submitted on William and Mary's Health Evaluation Form; faxes or photocopies will not be accepted.

Medical services are provided for all full-time students and for those graduate students certified by the Dean of their school to be doing the 'equivalent of full-time work'. In order to be eligible for medical care both groups of students must have paid the Student Health Fee for the current semester and have met the Health Evaluation Form requirements including a physical examination and submission of an official immunization record.

Students choosing to seek care at an off campus site are responsible for charges incurred. Likewise, if a Health Center provider deems it medically necessary to refer a student to an off campus specialist, this also becomes the student's financial responsibility. Students are strongly encouraged to carry health insurance to assist with the cost of health care.

Students experiencing severe emotional or psychological distress, making a threat or gesture of suicide, or attempting suicide, will be evaluated by the College's medical/emotional emergency response team and appropriate measures instituted. Anyone having knowledge of such circumstances should immediately contact the Dean of Students @221-2510, or the Student Health Center @221-4386.

The Student Health Center is located on Gooch Drive, south of Zable Stadium. Hours of operation are Monday, Tuesday, Thursday, and Friday 8:00 a.m. to 5:00 p.m.; Wednesday 10:00 a.m. to 5:00 p.m.; and Saturday 12:00 noon to 4:00 p.m. (limited services only). Appointments with physicians and nurse practitioners may be scheduled by calling 221-2998.

### Ombuds Office

Research and Graduate Studies, Arts and Sciences

Scott Nelson, *Ombudsperson*

History, James Blair Hall 350, [srnels@wm.edu](mailto:srnels@wm.edu)

The Ombuds Office is a confidential venue for Arts & Sciences graduate students seeking information or answers to questions about graduate education, and for those students seeking to raise a concern or discuss a problem regarding graduate studies in Arts and Sciences.

Call for the Ombudsperson's office hours, as they will vary by semester. Students may come by during the set office hours, but it is recommended that they make an appointment. When necessary, the Ombudsperson will make special arrangements to see a student outside of normal business hours.

## Counseling Center

Dr. Kelly Grace, *Director*

Blow Memorial Hall, Suite 240, 221-3620

The Counseling Center offers a range of psychological and counseling services for William and Mary students. For example, we provide professional help in the following areas: psychological issues, personal concerns, interpersonal issues, and crisis intervention. Staff members are available to discuss any important personal concerns a student may be facing and work with that student to develop new ways of resolving the problem or mastering the concern.

The staff of the Counseling Center consists of both male and female mental health professionals, including psychologists, counselors and social workers. A sport psychologist is available for students interested in learning how to enhance their athletic performance. Psychiatric consultation can be arranged when needed. All staff are trained and experienced in dealing with the problems of university students. Students are initially seen by an individual counselor. Continuing services in the form of individual, couples, family, or group meetings are offered depending upon the student's need and staff availability. These services are free of charge to full-time enrolled students.

Appointments may be made by calling the Counseling Center at 221-3620, or by coming to the office in person. Appointments will be scheduled as soon as possible after the initial request, usually within a week, depending upon the urgency of the situation and staff availability. If appropriate, a student may be referred to other sources of help after an initial evaluation.

Counseling is confidential. Therapy is most effective when a student can be direct and honest with a counselor without fear that personal information will be divulged. Information about a student is not released without that student's written permission, except in the case of imminent danger to self or others, child/adult abuse, court order, or where otherwise required by law. Notations of counseling are not a part of a student's College record.

Office hours are 8 a.m.-noon and 1 p.m.- 5 p.m., Monday through Friday. Emergency services during the fall and spring semesters are also available after hours and on weekends by calling the Campus Police at 221-4596 and asking to speak with the Counseling Center 'on-call' counselor.

## Disability Services

The College of William and Mary welcomes a widely diverse population of students including students with disabilities. In order to provide an accessible educational environment and to meet the individual learning needs of students, we invite self-declaration of disabilities to the College's Assistant Dean of Students for Disability Services, Campus Center 109, College of William and Mary, P.O. Box 8795, Williamsburg, VA 23187-8795, 757/221-2510 (Voice), 757/221-2302 (TDD), 757/221-2538 (Fax).

Documentation of disability need not precede arrival on campus, but must be filed with Disability Services before reasonable accommodation will be considered. Please refer to the Disability Services website for specific details related to documentation criteria (<http://www.wm.edu/OSA/dostud/disserv.htm>). All documentation will be handled confidentially and shared only with the student's express written permission for accommodation purposes.

## Student Life

### Graduate Housing

The College of William and Mary offers a limited number of apartment spaces for graduate students in The Lettie Pate Whitehead Evans Residences (referred to as the Graduate Complex). These spaces are only available to single graduate students without children in two, three and four bedroom apartments. The 2003-2004 semester rates are projected to be \$1,991 for a two-bedroom apartment and \$1,941 for a triple or quad apartment. Payment arrangements can be made on a per semester or payment plan basis (semester payments can be broken down into four payments per semester).

Students who are engaged in courses or research throughout the summer may request housing arrangements through the Residence Life Office. Consideration for graduate housing is contingent on submission of a housing application. An application will be sent to you by your graduate school upon acceptance to a graduate program or you may submit an application on-line. Once the application for housing has been received in the Residence Life Office, it will be date stamped. Housing will then be offered on a first come first served basis beginning in the month of May until all the allotted spaces for the various graduate schools have been filled.

Once a housing assignment has been offered and accepted by you, a housing agreement will be mailed to you. This is a legally binding agreement for the full academic year. A \$200 Room Reservation Deposit will be required to reserve the offered room space. This deposit will be applied to your first semester's rent. In addition, a separate check for a \$75 Room Damage Deposit is required. This deposit will be refunded to you upon leaving college housing provided there are no damages to the premises and the student's college account is current. NOTE: Failure to pick up a key will NOT release you from your signed housing agreement. Students who leave college housing for any reason, but continue to be enrolled, will NOT be eligible for a refund of their rent charge.

### Roommates & Off-campus Housing

The College maintains a Student Information Network which provides a web site for individuals who want information and for those who are seeking or providing housing (<http://www.sin.wm.edu/>). Through this web site you may find available off-campus housing or other students looking for a roommate to share an off-campus apartment, etc. Information may also be available for new graduate students through their departments for housing possibilities, including opportunities to share accommodations with other graduate students.

### Dining Services

William and Mary Dining Services provides a comprehensive dining program featuring a variety of meal plan options to meet the needs of each student. There are three full-service dining facilities on campus: The Commons Dining Hall and Center Court in the University Center provide "unlimited seconds" style dining and the Marketplace in the Campus Center, an a la carte food court. There are also four "grab-n'-go", Flex Point locations: Lodge One in the University Center, Tribe on the Go at the Commons Dining Hall, J. Hardy's Hideaway at the Dillard complex, and The Dodge Room in Phi Beta Kappa Hall. Flex points may also be used at the Students' x-change, our Convenient store on Campus and pizza delivery with Dominos on campus.

William and Mary Dining Services offers students a total of seven meal plans to choose from. The Gold Plus, Gold and Green meal plans provide a guaranteed number of meals

per day. The Block meal plans provide a guaranteed number of meals per semester. All meal plans include Flex Points. Flex Points are additional, non-taxable dollars included in the meal plan to provide flexibility and convenience. The amount of Flex Points varies according to the meal plan selected. Additional Flex Points may be purchased in increments of \$10 and added to your meal plan at anytime during the semester.

To select a meal plan prior to the official add/drop period, visit Dining Services web site at [www.wm.edu/auxiliary/dining](http://www.wm.edu/auxiliary/dining). Select "Need a Fall 2003 Meal Plan". Select the link to the Banner system, and then log in using your WM user ID and IT password. If you have any questions or want to make a change after you have completed your meal plan survey, please email the ID office at [meals@wm.edu](mailto:meals@wm.edu) or call 757-221-2105. Students may change or cancel their meal plan through the official add/drop period at the beginning of each semester. Changes and/or cancellations will not be permitted after the add/drop period. You can purchase a prorated meal plan and/or additional Flex Points at any time during the semester. If you purchase a prorated meal plan, you will not be permitted to cancel or make any changes to the meal plan for the remainder of the semester. Refunds or charges for adding, changing or canceling a meal plan are prorated weekly. Refunds are not permitted on additional Flex Point purchases. Prorated meal plans may be purchased by visiting the Bursar's office in Blow Hall. Additional Flex Points may be purchased at the ID Office in the Campus Center, or at the Students' X-change in the University Center.

## **The College of William & Mary Bookstore**

Located on Merchants Square in Colonial Williamsburg, The College of William & Mary Bookstore, by Barnes & Noble, offers both new and used textbooks, as well as over 125,000 general book titles, school and dorm supplies, and William & Mary clothing and gifts. New and used textbooks can be sold back to the store through the buyback program and the Bookstore is also the source for official class rings, graduation regalia and announcements. Additionally, the Bookstore features a vast selection of magazines and periodicals, a diverse music and DVD section, an extensive children's department and a cyber-cafe featuring Starbucks coffee. A variety of author appearances, book signings, book clubs, children's occasions and other special events are held throughout the year. The Bookstore accepts cash, personal checks with a valid ID, the William & Mary Express Card, Visa, Master Card, Discover, American Express and Barnes & Noble gift certificates. Students can enjoy a 20% discount on all William & Mary clothing every day with a valid student ID. For more information, call the Bookstore at (757) 253-4900, or visit our website at <http://wm.bkstore.com>.

## **William and Mary Express Account**

The William and Mary Express Account is a debit account linked to every student's ID card. When deposits are made to the account, students can use their ID cards to purchase a variety of goods and services on-campus and off-campus. Deposits to the Express account may be made at the ID Office, Office of the Bursar, Parking Services Office, the Student's X-Change in the University Center, Swem Library Duplicating Services, the Value Transfer Station (VTS) machine located in the lobby of Swem Library, and now online at [wmexpress.wm.edu](http://wmexpress.wm.edu). The Express Account provides a secure method of handling transactions without the concerns associated with carrying cash. The card can be used to make purchases at the Bookstore, the Student's X-Change, the Candy Counter, Dining Services, the Student Recreation Center, Swem Library, Telecommunications, Copiers, Vending and Laundry Machines, and Parking Services, and at 21 locations off campus. No cash withdrawals may be made. For the protection of your Express account, vending readers will only display up to \$10 of your account balance. Any amount over \$10 will not display on readers. Full balances are shown on printed receipts.

For more information about the William and Mary Express Account, call (757) 221-2105, email [wmexps@wm.edu](mailto:wmexps@wm.edu), or visit our web site at [www.wm.edu/auxiliary/idoffice](http://www.wm.edu/auxiliary/idoffice).

## **William and Mary Student Identification Cards**

The William and Mary student identification card is the College's official form of identification prepared by the ID Office for each student. It functions as a campus meal card, debt card, library card, a door access card to residence halls, recreational facilities and academic buildings. Student ID cards are not transferable and are intended for the sole use of the student to whom it is issued. An ID used by anyone other than its owner may be confiscated and the person using the ID may be subject to disciplinary action. Because cards provide access to secured buildings and financial accounts, lost cards should be reported immediately to the ID Office during business hours, and to Campus Police during evenings and weekends. These offices can issue temporary replacement cards at no charge to allow students time to search for misplaced ID's without losing access to accounts and buildings. This process also ensures that misplaced cards cannot be used by others. Temporary replacement cards must be returned to re-activate a new or found ID card and a \$15 charge is assessed for lost, stolen or damaged cards and temporary cards not returned. If an ID card has been stolen and a police report has been filed, the replacement charge is \$2.00. The ID Office is located in Room 169 in the Campus Center and is open Monday-Friday, 8 a.m.-5 p.m. For more information about the William and Mary Student ID Card, call (757) 221-2105, email [wmexps@wm.edu](mailto:wmexps@wm.edu), or visit our web site at [www.wm.edu/auxiliary/idoffice](http://www.wm.edu/auxiliary/idoffice).

## **Parking Regulations**

All motor vehicles operated or parked on College property, including motorcycles, motorbikes and vehicles with Handicapped plates or hang tags, must be registered with Parking Services. A registration decal is required to park on campus 24 hours a day, beginning Monday at 7:30 a.m. till Friday at 5:00 p.m. except in metered spaces as posted. Vehicle registration cards or copies must be presented to purchase a parking decal. The Parking Services office is located at 204 South Boundary Street, and is open Monday-Friday, 7:45 a.m.-4:30 p.m. For more information, call 221-4764, email [parked@wm.edu](mailto:parked@wm.edu), or visit our web site at [www.wm.edu/auxiliary/parking/index.html](http://www.wm.edu/auxiliary/parking/index.html).

## **Rights and Student Organizations**

The Statement of Rights and Responsibilities was approved by the College community-faculty, students, and administration and adopted by the Board of Visitors in 1973. It elaborates in the context of the College environment the rights and responsibilities of all citizens of the state and nation. The text of the Statement may be found in the Student Handbook.

The Honor System is one of the College's most treasured traditions. Every student at the College is bound by its tenets, which are at the basis of all scholarship. The Graduate Student Association administers the system for graduate students under the Faculty of Arts and Sciences. The principles of the Honor System and the method of administration are described in the Student Handbook.

The Student Handbook contains the text of the Statement of Rights and Responsibilities, a description of the Honor System, an explanation of other regulations bearing on graduate student life and of the procedures by which these are administered, and information on student government. Copies of the Student Handbook are distributed to all registered graduate students each year. Additional copies are available from the office of the Dean of Graduate Studies. The Student Handbook can also be found on-line through the Dean of Students web site (<http://www.wm.edu/OSA/dostud/Dnost.htm>).



The Graduate Student Association is a voluntary organization open to all graduate and unclassified (post-baccalaureate) students enrolled under the Faculty of Arts and Sciences. Members need not be registered for courses at the time to participate. The purpose of the Association is to advance the academic and social interests of its members. Members of the Graduate Student Association Council are elected at meetings of students in each department at the beginning of the fall semester.

Student government at William and Mary is vested in the Student Assembly. The Assembly provides a voice for both graduate and undergraduate student opinion and a means through which students participate in the growth of a strong community. It has four basic objectives: (1) to provide a voice for student opinion, (2) to educate and inform the student body, (3) to fairly and equitably allocate the student activity fee, and (4) to provide cultural and social programming and student services. In particular, the Graduate Council of the Student Assembly represents the unique interests of graduate students in all five graduate schools at the College of Arts and Sciences, Business, Education, Law, and Marine Science. The president and vice president of each school's graduate association serve as members of the Graduate Council of the Student Assembly.

## **The William and Mary Theatre**

The William and Mary Theatre annually presents four full-length plays in public performance. The staff is composed of professionally trained members of the faculty of Theatre, Speech and Dance. Auditions for parts in plays are open to all students, and casting is based on a competitive process with the intent to assemble the best qualified people for public performances. The production crews are basically composed of members of the classes in the department of Theatre, Speech and Dance, but there is also opportunity for all students to volunteer to serve.

## **Publications**

The Flat Hat is a weekly paper published and edited by students. The William and Mary Review, published at least twice a year by a staff of student editors, is the College's literary publication. The College yearbook, The Colonial Echo, is published annually by a student staff. In addition, there are several other campus publications, including journals and reviews from the School of Law. The financial administration of all student publications is under the jurisdiction of the Publications Council. Student publications are funded primarily by student fees. Graduate students who pay full tuition and general fees may request copies of the William and Mary Review and the Colonial Echo, and may obtain copies of the other publications mentioned above at their appropriate places of distribution.

## **Lectures, Concerts, Comedy and More**

The cultural and social life at William and Mary is rich and varied. Primarily under the auspices of the University Centers Activities Board, the College seeks to provide its students with opportunities for enjoying a wide range of public activities and events.

The Concert Series annually offers students, faculty, staff and area residents, on a subscription basis, a variety of performances by outstanding artists. In recent years College audiences have enjoyed performances by the Paul Taylor Dance Company, Jean-Pierre Rampal, Poncho Sanchez, Alvin Ailey, Canadian Brass, Barcelona Symphony Orchestra, and Sonny Rollins, to name a few. The William and Mary College Orchestra, Band, and Chorus's provide exciting concerts throughout the year. Contact the Music Department for a schedule of their performances. In addition to the campus concerts the members are active in many special performances in the community.

All students are eligible for participation in the activities of WCWM-FM, which is operated by student volunteers on an extracurricular basis. Opportunities are available in all phases of radio programming.

## Religious Life

The College of William and Mary, though of Church of England foundation, has been since 1799 entirely non-sectarian. Students of the College avail themselves of the many services provided by the places of worship in the Williamsburg area. Students may also participate in collegiate religious organizations, many of which are sponsored by local churches. The religious organizations represented at the College can be found on the Student Activities web site at [www.wm.edu/OSA/activ/webdir/rel.htm](http://www.wm.edu/OSA/activ/webdir/rel.htm)

## Athletics and Recreation Sport Activities

The Student Recreation Center, which is located behind William and Mary Hall, contains a large gym with three basketball and four volleyball courts, two weight rooms, six racquetball courts, two squash courts, a sauna, large pool, showers and lockers. Adair Gym is open for informal recreation and provides facilities for swimming, badminton, volleyball, and basketball. Recreational swimming is available in its pool. The College provides fourteen tennis courts (all of which are lighted for night play), jogging trails, an exercise trail and numerous other playing fields.

The Office of Recreational Sports is located on the second level of the Student Recreation Center. The program provides a wide variety of leisure pursuits to all students through intramural, sport club, informal recreation, fitness/wellness and outdoor programs. Facilities include the Recreation Center, Adair Gymnasium, William and Mary Hall, and various other outdoor facilities. Equipment may be checked out with a student I.D. card. Facilities are open seven days per week during the academic year and often during the break periods. Facility schedules are available at any recreational facility or the Campus Center.

Intramurals are separated into co-educational, men's and women's divisions for most activities. Intramural Play is held for each of over 30 sports/activities during the year, including basketball, volleyball, softball, floor hockey, flag football, soccer, kickball, tennis, racquetball, and several races to name a few. Fitness classes are available for a minimal cost. A few examples of those classes are aerobics, boot camp, yoga, kickboxing, floor/bar and spinning. We also have 41 sport clubs most of which are available to graduate students. For more information on Recreation please go to our web site at [www.wm.edu/rec](http://www.wm.edu/rec).

Cary Field at Zable Stadium (seating capacity 15,000) provides a stadium for intercollegiate football and track. Busch Stadium provides a facility (seating capacity of 2,500) with artificial turf and lights and a grass practice field. Soccer, lacrosse, and field hockey teams compete in this facility. The McCormack-Nagelsen Indoor Tennis Center, located beside the School of Law, houses six additional tennis courts. The baseball team uses Plumeri Park (seating capacity 1,000), a lighted baseball stadium, for its games.

William and Mary Hall has an indoor seating capacity of 10,000 for basketball. There are auxiliary areas for aerobic exercise, gymnastics, and adapted sports, plus a modern, fully equipped training room and strength and conditioning center for intercollegiate athletics.

Graduate students who pay the full tuition and general fee are admitted to all athletic contests by presenting their ID cards.

## GRADUATE REGULATIONS

### I. Organization of Graduate Programs

Graduate studies in Arts and Sciences at the College of William and Mary are under the overall jurisdiction of the Committee on Graduate Studies (COGS), composed of representatives of the departments and programs offering graduate degrees, and of the graduate committees of the individual departments and programs. Most administrative matters require the approval of the Dean of Research and Graduate Studies, Arts and Sciences.

### II. Admission

#### Application Fee

A non-refundable processing fee of \$30 is required for application for admission to graduate study under the Faculty of Arts and Sciences. This fee is not credited to the student's account. There is no fee for application for admission as an unclassified (post-baccalaureate) student.

#### Procedure

Application forms for admission to graduate study should be requested from the director of graduate studies in the department or program in which the applicant intends to enter. Beginning graduate students may enter in the fall, spring, or summer session of each year at the discretion of the department or program committee concerned. Applicants should be aware that deadlines for submitting the application package vary with the individual departments and programs. Students should consult the department/program of his or her interest for its application deadline.

Applicants may be admitted as regular or provisional graduate students, or as unclassified post-baccalaureate students.

**Regular Graduate Students:** For admission as a regular graduate student an applicant must have completed the requirements for a bachelor's degree at an accredited institution, must have a cumulative grade point average of 2.5 or more on a 4.0 scale, and must have the recommendation of the department or program committee under which he or she intends to study for a degree.

**Provisional Graduate Students:** Applicants with less than a 2.5 cumulative grade point average may be admitted as provisional graduate students upon the recommendation of the department or program committee concerned.

**Unclassified Post-Baccalaureate Students:** In special circumstances, individuals who wish to take graduate courses in the Faculty of Arts and Sciences (courses numbered 500 or above) but are not enrolled as degree-seeking students may be allowed to do so. Such prospective students must first present evidence to the Office of Undergraduate Admission that they have earned a bachelor's degree from an accredited institution. Prospective students then contact the department or program of interest, which will consider their requests. Only individuals who have been approved by the department or program will be allowed to register. Generally, unclassified students must present academic or other credentials comparable to those of regularly admitted students. Unclassified students must reapply each semester.

All recommendations for admission, except for unclassified students, must be approved by the Dean of Research and Graduate Studies, Arts and Sciences.

Each student applying for admission is expected to submit scores on the verbal, quantitative, and analytical sections of the GRE. These scores must be no older than five years from the time the test was taken. The TOEFL is required for all students for whom English is not a first language. Beginning in the Fall of 2002, the analytical section was replaced by the analytical writing section. In addition, many departments and programs require prospective students to include scores on the achievement portion of the test. Inquiries about specific admissions requirements may be addressed to the department/program of interest. GRE information bulletins with test registration forms may be obtained by calling the William and Mary Office of Career Services at (757) 221-3231.

No student will be admitted later than one month before the start of the semester. Because of the time required to process visa applicants, no foreign student may be admitted later than three months before the start of the semester.

## **Transfer of Graduate Credit**

On the recommendation of the student's major department or program committee and with the approval of the Dean of Research and Graduate Studies, a regular student may apply up to six hours of graduate credit earned at another accredited institution of higher learning toward an advanced degree at William and Mary. The credits must have been earned in courses appropriate to the student's program at William and Mary and must fall within the time specified by the general College requirements for degrees. Credit may be transferred only for courses in which the student received a grade of B or higher and may not be counted in compiling his or her cumulative grade point average at William and Mary.

## **III. Tuition and Fees**

The College reserves the right to make changes in its charges for any and all programs at any time, after approval by the Board of Visitors. The tuition, technology and general fee for students under the Faculty of Arts and Sciences who register for nine semester hours of credit or more per semester is \$3,766 per semester for residents of Virginia and \$9,598 per semester for non-residents. Any student registered for nine hours or more in 500-level courses or above, or for twelve hours or more at any level, is considered to be a full-time student and will be charged these full-time rates unless qualified to be a Research Graduate Student (see below).

Tuition for part-time students, at the graduate level, is as follows:

\$222 per semester hour for residents of Virginia

\$618 per semester hour for others

Non-resident graduate students who hold qualifying assistantships may, on the recommendation of the Dean of Research and Graduate Studies and approval of the Provost's Office, pay tuition at the resident rates. Charges for part-time students to audit courses are the same as courses taken for credit. Regularly enrolled degree-seeking students of the College will be charged these rates during the regular session for part-time work, based on their established domiciliary status. Rates for students who enroll in Summer Session will be charged on the same basis. Part-time students who are not regularly enrolled at the College of William and Mary, must complete an application for in-state privileges. Students determined to be domiciled outside of Virginia will pay out of state rates. Those determined to be residents will pay according to the in state rates. (See the discussion in Sec. VII of this catalog for a statement regarding in-state, out-of-state classification for tuition.)

**Transcript Fees:** There is a \$5 fee for each transcript requested.

## Research Graduate Students

Upon the recommendation of a student's department/program and approval of the Dean of Research and Graduate Studies, a student's eligibility for Research Graduate status can be established if the following conditions are met:

- The student has completed all required course work.
- The student is not employed significantly in any activity other than research and writing in fulfillment of degree requirements.
- The student is present on the campus or is engaged in approved field work.

While classified as a Research Graduate, a student may register for a maximum of 12 credit hours of Research or Thesis or Dissertation upon payment of the part-time rate for one credit hour.

A Research Graduate student is not eligible for services that are paid for by fees (e.g., student health and athletic events) unless the fee is paid.

A Research Graduate student may take courses other than Research or Thesis or Dissertation only upon payment of the generally applicable additional tuition charge.

## IV. Financial Aid

Graduate assistantships, scholarships, and fellowships are available in many departments/programs for full-time regular graduate students. For details, applicants should write to the department or program. Application for aid should be made on the application form for admission to graduate study. Awards are made on the basis of merit.

Graduate assistants work from five to twenty hours a week during the academic year or the summer depending upon the stipend awarded. They must satisfactorily carry out the duties assigned by their departments or program committees, must make satisfactory progress in their degree programs as defined by the College degree requirements and the regulations of their departments or program committees, and may not hold any other employment or appointment of a remunerative nature during the term of their assistantships without approval of the Dean of Research and Graduate Studies. Failure to comply with these conditions will lead to revocation of appointments. Fellowships and scholarships will be revoked if students fail to make satisfactory progress toward their degrees as defined below or to register as full-time students.

Graduate assistants are normally paid in equal installments (minus deductions for federal and state withholding taxes and applicable federal social security taxes) on the first and sixteenth of each month. The portion of a graduate fellowship or scholarship applicable to a semester is initially applied to payment of tuition for that semester. Any amount remaining after payment of tuition may be refunded to the student. For information regarding the College Work-Study, National Direct Student Loan, and Guaranteed Student Loan Programs, write to: Director of Student Financial Aid, College of William and Mary, P.O. Box 8795, Williamsburg, VA 23187, or call (757) 221-2420.

## V. Registration

### Registration for Graduate Credit

All regular and provisional graduate students admitted to a course numbered 500 or above shall be considered graduate level students and shall receive graduate credit upon satisfactory completion of the course. Regular or provisional graduate students, or unclassified (post-baccalaureate) students, may register for graduate credit in courses under the Faculty of Arts and Sciences numbered 400 to 499 provided they obtain the

approval of the instructor, the graduate director of the department/program concerned, and the Dean of Research and Graduate Studies, prior to registration. Graduate credit will be awarded only upon successful completion of the course with a grade of 'B-' or better.

## Changes in Registration

All changes in students' schedules after the last day to add courses (as defined in the calendar on page v) will be initiated through the student's department or program and require the approval of the instructors involved, the chairperson of the department or director of the program, and the Dean of Research and Graduate Studies. If the student drops a course or courses before the end of the ninth week of classes but remains registered for other academic work, the course or courses dropped will be removed from the student's record. If the student drops a course or courses after the end of the ninth week of classes through the last day of classes, but remains registered for other academic work, the grade 'W' or 'F' will be awarded by the instructor in the course depending upon whether or not the student was passing at the time of the withdrawal.

If the student withdraws from the College before the end of the ninth week of classes, a grade of 'W' will appear on the record for each course in progress at the time of withdrawal. After the end of the ninth week of classes through the last day of classes, students who withdraw from the College will be awarded a 'W' or 'F' by the faculty member teaching each course in progress at the time of withdrawal.

Students may not withdraw from a course after the last day of classes. If for medical reasons a student does not complete a course, 'WM' will be entered on the record upon approval of the Dean of Students and the Medical Review Committee. For further information see the section on 'Medical Withdrawals' on page 24. See Section VII below for regulations governing refunds of tuition and fees.

## Auditing

Any graduate student may informally attend a graduate course with the consent of the instructor. No grade will be given and informal attendance will not be listed on the transcript. Informal attendance is not considered an audit.

Any graduate student may audit a graduate course with permission of the instructor. Request forms can be obtained from the University Registrar's Office, or on the web at [www.wm.edu/registrar/forms/AuditorApplication.pdf](http://www.wm.edu/registrar/forms/AuditorApplication.pdf). Before beginning the audit, the student and the instructor must agree on what is required for the audit to be successful. The audited course and the grade of 'O', for a successful audit, or 'U' for an unsuccessful audit, are listed on the student's official transcript.

## VI. Academic Progress

### System of Grading and Quality Points

The grades A, B, C, D, P (in certain courses), and F are used to indicate the quality of work in a course. Also used are '+' and '-' notations, except that there is no 'A+'. 'W' indicates that a student withdrew from the College before the end of the ninth week of classes or dropped a course between the end of the ninth week of classes and the last day of classes and was passing at the time that the course was dropped.

For each semester credit in a course in which a student is graded A, 4 quality points are awarded: A-, 3.7; B+, 3.3; B, 3.0; B-, 2.7; C+, 2.3; C, 2.0; C-, 1.7; D+, 1.3; D, 1.0; D-, .7. P carries credit but is not included in a student's cumulative grade point average. F carries no credit but the hours attempted are included in the student's average.

In addition to the grades A, A-, B+, B, B-, C+, C, C-, D+, D, D-, P, F, and W, the symbols 'G' and 'I' are used on the academic transcript. 'G' is a deferred grade reserved for circumstances where there is a delay in awarding a final grade that is not caused by the student. The situation is typically structural, as when a student is researching and writing his/her thesis or dissertation. The grade 'G' is temporarily assigned until the semester when the work is complete. The 'G' is not used as an alternative to 'I' when the student is the cause for the non-completion. Unlike the deferred grade 'I', 'G' does not automatically revert to 'F' after one semester.

'I' indicates that because of illness or other major extenuating circumstances the student has postponed, with the explicit consent of the instructor, the completion of certain required work. 'I' automatically becomes 'F' at the end of the next semester if the postponed work has not been completed, unless the instructor requests the Registrar in writing to extend the 'I' for another semester. An 'I' may not be extended more than once without approval of the graduate director and the Dean of Research and Graduate Studies.

### **Satisfactory Progress**

To continue in a program, a student must make satisfactory progress toward the degree, as defined by the Committee on Graduate Studies (COGS) and the regulations of the student's department or program. If the faculty of a department or program determines that satisfactory progress is not being made, a student may be required to withdraw because of academic deficiency.

### **Language Requirements**

Each department or program committee will determine the methods by which students in degree programs for which there are language requirements will satisfy these requirements. Application forms for the Graduate Student Foreign Language Examination are available at the Counseling Center. For students who wish instruction in a language, the Departments of Classical Studies and Modern Languages recommend courses numbered 101-102 for those with fewer than two high-school units in a language, 103-104 or 201-202 for those with fewer than three. A course in Scientific German (204) is also offered; successful completion of a course at the 202 level or the equivalent is normally sufficient to pass examinations for reading knowledge. Some courses are also offered through the Graduate Center. Please contact Hans von Baeyer, the Director of the Graduate Center, at 757/221-1875 for more information.

### **Submission of Theses and Dissertations**

Candidates for degrees for which a thesis or dissertation is required must deposit three copies of the thesis or dissertation with the Dean of Research and Graduate Studies no later than 5 p.m. on the day indicated in the College Calendar for the date on which they expect to receive the degree. The copies must be prepared in accordance with 'A Guide for Writers of Theses and Dissertations,' which is available from the Graduate Dean's office and on the web at <http://www.wm.edu/graduate/guide.pdf> and must be accompanied by an auditor's receipt for the requisite binding fee of \$6.70 for each copy. Extra charges will be assessed if a thesis or dissertation is thicker than 2 inches, or if a stitched rather than a glued binding is required for any reason. Candidates for the Ph.D. must also arrange with the Dean of Research and Graduate Studies for the deposit of a master microfilm negative with University Microfilms, Ann Arbor, Michigan, and pay the requisite fee (\$55) by the same day. Optional copyright fees for the dissertation are \$45. These fees are subject to change without notice. Students may contact the Bursar's Office for further information.

## Notice of Candidacy for Graduation

Candidates for advanced degrees must submit a Notice of Candidacy for Graduation to the University Registrar by the deadline date established for the graduation date they expect to receive the degree. If they subsequently fail to complete the requirements by that graduation date, they must cancel the notice at least two weeks before the end of the semester and must resubmit the notice.

## Time Limits for Degrees and Extensions

Students should complete their thesis or dissertation within a specified time limit. The time allowed is defined in this catalog in the section "Requirements for Degrees", with further information provided in the individual program descriptions. A student who will be unable to meet this deadline must file for an extension before his or her time has expired. It is the students' responsibility to discuss this matter with their advisor and graduate director and to be aware of the relevant deadlines. Extensions will be granted for a period of one year from the date of approval, or until the deadline for graduation that is closest to the one-year period, as decided by the Dean of Research and Graduate Studies and COGS (Committee on Graduate Studies). In the unusual circumstance that more than one extension is required, each additional extension request must be made *before* the previous one has expired.

A first extension request must include a written justification from the student, with supporting letters from the student's advisor and graduate director. A first extension request is filed with the Dean of Research and Graduate Studies. The Dean's decision is reported to COGS. Students may appeal a negative decision to COGS.

All subsequent extension requests are filed with the Dean of Research and Graduate Studies who will direct them to COGS, which will make the decision. The request must include all of the material from previous extensions, updated letters of support from the student's advisor and graduate director, a summary of the current state of the student's thesis or dissertation, and a plan for its completion.

Extension decisions by COGS are final.

## Conferral of degrees

The College confers degrees in August, December, and May of each year. Commencement is in May. Degree recipients in August and December are recognized at, and invited to attend, the May ceremony.

# VII. Financial Obligations

## Payment of Accounts

Charges for the tuition and general fee, as well as fees for room, meal plan, applied music, and physical education fees must be paid by each semester's due date as established by the Office of the Bursar. Any unpaid balance remaining on an individual's account after the end of the add/drop period may result in cancellation of registration. Payment must be made in U.S. dollars by cash or check made payable to The College of William and Mary. Checks returned by the bank for any reason will constitute nonpayment of fees and may result in cancellation of registration. In the event a past-due account is referred for collection, the student is required to pay all costs associated with the collection and/or litigation. Credit Card payments are **not** accepted.



## Tuition Payment Plans

To assist with the payment of educational costs, the college accepts student payments through the following tuition payment plan company. The tuition payment plan allows for the monthly payment of tuition, general fees, dormitory fees and meal plan charges over a maximum of 10 months. For more information about this plan, please write, call or logon to [www.afford.com](http://www.afford.com):

Tuition Management Systems, Inc.  
42 Valley Road  
Newport, RI 02842  
1-800-422-4867

## Late Payment Fee Policy

Late fees may be assessed on accounts not paid in full by the payment deadline established for each semester. Failure to receive a bill does not waive the requirements for payments when due. Students whose payments are received after the deadline may be assessed the late fee of \$100 for full-time students and \$35 for part-time students. If the student has not paid by the end of the add/drop period, the student may be disenrolled from all classes.

## Late Registration Fee Policy

In order for the student to reregister for classes, the student must petition Academic Support to late register and pay the late penalty fee assessed, the late registration fee of \$50 for full-time students and \$25 for part-time students, and tuition and fees.

## Withdrawal Schedule for a Full-time Graduate Student

All charges by the College are considered to be fully earned upon completion of registration by the student.

- A full-time student who withdraws from the College within first five calendar days of the semester are eligible for a refund of all payments for tuition and fees less a \$50.00 administrative fee. After the five-day period, the amount of the tuition and fees to be charged will be determined based on the following schedule:

Calendar Days	Percentage Charged of Tuition and Fees
1 – 5	0%
6 – 30	25%
31 – 60	50%
61 – 112	100% (not eligible for refund)

- Students will not be eligible for any refund of tuition and general fees if required to withdraw by the College. Residence hall fees will be charged based on the tuition and fee schedule above. Meal plan adjustments will be prorated.

## Withdraw Schedule for a Part-time Student

- A part-time student at the graduate level is defined as one who is enrolled for 8 credit hours or less.
- A part-time student who withdraws from the College during the add/drop period is eligible for a refund of all payments less a \$50 administrative fee. After the first five-day period, the amount of the tuition and fees to be charged will be based on the following schedule:

Calendar Days	Percentage Charged of Tuition and Fees
1 – 10	0%
11 – 60	50%
61 – 112	100% (not eligible for refund)

- Students will not be eligible for any refund of tuition if required to withdraw by the College.

## Graduate Students Who Withdraw From a Course

A part-time student who withdraws from a course(s) after the add/drop period and remains registered for other academic work will not be eligible for a refund.

## Leaves of Absence

Students who wish to request a leave of absence for any reason, other than a medical withdrawal (see below), should contact their advisor and the Director of Graduate Studies for their program. Students may appeal the decision of the department/program with the Dean of Research and Graduate Studies.

## Medical Withdrawals

A request for a medical withdrawal for one or more semesters is appropriate in circumstances where a student has a serious medical or psychiatric condition that prevents him or her from being able to carry out his or her academic responsibilities. Maternity leave may be taken as a medical withdrawal if the student elects to do so, but might also be taken as a leave of absence (see above). Medical withdrawals are handled through the Dean of Student's Office. For details, call the Dean of Student's Office at 221-2510 and request the Graduate Medical Withdrawals (Full Semester Withdrawal) information sheet. Please note that the graduate policy differs from the undergraduate policy, hence the requestor should specifically ask for the graduate information sheet.

## Outside Scholarship Recipients Receiving Credit

Students who have been awarded financial aid are required to pay the difference between the charges due and the amount of the award by the published due date each semester. Written verification of financial awards from outside scholarships is required by the Bursar's office before credit can be given toward fees due.

A student whose scholarships exceed total charges may apply for a refund beginning the first day of classes.

## Unpaid Accounts

If there are any outstanding debts to the College, services such as issuance of transcripts and diplomas or participation in registration or pre-registration will be withheld.

## Eligibility for In-state Status

To be eligible for in-state tuition, a student must meet the statutory test for domicile as set forth in Section 23-7.4 of the Code of Virginia. Domicile is a technical legal concept; a student's status is determined objectively through the impartial application of established rules. In general, to establish domicile, students must be able to prove permanent residency in Virginia for at least one continuous year immediately preceding the first official day of classes, and intend to remain in Virginia indefinitely after graduation. Residence in Virginia for the primary purpose of attending college does not guarantee

eligibility for in-state tuition. Applicants seeking in-state status must complete and submit the 'Application for Virginia In-State Tuition Privileges' along with the application for admission to the College, or before the first day of classes, whichever is earliest. The application is evaluated and the student is notified in writing if the request for in-state tuition is denied.

A matriculating student whose domicile has changed may request reclassification from out-of-state to in-state. Students seeking reclassification must complete and submit the 'Application for Virginia In-State Tuition Privileges' to the Office of the University Registrar at least two months prior to the first day of classes if the term for which they seek in-state classification. Forms received after the first day of classes will not be evaluated. The Office of the University Registrar evaluates the application and notifies the student if the request for in-state tuition is denied. Any student may submit in writing an appeal to the decision made, however, a change in classification will only be made when justified by clear and convincing evidence. All questions about eligibility for domiciliary status should be addressed to the Office of the University Registrar, (757)221-2809.

In determining domicile the school will consider the following factors:

- Residence during the year prior to the first official day of classes
- 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
- Social or economic ties with Virginia

*Please note: Out-of-state students who hold assistantships, receive a waiver of the out-of-state tuition and need not apply for Virginia domiciliary status. However, if they wish to take a class that their assistantship does not cover, or if their assistantship is discontinued or ends, they are considered to be out-of state for tuition and must qualify for in-state tuition privileges as described above.*

## Requirements for Degrees

In addition to the following general requirements special requirements for the various disciplines are listed under the heading of the appropriate department or program.

### I. Degree of Master of Arts

- A. The chairperson of the department or program committee in which the student concentrates will plan and approve the student's program.
- B. A minimum residence period may be required at the discretion of a department or program, subject to the approval of the Committee on Graduate Studies.
- C. Each student must satisfy the language requirements prescribed by the department or program committee under which he or she is enrolled. The manner of fulfillment of language requirements shall be at the discretion of the department or program committee subject to the approval of the Committee on Graduate Studies.
- D. At least 24 semester hours of graduate credit, of which at least 12 must be earned in courses numbered 600 or above (except 700 - Thesis) are required for the Master of Arts degree. Each student must achieve a quality point average of 3.0

on a 4.0 scale in all courses undertaken for graduate credit at the College of William and Mary after admission to a degree program. No credit toward a degree will be allowed for a course in which a student receives a grade below C.

- E. The student must present a thesis approved by the chairperson of the department or program committee of concentration, and by each member of the student's thesis committee. A thesis committee shall be named by the Dean of Research and Graduate Studies upon the recommendation of the department or program. The committee will consist of at least three members, at least two of whom must be full-time faculty of the College and have a formal affiliation with the student's department or program. He or she must register for 700, Thesis, for at least one semester and may repeat this registration. This registration does not alter in any way the 24 credits in course work required for the M.A. degree. The degree will not be granted until three copies of the thesis have been submitted to the Dean of Research and Graduate Studies, Arts and Sciences in final form for acceptance or rejection by the deadline listed in the College Calendar on page v.
- F. An examination covering the entire field of study is required. This examination is conducted by the student's examination committee.
- G. All requirements for the degree must be completed within a maximum period of six (6) calendar years after admission to the degree program. Requests for extension beyond the six-year limit must be filed following the procedures outlined in the section entitled "Time Limits for Degrees and Extensions" on page 22 of this catalog.

## II. Degree of Master of Science

With the exception of a thesis, the general requirements for the degree of Master of Science are the same as for the Master of Arts. In place of the thesis, a candidate must successfully complete eight additional semester hours of graduate course work in courses numbered 600 or above.

## III. Degree of Master of Public Policy

- A. The director of The Thomas Jefferson Program in Public Policy will plan and approve the student's program.
- B. Each student is expected to attend full-time (12 credits per semester) for four semesters.
- C. At least 49 semester hours of graduate credit are required for the M.P.P. degree. Each student must achieve a cumulative grade point average of 3.0 on a 4.0 scale in all courses undertaken for graduate credit at the College of William and Mary after admission to the M.P.P. program. No credit toward a degree will be allowed for a course in which a student receives a grade below C.
- D. It is expected that all degree requirements will be completed within 2 years after admission to the degree program.
- E. Each student must complete a 10-week internship during the summer between the first and second years of the program. The program director must approve all internships.

## IV. Degree of Doctor of Philosophy

- A. A minimum of three years of graduate study beyond the baccalaureate is required. A student must spend at least one academic year in continuous residence as a full-time student at the College of William and Mary after satisfying the requirements for the M.A. or M.S. degree. This may be waived only by the Committee on Graduate Studies on a petition from a department or program committee.
- B. Course requirements for doctoral students shall be at the discretion of the major department/program. In addition to other course or credit requirements, each candidate for the Ph.D. must register for at least six credits of 800, Dissertation.
- C. Each student must satisfy the language requirements prescribed by the department/program under which he or she is enrolled. The manner of fulfillment of language requirements shall be at the discretion of the department/program subject to the approval of the Committee on Graduate Studies. Such requirements must be fulfilled before the student may complete his or her comprehensive qualifying examinations.
- D. Each doctoral student must pass a comprehensive qualifying examination designed to demonstrate competence in his or her field of study. Methods of examination, whether written or oral, shall be at the discretion of the student's department/program. An examining committee shall be appointed for each student by the Dean of Research and Graduate Studies, Arts and Sciences, upon the recommendation of the department/program.
- E. A candidate for the Ph.D. must submit a dissertation based on original research and constituting a contribution to scholarly knowledge. A dissertation committee shall be named by the Dean of Research and Graduate Studies upon the recommendation of the department or program. The dissertation must be approved by each member of the committee. The committee will consist of at least four members, at least two of whom must be full-time faculty at the College and have a formal affiliation with the student's department or program. At least one member of the committee must be from outside the student's department or program, and may include qualified persons from outside the College. Persons who have an affiliation with the department or program (e.g., adjunct status) do not qualify as external members. The degree will not be granted until three copies of the dissertation have been submitted in final form by the deadline listed in the College Calendar on page v to the Dean of Research and Graduate Studies, Arts and Sciences.
- F. Each candidate must successfully defend his or her dissertation in a final examination before it can be accepted by the College. This examination may be written or oral at the discretion of the department/program concerned and shall be open to the faculty and to such outside persons as the department/program may invite.
- G. Acceptance of the dissertation by the College is conditional upon the deposit of a master microfilm negative with University Microfilms, Ann Arbor, Michigan. The requisite fee shall be paid by the student.
- H. All requirements for the degree must be completed within a maximum period of seven (7) calendar years after starting the doctoral program. See the individual department or program description for details on when a student is considered to have started the seven-year Ph.D. clock. Requests for extension beyond the seven-year limit must be filed following the procedures outlined in the section entitled "Time Limits for Degrees and Extensions" on page 22 of this catalog.

## V. Degree of Doctor of Psychology

- A. The successful completion of three full years (fall, spring, and summer semesters) of full-time study beyond the baccalaureate, or the equivalent, is required. In addition, the successful completion of an internship that is a full-time experience for one calendar year, or a half-time experience for two calendar years, with at least two hours per week of formally scheduled individual supervision, is required.
- B. Program course requirements are established by the faculties of the member institutions of the Psy.D. consortial program and administered by the Committee of Directors of the program. At least 6 semesters and 72 semester hours shall be in residence in the program, with the student being registered in the program during the semester in which the degree requirements are completed.
- C. Each doctoral student must pass a comprehensive written and oral qualifying examination before being admitted to candidacy. The examination shall cover both course content and clinical competence.
- D. Each candidate for the doctoral degree must pass an examination in his or her area of clinical specialization during the final semester of study. The examination may be written or oral at the discretion of the Committee of Directors and shall be open to the faculties of the member institutions of the consortial program and to such outside persons as the Committee may invite.
- E. All requirements for the doctoral degree must be completed within seven (7) calendar years of the time the student is admitted to the doctoral program.

## GRADUATE PROGRAMS AND COURSE DESCRIPTIONS

### American Studies Program

**Richard S. Lowry** (Ph.D., Yale; Assoc. Professor of American Studies and English and Interim Director of American Studies), **David P. Aday** (Ph.D., University of Kansas; Professor of Sociology), **Michael Blakey** (Ph.D., University of Massachusetts, Amherst; NEH Professor of Anthropology and American Studies), **Chandos M. Brown** (Ph.D., Harvard University; Assoc. Professor of History and American Studies), **Barbara Carson** (M.A., University of Delaware; Adjunct Assoc. Professor of American Studies), **Maureen Fitzgerald** (Ph.D., University of Wisconsin-Madison; Assistant Professor of Religion and American Studies), **Grey Gundaker**<sup>2</sup> (Ph.D., Yale University; Assoc. Professor of American Studies and Anthropology), **Clyde Haulman** (Ph.D., Florida State University; Professor of Economics), **Heather Huyck** (Ph.D., University of Minnesota; Visiting Professor of American Studies), **Arthur L. Knight** (Ph.D., University of Chicago; Assoc. Professor of English and American Studies), **Charles McGovern** (Ph.D., Harvard University; Associate Professor of History and American Studies), **Leisa D. Meyer** (Ph.D., University of Wisconsin; Assoc. Professor of History and Director of Women's Studies), **Scott R. Nelson** (Ph.D., University of North Carolina, Chapel Hill; Assoc. Professor of History), **Kimberley L. Phillips**<sup>1</sup> (Ph.D., Yale University; Assoc. Professor of History), **Richard S. Price**<sup>4</sup> (Ph.D., Harvard University; Duane A. and Virginia S. Dittman Professor of American Studies, Anthropology, and History), **Sally Price**<sup>4</sup> (Ph.D., Johns Hopkins University; Duane A. and Virginia S. Dittman Professor of American Studies and Anthropology), **Robert J. Scholnick** (Ph.D., Brandeis University; Professor of English and American Studies), **Alan Wallach** (Ph.D., Columbia University; Ralph H. Wark Professor of Art and Art History and American Studies), **M. Lynn Weiss**<sup>3</sup> (Ph.D. Brandeis University; Assoc. Professor of American Studies and English).

### General Description

The general mission of the graduate program is to prepare students for careers in which scholarly knowledge of and approaches to American cultures and society are requisite. These include professions in higher education, museums, publishing, government, and other areas requiring a capacity for rigorous, interdisciplinary investigation. The M.A. program offers excellent opportunities for persons seeking advanced study in the liberal arts for its own sake as well as to enhance preparation for careers involved in interpreting American life to broad audiences. Some students may also undertake the M.A. in preparation for entrance into a doctoral program. The Ph.D. is designed for those students who wish to pursue original, interdisciplinary research and whose professional goals require a doctorate. Students must hold a bachelor's level degree from an accredited institution of higher learning to enter the MA. or Ph.D. program. Students seeking

<sup>1</sup> On leave Fall 2003-2004

<sup>2</sup> Director of Graduate Studies

<sup>3</sup> Director of Undergraduate Studies

<sup>4</sup> On leave Fall 2003

admission to these programs may usually transfer up to six credit hours earned in another graduate program at an accredited institution toward their degree requirements. Beyond the required core courses in American Studies, graduate students have wide latitude to choose a program of study appropriate to their interests. Our special areas of strength include: African American Studies, Art History, Early American History and Culture, History of the Book, History of Science, Law and American Culture, Material Culture, Popular Culture, Ritual Studies, Women's and Gender Studies, Cultural Studies, Visual Studies, and Religious Studies. Together with an advisor, students will design an educational program for themselves that is both individualized and coherent.

## Admission

All applicants are required to submit test scores, transcripts, letters of recommendation, a sample of writing up to 20 pages in length, and a response to an additional question. American Studies requires candidates to submit three GRE scores: Verbal, Quantitative, and Analytical. Any student taking the GREs in the Fall of 2002 or later will be required to submit the analytical writing score, which will replace the analytical score. The Miller Analogies test is not acceptable. Foreign applicants must also report scores on the Test of English as a Foreign Language (TOEFL). The application deadline for students intending to begin graduate work in the fall semester is January 15. There are no spring admissions. Only applicants intending to enter as full-time doctoral students are considered for financial aid.

## Program Requirements for the Degree of Master of Arts

(See p. 25-26 for general College requirements.)

*Note: Students should consult the American Studies Graduate Handbook for a fuller account of program requirements.*

- I. Course distribution
  - A. A one-semester introductory seminar, designed to provide a broad framework for the study of American culture and society.
  - B. Formal courses and independent readings, designed to prepare the student in a coherent field of inquiry. The courses, readings, and field will be chosen in consultation with the student's advisor and the Director of Graduate Studies.
  - C. Two courses of directed study during which the student undertakes the research and writing of the Master's thesis, under the supervision of a faculty member in an area of American Studies.
- II. A thesis, based on original research, which develops a coherent argument and makes a contribution to the study of American life. The thesis, supplemented by an oral defense before a faculty committee, will serve as the comprehensive examination in American Studies.

The M.A. degree can be completed in one calendar year, with students taking 12 credits each semester. Students who enroll in the program on a full-time basis are expected to submit their theses at the close of two semesters or no later than the beginning of the next academic year. Alternatively, students may elect to pursue the M.A. on a part time basis, taking up to six years to complete the requirements.



## Program Requirements for the Degree of Doctor of Philosophy

(See p. 27 for general College requirements.)

Students may enter the Ph.D. program by one of two routes. They may enroll directly into the sequential M.A./Ph.D. course of studies at William and Mary, or they may matriculate in the doctoral program, after completing M.A. degrees at other institutions. The following requirements hold for all doctoral candidates.

- I. Course distribution (60 credit hours beyond the B.A.)
  - A. A one-semester introductory seminar, designed to provide a broad framework for the study of American society and culture. (Normally, students will have taken this course in the first year of the M.A./Ph.D. program.)
  - B. Formal courses and independent readings, chosen in consultation with the student's advisor and the Director of Graduate Studies, and designed to prepare a student to present Major and Minor Fields for the comprehensive examination.
- II. Reading knowledge of a foreign language of scholarship.
- III. A comprehensive examination in one Major and one or more Minor Fields. Major fields encompass established disciplines, such as History or English, and area or interdisciplinary studies, such as African-American Studies, Material Culture, or Women's and Gender Studies. Minor fields may be devised to suit the students' particular interests. They may cover special areas of strength at William and Mary, specific topics within Major Fields, or comparative or theoretical perspectives on American life, such as Critical Theory or Race Relations in the Americas.
- IV. A dissertation based upon original research, which makes a scholarly contribution to the study of American life.

Ph.D. students may expect to take five or six years of full-time work to complete all requirements for the doctorate. Normally, full-time students will pursue three semesters of coursework beyond the M.A. and then take the comprehensive, qualifying examination in the fourth semester of their doctoral studies. After successful completion of the comprehensive examination, students will embark upon their dissertations.

The American Studies Program also enables students to pursue the Ph.D. on a part time basis. Students may take some of their Ph.D. coursework part-time, but they must spend at least one academic year in continuous residence as a full-time student at the College. Ph.D. students have seven years to complete their doctorate after the colloquium for the comprehensive examination.

## Description of Courses

### 500. American Material Culture.

*Fall (3) Carson. (Not offered 2003-2004)*

This course uses a series of case studies to approach the material worlds of people in the United States, past and present. Studies vary but may focus on ethnic groups like the 19th century Pennsylvania Germans, the construction of regions such as Appalachia, the special circumstances of the Hmong and other refugees, the classification of objects as 'folk' or 'fine,' and the alteration of landscapes or structured environments over time. Each case study serves the dual functions of illuminating the role of material life in making and maintaining American identities and of introducing an interdisciplinary array of methods, fields of inquiry, and theories that assist interpretation of artifacts and their contexts.

**512. Maroon Societies.***Fall (3) Price, RS. (Not offered 2003-2004)*

An exploration of the African American Communities created by escaped slaves throughout the Americas, from Brazil through the Caribbean and into the southern United States. Emphasis on the processes by which enslaved Africans from diverse societies created new cultures in the Americas, on the development of these societies through time, and on the present-day status of surviving maroon communities in Suriname and French Guiana, Jamaica, Colombia, and elsewhere.

**515. Artists & Cultures.***Fall (3) Price, S. (Not offered 2003-2004)*

This course will explore the artistic ideas and activities of people in a variety of cultural settings. Rather than focusing primarily on formal qualities (what art looks like in this or that society), it will examine the diverse ways that people think about art and artists, and the equally diverse roles that art can play in the economic, political, religious and social aspects of a cultural system. Materials will range from Australian barkcloth paintings to Greek sculptures, from African masks to European films.

**518. Material Life in African America.***Fall (3) Gundaker.*

This seminar explores the world of things that African Americans have made and made their own in what is now the United States from the colonial era through the present. Topics include landscapes of enslavement and freedom, labor practices, architecture, foodways, objects, aesthetics, contexts of production and use, and the theories of material life, expression, and culture through which these topics are studied.

**523. The Museum in the United States.***Spring (3) Wallach. (Not offered 2003-2004)*

This seminar will study specific museums while focusing on basic questions having to do with the social forces that gave rise to museums and the roles museums have played and continue to play in U.S. society.

**529. Exploring the Afro-American Past.***Spring (3) Price, RS.*

A study of the commonalities and differences across Afro-America from the U.S. to Brazil. Works in Anthropology, History, and literature will be used to explore the nature of historical consciousness within the African diaspora and diverse ways of understanding and writing about Afro-American pasts.

**531. World of the Early Chesapeake.***Fall (3) Hoffman. (Not offered 2003-2004)*

An interdisciplinary research seminar, devoted to the culture and society of the Chesapeake region, from the seventeenth to the early nineteenth century. The course will explore major themes in the history of the region, including the natural and built landscape; Indian-white encounters; demography, gender roles, family structure, neighborhood and community; slavery and African-American culture; the tobacco economy; the material world; and the coming and impact of the Revolution. It is also intended to introduce students to the research reports, interpretive program, and archival holdings of the Colonial Williamsburg Foundation. The course will be taught jointly by faculty at William and Mary and members of the professional staff at Colonial Williamsburg. (Cross-listed with HIST 715-02)

**532. The Authority of the Word: Books, Culture and Society in Europe and the United States.***Spring (3) Staff. (Not offered 2003-2004)*

This seminar examines the social history of ideas and of intellectuals in the West from the early modern era to the present from a new perspective: that of the new history of the book. Topics cover: the history of literacy and popular reading; printers as an artisan class; censorship, state power, and the control of knowledge; democratization and the expansion of the literary marketplace; the rise of authorship and mass publishing; gender and reading; and the future of books in an electronic age. Readings include primary and secondary sources from both sides of the Atlantic. (Cross-listed with HIST 716-02)

**534. Ethnographic History.***Fall (3) Price, RS. (Not offered 2003-2004)*

Critical readings of recent works by anthropologists and historians, with an emphasis on cross-disciplinary theory and method.

**545. The Making of a Region: Southern Literature and Culture.***Spring (3) Staff*

An interdisciplinary examination of nineteenth- and twentieth-century southern texts within the cultural context of self-conscious regionalism. Emphasis is on the interaction between literature and the social configurations of slavery, abolitionism, southern nationalism racism, traditionalism, and the civil rights movement.

**551. Music of the South.***Fall (3) Staff. (Not offered 2003-2004)*

This seminar will focus on twentieth-century black and white vernacular musical traditions of the southern United States, particularly blues, gospel, and country. Students will become familiar with the main musical traits, repertoires, and regional styles of these genres. They will also engage with the social and cultural dimensions of how this music mediates race, class, and regional character. Previous musical experience or courses will be helpful though not necessary.

**570. Topics in American Studies.****Topics for Fall, 2003:****Foodways.** *Fall (3) Carson.*

The decorative arts usually are categorized by media—wooden furniture, silver flatware, linen table coverings—or by style period—call it Queen Anne, Baroque, or Georgian. Another approach which is more behavioral might be labeled 'systems.' This seminar, starting with what anthropologists call 'foodways,' will examine any and all objects associated with the preparation, serving, consumption, and clean up of food in domestic and social life. Many, like pots and pans and knives and forks, are obvious. But the perspective widens to specific trays for eating breakfast in bed or boxes shaped like houses for picnics. Students will connect objects with a wide range of visual and written sources to explore what food-related objects people owned, how they used their possessions, and the cultural and economic significance of both actions and things for their time and place.

**Decorative Arts.** *Fall (3) Carson.*

What was the experience of material life in pre-industrial America? Who pulled up mahogany chairs before a table set with silver forks and porcelain dinner plates? Whose bed was a pallet on the floor? This course concentrates on the artifacts made or used in America to equip diverse settings of domestic and public life before industrialization altered methods of production, patterns of distribution, and social meanings. In class

sessions and museum field trips students will learn to look at objects and evaluate their workmanship; to understand the sources and methods of archaeologists, curators, and conservators; and to explore the current scholarship that sees "antiques" as part of the larger material world of the past and puts them into written interpretations or museum settings. This course is part of the NIAHD program.

**Consumer Culture.** *Fall (3) McGovern.*

This graduate seminar offers an intensive examination - theoretical, historical, material - of consumption practices in the United States. How have Americans bought, sold and used goods in their everyday lives? What has been the relationship of the American state to consumption? How has consumption been integrated into American citizenship? How has American culture been shaped by an economy devoted to commodity production and consumption? Primary concentration will be on the 20th century, although readings and materials will be drawn from throughout American history. (Cross-listed with HIST490C.04 and HIST590.04)

**Women's History.** *Fall (3) Huyck.*

Topics course for advanced undergraduates/graduate students cross-listed in American Studies, History and Women's Studies. Course will examine the tangible history found in historic sites (landscapes, structures, artifacts) pertinent to women's history and how to use historic sites to research and teach women's history. Will build an intellectual framework for using tangible resources to do women's history and a template for sites to use. Coursework will include on-site visits to key local and D.C. sites as well as extensive web-work, writing and research. Sites chosen will reflect temporal, ethnic and regional variety. (Cross-listed with AMST 470.03; HIST 490/HIST 590).

**Vernacular Architecture.** *Fall (3) Lounsbury.*

This course will serve as a study of everyday buildings as historical documents. It will include recording techniques, research strategies, theoretical approaches, landscape architecture and field trips. Will meet at the Colonial Williamsburg site.

**Topics for Spring, 2004:**

**The Concept of Home.** *Spring (3) Carson.*

Is home a place, a concept, a machine for living, a container for furnishings? How do homes relate to ideas of family, private life, and public activities? How have American homes changed through the seventeenth to the twenty-first centuries? Although the focus will be on material aspects of homes, their architecture, technological systems, and furnishings, this seminar takes a broad approach to issues, theories, and interpretations. Emphasis will be given to goods as personal property and their practical, social, and symbolic uses. They will be evaluated according to the principals of connoisseurship, for their use as evidence, and for their relevance to various interpretive ideas and arguments. The approach rests on the basic idea that objects are embedded in a reciprocal process. People make things, in turn the products affect their creators and users.

**History/Film.** *Spring (3) Knight*

The idea is to thoroughly examine film—meaning primarily motion pictures, though we will spend some time on still photography—both as a mode of (modern) historical evidence and as a means, with several genres (e.g., documentary and historical melodrama), of "writing" history.

**NIAHD Field School in Decorative Arts.** *Spring (3) Carson.*

Drawing on the resources of the Colonial Williamsburg Foundation, this field school introduces students to the many ways museums deal with artifacts from the moment they enter the registrar's office until they are presented to the public. Students will visit curators in their behind-the-scenes work areas, trades men and women in the Historic

Area, and conservators in the treatment laboratories. They will also attend sessions with the registrars, exhibit planners, and exhibition designers and fabricators who prepare objects for presentation in museum galleries and historic properties. Using the case study method the course will feature objects from two categories of materials collected by museums — furniture, ceramics, glass, silver, base metals, textiles, and works on paper. In the company of an experienced curator each student will examine thoroughly at least one object. The main written project will be an intensive artifact study.

**Art, Politics, and American Culture: From the Popular Front to the Cold War.** *Spring (3) Wallach.*

This course examines critically the relation between the visual arts, politics, and the larger culture from the early 1930s to the early 1950s. Topics include, but are not limited to, the rise of the left; the government's new role as patron of the arts (WPA, FSA); regionalism, social realism, and the mural movement; documentary photography and the mass media; the problematic relation of high and popular art; the rise of abstraction and the "triumph" of the New York School; and art as a weapon of the Cold War.

**Introduction to Public History.** *Spring (3) Huyck.*

Examination of the philosophy & practices of preserving and presenting historic resources. Topics include historic sites, structures, artifacts, manuscripts and archeology. Interdisciplinary approach with individual and team projects to understand our tangible past.

**581. Collecting and Exhibiting Culture.**

*Spring (3) Price, S.*

This course will examine the history of field collecting in different parts of the world, questions of cultural ownership, theories of acquisition and preservation used by museums and private collectors, and issues in the exhibiting of both objects and people. Readings will draw mainly on material from the Americas, Africa, and Europe. (Cross-listed with ANTH484)

**\*582. Arts of the African Diaspora.**

*Spring (3) Price, S.*

An exploration of artistic creativity in the African diaspora—song, dance, folktales, painting, ceramics, architecture, textile arts, woodcarving, and other media. Consideration of tradition and art history, the articulation of aesthetic ideas, cross-fertilization among different forms and media, the role of gender, the uses of art in social life, kinds of meaning, the nature of artistic creativity, and continuities with artistic ideas and form in African societies. Readings will draw on materials from Africa, North and South America, and the Caribbean. (Cross-listed with ANTH582).

**583. The Material Culture of Early America: Artifacts as Design and as Commodities.**

*Spring (3) Carson. (Not offered 2003-2004)*

As groundwork for the interpretation of objects in museum exhibits, historic house museums, and a variety of scholarly studies, this course introduces techniques for visual analysis of artifacts and ideas about relationships between design, technology, production, and marketing of consumer goods. Students explore various theoretical approaches to the analysis of material culture, develop critical bibliographical skills, and learn to phrase questions (artistic, technological, economic, functional, social, and cultural) about objects. They explore a wide range of sources that may illuminate the questions, and they develop designs for research projects that may answer them.

**584. The Material Culture of America: Focus on Decorative Arts.***Spring (3) Carson. (Not offered 2003-2004)*

How do we describe the objects with which Americans have furnished their domestic and public buildings? What do they tell us about how American lived and what they thought about themselves, others, and their various worlds? From the time of the earliest seventeenth-century settlements until the present day, the decorative arts in America have both been closely tied to European heritage and to the colonies and nation. This course concentrates on artifacts made or used in America and explores issues of design, production, and distribution in relation to the changing American experience.

**590. Writing and Reading Culture.***Spring (3) Price, R.S.*

Trends in Ethnography (and Ethnographic History), during the past two decades. Students will begin with a classic monograph go on to read about the crisis in representation as depicted in Clifford and Marcus, and then devote themselves to a critical analysis of a range of more recent work. (Cross-listed with ANTH590).

**602. American Culture Through the Lenses of the Social Sciences.***Fall (3) Staff. (Not offered 2003-2004)*

This seminar introduces students to seminal social theories of social organization, individual and society, cultures, stratification, and social change. Emphasis will be on interdisciplinary theory-building in the social sciences.

**603. Problems in Literature and Society.***Fall (3) Lowry. (Not offered 2003-2004)*

The course will explore major interpretive approaches linking cultural production and social experience by focussing on the emergence of codes of realism during the Gilded Age. Reading major literary and photographic texts through the lens of cultural studies, we will investigate the role representation played in establishing and destabilizing such experiential categories as class, gender, and race.

**605. Practicum in American Material Culture.***Spring (3-6) Gundaker. (Not offered 2003-2004)*

The practicum requires permission of the instructor prior to enrollment and may be taken for 3 or 6 credits, depending upon the student's overall course of study. The practicum combines an individual learning experience in one area of material culture study with bibliographic research and participation in group discussion. The focus of the practicum is an internship or hands-on project supervised by a specialist or curator. Suggested topics include vernacular architecture, decorative arts, landscape, conservation and restoration, ethnographic and archeological fieldwork, and instruction in a mode of material production. Ideally the chosen topic should relate to the student's longterm professional plans. During the course of the semester students develop a bibliographic essay on their specialty. They also join other practicum participants in a weekly discussion designed to relate practical learning to broader issues of material culture theory and research.

**606. Theories of Objects: An Advanced Introduction to the Study of Material Life.***Spring (3) Gundaker. (Not offered 2003-2004)*

This seminar investigates the basic premises upon which studies of objects and material life are based, the theories that lift such premises up to notice, and the possibilities and constraints that different approaches imply. Writing assignments will consist of a series of short but intensive position papers. Interdisciplinary readings address such topics as how

objects are constituted as such, how objects are represented, how various schools of semiotics approach meaning, how causality and relations are asserted, and how these abstract issues intersect practical problems of research, description, and interpretation.

**661. Introduction to American Studies.**

*Fall (3) Lowry.*

'America, American Studies, and Modernity.' This course explores modernity both as a historical process shaping US history and culture, with some attention to its place in global cultures. We'll also take time to explore how the linked concepts of modernity, modernization, modernism, have helped structure the field and practices of American Studies. We'll take on these large-scale matters by engaging critically with such issues as the political histories of such categories of identity as race, class, and gender; the formation of mass culture; and how the discourses practices of abundance shaped national culture. Enrollment limited to American Studies graduate students.

**695. Independent Research.**

*Fall and Spring (9,9) Gundaker.*

A program of extensive reading, writing and discussion in a special area of American Studies for the advanced student. Students accepted for this course will arrange their program of study with an appropriate faculty advisor. Permission of the department chair is required. This course may be repeated for credit.

**700. Thesis.**

*Fall and Spring (1,1) Gundaker.*

Directed study for Master's essay.

**795. Independent Research.**

*Fall and Spring (9,9) Gundaker.*

A program of extensive reading, writing and discussion in a special area of American Studies for the advanced student. Students accepted for this course will arrange their program of study with an appropriate faculty advisor. Permission of the department chair is required. This course may be repeated for credit.

**800. Dissertation.**

*Fall and Spring (1,1) Gundaker.*

Directed study for Doctoral dissertation.

## Anthropology

PROFESSORS Tomoko Hamada (Chair) (Ph.D., California, Berkeley), Norman F. Barka<sup>1</sup> (Ph.D., Harvard), Michael L. Blakey, NEH Professor (Ph.D., Massachusetts), Kathleen J. Bragdon (Ph.D., Brown), Virginia Kerns (Ph.D., Illinois), Barbara J. King (Ph.D., Oklahoma), Richard Price<sup>2</sup>, Dittman Professor (Ph.D., Harvard), Sally Price<sup>2</sup>, Dittman Professor (Ph.D., Johns Hopkins), and Mary M. Voigt, Chancellor Professor (Ph.D., Pennsylvania). VISITING PROFESSOR Edward C. Harris<sup>3</sup> (Ph.D., London). ASSOCIATE PROFESSORS, William H. Fisher (Ph.D., Cornell), and Grey Gundaker (Ph.D., Yale), and Brad L. Weiss<sup>4</sup> (Ph.D., Chicago). ASSISTANT PROFESSORS Martin D. Gullivan (Ph.D., Virginia), Audrey J. Horning (Ph.D., Pennsylvania). RESEARCH ASSISTANT PROFESSOR Danielle Moretti-Langholtz<sup>5</sup> (Ph.D., Oklahoma). VISITING ASSISTANT PROFESSOR Maria das Dóres Cruz (Ph.D., Binghamton). FREEMAN TEACHING FELLOW Donald J. Hatfield (Ph.D., Chicago). ADJUNCT ASSOCIATE PROFESSOR Marley R. Brown III<sup>6</sup> (Ph.D., Brown). ADJUNCT ASSISTANT PROFESSOR Joanne Bowen<sup>7</sup> (Ph.D., Brown). ADJUNCT INSTRUCTORS Dennis B. Blanton<sup>8</sup> (M.A., Brown), and Curtis S. Moyer<sup>9</sup> (M.A., George Washington).

### DEGREES OF MASTER OF ARTS AND DOCTOR OF PHILOSOPHY IN ANTHROPOLOGY WITH SPECIALIZATIONS IN HISTORICAL ARCHAEOLOGY AND HISTORICAL ANTHROPOLOGY

#### Mission Statement

The mission of the Department of Anthropology's Ph.D. program is to offer both general coverage of the discipline as a whole and more specifically focused preparation for students intending to work in the fields of Historical Archaeology and Historical Anthropology.

Within the general domain of archaeology, which studies the human past as reconstructed through the analysis of material evidence, Historical Archaeology focuses primarily on the study of peoples and cultures of the New World that have existed during the period of recorded history. Historical anthropologists use the techniques of oral history, documentary research, and ethnographic field work to gain insights about the past of living societies, the nature of culture change, and the diverse ways in which cultures conceptualize their historical heritage.

Faculty specialties include cultural theory, biocultural theory, area studies, and historiography, with special emphasis on comparative colonialism, the African diaspora, Native America, and the archaeology of Colonial America and the Caribbean. Practical training in field, laboratory, and museum/archaeological conservation methods is available in

<sup>1</sup> Director of Graduate Studies

<sup>2</sup> On leave Fall, 2003

<sup>3</sup> Director, Bermuda Maritime Museum.

<sup>4</sup> On leave, 2003-2004

<sup>5</sup> Director, American Indian Resource Center

<sup>6</sup> Director, Department of Archaeological Research, The Colonial Williamsburg Foundation.

<sup>7</sup> Curator of Zoological Collections, The Colonial Williamsburg Foundation.

<sup>8</sup> Director, William and Mary Center for Archaeological Research.

<sup>9</sup> Curator of Collections, Department of Anthropology and Director, William and Mary Archaeological Conservation Center.)



various courses, including summer field schools in the West Indies, Bermuda, and Virginia. The Williamsburg area has unparalleled historical, archaeological and museum resources, as well as opportunities to participate in a wide variety of ongoing research projects. Scholars in the Colonial Williamsburg Foundation participate in the Department of Anthropology's graduate program.

### Admission

Students will have the option of enrolling directly into the terminal M.A. program, the sequential M.A./Ph.D. program, or entering the Ph.D. program after completing the M.A. degree at William and Mary or at another institution. Students entering with an M.A. may be granted an exemption from certain required courses.

Admission is competitive, based on such criteria as grade point average, GRE scores, letters of recommendation, experience, and educational history. Minimally, to be considered each applicant must have a Bachelor's degree in anthropology, history, or a related discipline, and a 3.0 grade average [on a 4.0 scale]. Graduate studies begin in the fall; there are no spring admissions.

Application materials consist of the College's standard form, GRE scores taken within the past five years, undergraduate transcripts, three letters of recommendation, and a writing sample. Foreign applicants will also be required to submit scores on the Test of English as a Foreign Language (TOEFL). All graduate degrees in Anthropology at William and Mary require full-time study. Part-time students will not be accepted. Applications and supporting materials for both the M.A. and the M.A./Ph.D. programs must be received by January 15.

### Department requirements for the Degree of Master of Arts

*(see p.25-26 for general College requirements)*

The Master of Arts program is designed to train students for proficiency in the general field of Anthropology with a specialization in Historical Archaeology.

Students in the M.A. program do not receive funding from the Department of Anthropology. (For information on other sources of financial aid, M.A. students should contact the Office of Financial Aid of the College of William and Mary).

All requirements for the M.A. degree must be completed within a maximum period of six (6) calendar years after admission to the degree program. Requests for extension beyond the six-year limit must be filed following the procedures outlined in the section entitled "Time Limits for Degrees and Extensions" in the "Requirements for Degrees" section of the graduate catalog. Normally, students are expected to complete the entire 24 semester hours (other than the thesis required for the degree) by the end of the second semester of residence.

Each student must successfully complete 30 semester hours of graduate coursework, including Anthropology 601, 602, 603, 611 and Anthropology 700 (Thesis). All students will register each semester for Anthropology 700 (Thesis) in addition to the normal course load of 12 semester hours. Students who have not had adequate archaeological field experience will be required to enroll in Anthropology 625.

Candidates for the M.A. degree must achieve an overall grade point average of at least 3.0 on a 4.0 scale. Furthermore, any student receiving two grades of "C" or below in any semester will be dropped from the program at the end of that semester. Those who achieve a grade of 'B-' or lower in Anthropology 601, 602, 603 and 611 must retake and pass the course with a grade of 'B' or higher.

Each student will write a thesis on a research topic approved by the Director of Graduate Studies and the student's thesis committee. A thesis proposal must be submitted to the

Director for approval no later than April 1 of the student's year in residence. A list of possible thesis committee members and a schedule for completion of the thesis should be included. It is the student's responsibility to form the committee based on the guidelines above. In turn, it is the responsibility of the thesis chair and the committee members to confirm their willingness to the Director to serve on the committee, and to approve the thesis topic. The thesis should be equal in content to a publishable article. The final text of the thesis should be from 50 to 100 pages in length. The thesis should contain a clearly stated problem, relevant data and theoretically informed analysis. All theses must be submitted by March 15 for May graduation and by October 15 for December graduation. All theses and signed defense forms must be filed with the Director on or prior to College deadlines as well.

## Department Requirements for the Degree of Doctor of Philosophy

(see p.27 for general College requirements)

With Specialization in Historical Archaeology and Historical Anthropology the doctoral program in anthropology is designed for students who wish to specialize in Historical Archaeology or Historical Anthropology and who wish to pursue original, advanced research with a doctorate.

All requirements for the doctoral degree must be completed within a maximum of seven (7) calendar years after passing the qualifying exam. Requests for an extension beyond the seven-year limit must be filed following the procedures outlined in the section entitled "Time Limits for Degrees and Extensions" in the graduate catalog. Students entering the program will normally spend at least three years of full-time graduate study and one year of dissertation preparation at William and Mary. Each student must complete 36 semester credits beyond the M.A. plus at least 6 credits of dissertation work at the 800 level.

All doctoral students will receive tuition and a stipend for each of the four years they are in residence. Financial assistance is also available for summer research. Pending admission, students with national fellowships are welcome to the program. Funding is contingent on the performance of the student, and each student must show satisfactory progress as determined by the department's Graduate Committee in order to remain in good standing. A separate application is not necessary for financial aid. All fees must be paid in accordance with College guidelines to maintain active status in the program.

Students will pursue their studies in either Historical Archaeology or Historical Anthropology. At the same time, students in both tracks will be required to take courses in each of the four subfields of anthropology and build general proficiency in the discipline as a whole. This approach is designed to produce graduates who are maximally equipped to succeed in the job market for teaching positions, which often demand mastery of anthropology as a four-field discipline.

Within each track, students will be provided with both a shared core and sufficient latitude so that they can take courses addressing their individual interests. Because historical archaeology and historical anthropology are built on a common theoretical base, and because they are strongly complementary specializations, students in the two tracks will take some of their courses together.

All students will take at least one course in each of the following areas: social/cultural theory; biological anthropology; archaeological theory; anthropological linguistics; and quantitative methods. In addition, students in the Historical Archaeology track will take courses in historical and documentary archaeology, while students in the Historical Anthropology track will take courses in ethnographic history and theory. Some courses in biological anthropology may also satisfy these requirements in either track. The total

requirement for coursework will be 60 credit hours beyond the B.A. or 36 hours beyond the M.A. Students are encouraged to take graduate courses in History, American Studies and Geology.

Candidates for the Ph.D. degree must achieve an overall grade point average of at least 3.0 on a 4.0 scale. Furthermore, any student receiving two grades of "C" or below in any semester will be dropped from the program at the end of that semester.

In addition to coursework, each student will be required to: produce an M.A. paper of potentially publishable quality; display a firm reading knowledge of one foreign language; write a dissertation that is based on original research and of potential publishable quality; perform satisfactorily in the context of an oral dissertation defense conducted by a faculty committee.

Normally, all students receiving financial aid are expected to be in residence at the College. Doctoral students who receive four-year departmental financial awards are expected to serve as teaching/research assistants or teaching fellows for at least six of the eight semesters under the award.

Prior to admission to candidacy, each student must pass a reading examination in a language of scholarship relevant to their research interests; the language selected should be useful in reading the literature in his or her field of study. In no case may students be admitted to candidacy without successfully completing the language requirement. Language examinations will be held on specified dates in the fall and spring. In some cases an additional reading language or field language may be necessary to conduct effective research.

In the fall semester of their third year, students will develop a preliminary dissertation proposal. On the basis of this proposal, and in consultation with their dissertation committees, students will prepare a set of position papers. The papers will explore the key theoretical concerns, methodological issues, and ethnographic and historical data that are addressed in the student's dissertation research. These papers, along with the dissertation proposal, will incorporate a thorough review of the literature relevant to this research, and will be the foundation for the student's admission to doctoral candidacy.

Early in the spring of their third year, students must pass a qualifying examination. This will be an oral exam, conducted by the student's dissertation committee, in which students will be responsible for all of the materials in their position papers. Students who pass their qualifying examination will revise (as needed) and defend their dissertation proposal before the end of their third year. The proposal defense will be open to all members of the Anthropology Department, and evaluated by the student's dissertation committee.

By April of the second year of study each student must have completed an article-length paper of publishable quality, on the basis of which they may petition for the award of a Masters Degree in Anthropology.

Doctoral students who have not received their M.A. degrees from William and Mary or another accredited institution by the May commencement of their second year of graduate study will not be eligible for continuation of financial aid until this degree is completed.

Each candidate for the Ph.D. must submit an acceptable dissertation based on original research and constituting a contribution to scholarly knowledge. A dissertation committee, consisting of at least four members, one of whom must be from outside the student's major department or program, shall be named by the Dean of Research and Graduate Studies, upon the recommendation of the Department. At least one member of the doctoral dissertation committee other than the director must read and approve the draft of the dissertation before it is typed in final form and submitted to the other members of the dissertation committee.

Before graduation, each doctoral student must have registered for at least six (6) credits of Anthropology 800 (Dissertation). Faculty members will not be available for supervision of dissertations during the summer months, except by prior arrangement.

Students will be awarded letter grades for all class performance, and each student will be evaluated based on coursework and the completion of their M.A. paper and presentation. Third year students will be advanced to Ph.D. candidacy based on the outcome of their qualifying exam. Only students whose performance is deemed satisfactory will be permitted to continue in the program (GPA must remain above 3.00), and all students will be formally notified of their status and performance each year by the Director of Graduate Studies.

There will be an annual evaluation of each student. By May 1 the student should submit a list of activities carried out during the previous year.

See the Anthropology Department's Web page, [www.wm.edu/anthropology](http://www.wm.edu/anthropology), for additional information about requirements and course of study.

## Description of Courses

### 526. Foodways and the Archaeological Record.

*Spring (3) Bowen.*

Archaeological perspective on how hunting/gathering/agricultural societies have procured, distributed, prepared and consumed food. An emphasis will be placed on relevant anthropological theories and the practice of interpreting archaeological remains.

### 527. Native People of Eastern North America.

*Spring (3) Bragdon.*

This course treats the native people of eastern North America as they have been viewed ethnographically, theoretically and historically. Students will apply anthropological theory to historical and contemporary issues regarding native people of the eastern United States, and develop critical skills through reading, research and writing about these people.

### 529. Exploring the Afro-American Past.

*Spring (3) R. Price.*

A study of the commonalities and differences across Afro-America from the U.S. to Brazil. Works in anthropology, history, and literature will be used to explore the nature of historical consciousness within the African Diaspora and diverse ways of understanding the writing about Afro-American pasts.

### 532. Maroon Societies.

*Not offered in 2003-2004 (3) R. Price.*

An exploration of the African American communities created by escaped slaves throughout the Americas, from Brazil up through the Caribbean and into the southern United States. Emphasis on the processes by which enslaved Africans from diverse societies created new cultures in the Americas, on the development of these societies through time, and on the present-day status of surviving maroon communities in Suriname and French Guiana, Jamaica, Colombia and elsewhere.

### 550. Archaeological Conservation (I).

*Fall (3) Moyer.*

An introduction to the theory and practice of archaeological conservation, including systems of deterioration, treatment, and storage. The first semester emphasizes the material science and technological underpinnings of archaeological artifacts.

**551. Archaeological Conservation (II).***Spring (3) Moyer.*

In the second semester, students receive instruction and experience in the laboratory treatment of artifacts from 17th to 19th century archaeological sites in North America and the West Indies.

**552. Comparative Archaeology of British Expansion: Ireland and North America.***Fall or Spring (3) Horning. No prerequisites.*

The course examines the commonalities between the 16th and 17th century extension of British control over Ireland and the British colonization of eastern America as reflected in the archaeological record, and considers the divergence of contemporary identity politics stemming from this British colonial expansion.

**553. Zooarchaeology.***Spring (4) Bowen.*

An introduction to the identification and interpretation of animal bones recovered from archaeological sites.

**554. Quantitative Research Methods in Anthropology.***Fall (3) Gullivan.*

Introduction to the design and implementation of quantitative research in anthropology. Statistical methods covered include those used in describing and interpreting archaeological, biological, ethnographic and linguistic data. The course focuses on exploratory data analysis, probability, sampling, hypothesis testing, correlation and regression.

**555. Practicing Cultural Resource Management.***Spring (3) Gullivan.*

This course introduces students to the practice of cultural resource management (contract archaeology), including hands-on experience in planning, proposal preparation, field and laboratory strategies, project management, and the reporting process.

**556. Human Skeletal Biology.***Fall or Spring (3) Blakey. No prerequisites.*

This course covers technical aspects of human identification involving skeletal remains. These techniques include bone and tooth identification, age and sex estimation, and methods for the assessment of nutrition and disease in archaeological populations.

**557. The Archaeology of Colonial Williamsburg and Tidewater Virginia.***Spring (3) Brown.*

This course examines the archaeological research on sites located in and around Williamsburg, the capital of the colony of Virginia from 1699-1781. The course explores the contributions that archaeological research has made to understanding the development of Jamestown and Williamsburg, in relation to a regional, plantation-based economy and society. Consideration is also given to larger issues surrounding the relative position of Williamsburg and its hinterland within the Atlantic World. Specific comparisons will be made with the development of other English colonies such as Bermuda and Barbados.

**558. Historical Archaeology of the West Indies and Bermuda.***Fall (3) Barka.*

The archaeology of western Atlantic islands for the period 1492-1900 AD. The pre-Columbian background, contact between indigenous and European groups, European

settlement and island development will be examined through recent archaeological work on urban settlements, military forts, commercial structures, sugar mills and others.

### 572. Ethnographic History.

*Not offered in 2003-2004 (3) R. Price.*

Critical readings of recent works by anthropologists and historians, with an emphasis on cross-disciplinary theory and method.

### 575. Globalization, Democratization and Neonationalisms.

*Spring (3) Staff.*

The aim of this course is to develop an anthropological understanding of some of the most salient processes such as ethnic revival/conflict, democratization and the rise of neonationalisms, that recast the world into a small/single place, as well as cultural imageries and the heightening of consciousness of the world as a whole.

### 576. National Formations and Postcolonial Identities.

*Fall or Spring (3) Staff.*

This course explores how indigenous practices shaped nations and identities in non-European worlds. In addition to scholarly studies, the class reads historical novels, autobiographical accounts and political manifestoes written by individuals who, mobilizing the indigenous past, orchestrated the construction of 'sovereign' nation-states.

### 581. Artists and Cultures.

*Not offered in 2003-2004 (3) S. Price.*

This course will explore the artistic ideas and activities of people in a variety of cultural settings. Rather than focusing primarily on formal qualities (what art looks like in this or that society), it will examine the diverse ways that people think about art and artists, and the equally diverse roles that art can play in the economic, political, religious, and social aspects of a cultural system. Materials will range from Australian barkcloth paintings to Greek sculptures, from African masks to European films.

### 582. Arts of the African Diaspora.

*Spring (3) S. Price.*

An exploration of artistic creativity in the African Diaspora. Consideration of tradition and art history, the articulation of aesthetic ideas, cross-fertilization among different forms and media, the role of gender, the uses of art in social life, the nature of meaning in these arts, and the continuities with artistic ideas and forms in African societies.

### 584. Collecting and Exhibiting Culture.

*Fall (3) S. Price.*

The process of assembling material artifacts across cultural boundaries. The course will examine the history of field collecting in different parts of the world, questions of cultural ownership, theories of acquisition and preservation used by museums and private collectors, and issues in the exhibiting of both objects and people. Readings will draw mainly on material from Canada, the U.S., Mesoamerica, the Caribbean, Africa, and Europe.

### 586. Cultural Politics of Art.

*Not offered in 2003-2004 (3) S. Price.*

Exploration of the cultural and political world of art as experienced by artists, museum visitors, gallery owners, teachers, collectors, curators, critics, and charlatans. Class discussions will consider anthropological and art historical perspectives in addressing questions central to both disciplines.

**590. Writing and Reading Culture.***Spring (3) R. Price.*

Trends in ethnography (and ethnographic history), during the past two decades. Students will begin with a "classic monograph," go on to read about the "crisis" in representation as depicted by Clifford and Marcus, and then devote themselves to a critical analysis of a range of more recent work.

**592. Biocultural Anthropology.***Spring (3) Blakey.*

Recent advances in the study of interactions between human biology and culture are examined. Biocultural anthropology extends beyond the limitations of evolutionary theory, employing political and economic perspectives on variation in the physiology and health of human populations.

**600. Anthropological Theory I.***Fall (3) Staff.*

The course will discuss major concepts, theories and findings in Cultural and Social Anthropology. Students will be introduced to the history of thought within the discipline from 19th century evolutionism to post-modernism.

**601. Anthropological Theory II.***Spring (3) Staff.*

A continuation of ANTH 600, Anthropological Theory.

**602. Biological Anthropology.***Fall or Spring (3) King.*

Anatomy and behavior of nonhuman primates, fossil hominids, and modern human populations are analyzed via theories and methods in biological anthropology. Emphasis is given to construction of models for understanding the evolution of human behavior, focusing on bipedalism, technology, and language.

**603. Archaeological Theory.***Fall (3) Barka.*

An examination of the major concepts and methodological approaches in prehistoric archaeology as background for the understanding of historical archaeology.

**604. Archaeological Method.***Spring (3) Barka.*

A general introduction to field and laboratory techniques of prehistoric and historical archaeological research.

**605. Anthropological Linguistics.***Spring (3) Staff.*

This course will examine the history and theories of linguistic anthropology. Focus will be on the ways in which linguistics has influenced the development of anthropological theories concerning cognition and practice.

**606. Documentary Anthropology.***Fall (3) Staff.*

Introduction to methods and theories of text analysis for archaeological and anthropological research. Structural, symbolic and cognitive models of culture are presented. Emphasis is on the integration of these models, the use and evaluation of documents by historical archaeologists, and research with primary historical data.

**607. Bioarchaeology and the African Diaspora.**

*Spring (3) Blakey. No prerequisites.*

This course is a graduate seminar on the use of paleopathological and paleodemographic data derived from human skeletons uncovered at archaeological sites. The historic archaeological sites of the African Diaspora in the Americas provide the comparative examples of the course.

**610. Artifacts.**

*Spring (3) Barka.*

An examination of Euro-American ceramics, glassware, tobacco pipes and other portable artifacts of the period c.1600-1900 A.D. Students will learn how to date, identify, and analyze classes of objects from historic archaeological contexts, as well as how to obtain information pertaining to technology, function, and social and economic status.

**611. Historical Archaeology.**

*Spring (3) Brown.*

An historical review of the method and theory of American historical archaeology, with emphasis upon specific research strategies and accomplishments in relation to the broader study of American material culture. The role of historical archaeology within historic preservation, cultural resource management, and historic museums will also be considered.

**612. American Material Culture.**

*Fall (3) Staff.*

This course examines American life and culture, past and present, through its material artifacts. It focuses on the historical development and behavioral aspects of American material culture as revealed by archaeological and documentary research. The relationship of material culture including vernacular architecture, ceramics, glass, mortuary art, and other household and industrial artifacts, and various social dimensions, such as social class, gender and ethnicity, will be explored.

**613. Historical Archaeology of the American South.**

*Spring (3) Horning. No prerequisites.*

The course tests the notion of Southern uniqueness and Southern identity against an array of archaeological evidence dating from the earliest colonial settlements through to the archaeology of the Depression era.

**615. North American Prehistory.**

*Spring (3) Staff.*

A seminar on the prehistory of North America north of Mexico. Topics covered are: the peopling of North America, the cultural development of indigenous peoples, the archaeology of Native Americans, and the cultural processes that attempt to explain North American culture history.

**617. Special Topics in Anthropology.**

*Fall and Spring (3,3) Staff.*

**625. Field Work in Archaeology.**

*Summer (6) Barka, Brown.*

The application of archaeological methods to an individual field project within the framework of a supervised archaeological field program.



**630. Writing and Publishing in Anthropology.***Not offered in 2003-2004 (3) S. Price.*

A practical introduction to the whole range of writing and publishing activities engaged in by anthropologists, this course will cover techniques, conventions, and practices regarding grant proposals, book reviews, CVs, articles, abstracts, books, research reports, and job applications. We will consider submission procedures, the editing process, design considerations, distribution and marketing, legal issues, and ethical questions. The intent will be to demystify an aspect of the life of professional anthropologists that students are often left to discover on their own. In addition to substantial readings, there will be a writing assignment every week.

**695. Independent Study in Anthropology.***Fall and Spring (3) Staff.*

An independent study course involving reading, writing, and discussion on a relevant topic. Permission of the Director of Graduate Studies required.

**700. Thesis.***Fall and Spring (hours and credits to be arranged) Staff.***701. Issues in Historical Anthropology.***Fall and Spring (3) Staff.*

An examination of selected topics in cultural anthropology. Course may be repeated if there is no duplication of material.

**702. Issues in Historical Archaeology.***Fall and Spring (3) Staff.*

An examination of selected topics in historical archaeology. Course may be repeated if there is no duplication of material.

**790. Independent Study.***Fall and Spring (3) Staff.*

A program of extensive reading, writing and discussion in a special area of historical anthropology or historical archaeology for the PhD student. Students accepted for this course will arrange their program of study with an appropriate faculty advisor.

**800. PhD Dissertation.***Fall and Spring (hours and credits to be arranged) Staff.*

Directed study for the doctoral dissertation.

**Summer Field Schools in Historical Archaeology**

The Department of Anthropology will offer Summer Field Schools or research opportunities in Historical Archaeology on the islands of St. Eustatius and/or St. Maarten, Dutch West Indies, and Bermuda, and at a historical site in Colonial Williamsburg and/or surrounding area. Graduate students will enroll in Anthropology 625.

## Applied Science Department

PROFESSORS **Eric L. Bradley**, (Chair), (Ph.D., University of California, Santa Barbara), **Michael J. Kelley** (Ph.D., Rensselaer Polytechnic Institute), **Dennis M. Manos** (CSX Professor of Applied Science) (Ph.D., Ohio State University), **Robert L. Vold** (Ph.D., University of Illinois, Urbana). ASSOCIATE PROFESSOR **Mark K. Hinders** (Ph.D., Boston University), **Brian C. Holloway** (Ph.D., Stanford University), **Gunter Luepke** (Ph.D., University of Göttingen). ASSISTANT PROFESSORS **Christopher A. Del Negro** (Ph.D., University of California, Los Angeles), **Gregory D. Smith** (Ph.D., University of California, Davis). COURTESY PROFESSORS **Charles R. Johnson** (Mathematics) (Ph.D., California Institute of Technology), **Rex K. Kincaid** (Mathematics) (Ph.D., Purdue University), **William J. Kossler** (Physics) (Ph.D., Princeton University), **Henry Krakauer** (Physics) (Ph.D., Brandeis University), **David E. Kranbuehl** (Chemistry) (Ph.D., University of Wisconsin), **Lawrence M. Leemis** (Mathematics) (Ph.D., Purdue University), **Chi-Kwong K. Li** (Mathematics) (Ph.D., University of Hong Kong), **Robert A. Orwoll** (Chemistry) (Ph.D., Stanford University), **William H. Starnes Jr.** (Chemistry) (Ph.D., Georgia Institute of Technology), **Eugene R. Tracy** (Physics) (Ph.D., University of Maryland), **Robert E. Welsh** (Physics) (Ph.D., Pennsylvania State University). ADJUNCT PROFESSORS **H. Frederick Dylla** (Ph.D., Massachusetts Institute of Technology), **Joel S. Levine** (Ph.D., University of Michigan), **Eric I. Madaras** (Ph.D., Washington University), **Robert J. Mattauch** (Ph.D. North Carolina State University), **Gregory B. Tait** (Ph.D., Johns Hopkins University), **Robert G. Voigt** (Ph.D., University of Maryland), **William P. Winfree** (Ph.D., College of William & Mary). COURTESY ASSOCIATE PROFESSORS **Roy C. Mathias** (Ph.D., Johns Hopkins University), **Margaret S. Saha** (Biology) (Ph.D., University of Virginia), **Michael Trosett** (Mathematics) (Ph.D., University of California, Berkeley), **Hugo J. Woerdeman** (Mathematics) (Ph.D., Vrije Universiteit), **Shiwei Zhang** (Physics) (Ph.D., Cornell University). ADJUNCT ASSISTANT PROFESSORS **Walter Silva** (Ph.D., College of William and Mary), **Mark Smith** (Ph.D., University of California, San Diego), **Andrew Weisenberger** (Ph.D., College of William and Mary). COURTESY ASSISTANT PROFESSOR **J. C. Poutsma** (Chemistry) (Ph.D., Purdue University). RESEARCH PROFESSOR **Ronald A. Outlaw** (Ph.D., Virginia Polytechnic Institute) RESEARCH ASSOCIATE PROFESSOR **Zia-ur Rahman** (Ph.D., University of Virginia). DISTINGUISHED VISITING PROFESSOR **Shenggang Liu** (Ph.D., Academician of Chinese Academy of Science). VISITING SCIENTISTS **Catherine Chisolm-Brause** (Ph.D., Stanford University), **Qiguang Yang** (Ph.D., Chinese Academy of Science). RESEARCH SCIENTIST **Jianjun Wang** (Ph.D., University of Science and Technology Beijing). RESEARCH ASSOCIATES **W. Jason Gammon** (Ph.D., College of William & Mary), **Marco A. Huertas** (Ph.D., College of William & Mary), **Bori Mazzag** (Ph.D. University of California, Davis), **Yuhang Ren** (Ph.D., College of William & Mary) **Jonathan C. Stevens** (B.S. College of William & Mary).

The Department of Applied Science offers an interdisciplinary graduate program in the physical sciences, which leads to the M.S. and Ph.D. degrees. The program is offered cooperatively by the core faculty of Applied Science along with affiliated faculty from the Departments of Biology, Chemistry, Computer Science, Mathematics, Physics, and the Virginia Institute of Marine Sciences (VIMS), as well as from the NASA Langley Research Center (LaRC) and the Thomas Jefferson National Accelerator Facility (Jefferson Lab). The main focus of the Department is to improve processes to create and use high-value materials and to expand the range of measurement, test, and characterization methods. Applied Science students perform their thesis research in the laboratories at William and

Mary, Jefferson Lab, and LaRC. The coursework component of each student's curriculum is highly flexible and is planned in consultation with his or her faculty advisory committee.

The Department assumes that students entering the program have had an undergraduate concentration in a physical science, mathematics, or engineering discipline. Information about the Department and applications for admission can be obtained from the Chair of Applied Science. It is required that each applicant submits the results of the general test and one subject test from the Graduate Record Examinations. Students from non-English speaking countries must submit TOEFL scores. Applications must be completed by 5:00 p.m. the first Friday of February for entrance into the Department Fall semester. Spring semester applications must be completed by 5:00 p.m. the second Friday in October.

## **Department Requirements for the Degrees of Master of Science, and Doctor of Philosophy**

*(See p. 26-27 for general College requirements.)*

The student and his or her advisory committee will plan a coherent degree program that best suits the student's educational goals. Students within the department will take a program of courses designed to meet their individual needs. For most students this will include the department's core sequence D APSC 603, 604, 607, 608, 621, and 622. Due to the different backgrounds, previous preparation, and career goals, not all Applied Science students will take the full core sequence. However, unless otherwise exempted by the department, students will be responsible for the material covered in the entire core. All students are required to take APSC 603 and APSC 604, the full sequence of Introduction to Scientific Research.

The Applied Science Faculty must approve thesis programs. A student in the Department must maintain a B average in order to remain in good standing.

### **MASTER OF SCIENCE**

The student must successfully complete the program of courses approved by the Applied Science Faculty. The requirements for this degree may be met either 1.) 24 hours of graduate credit, and an original thesis approved by the student's advisory committee and defended in an oral examination or 2.) 32 hours of graduate credit to include Applied Science 710.

### **DOCTOR OF PHILOSOPHY**

The candidate must successfully complete the program of courses approved by the Applied Science Faculty. He or she must pass a comprehensive qualifying examination designed to demonstrate competence in his or her field of study. The candidate must carry out a substantial original research project. The dissertation describing this research must be approved by the student's advisory committee and successfully defended in a public oral examination. Students have seven (7) years from the qualifying exam pass date to complete the degree requirements. Extensions to this time limit are considered according to the Extensions Policy as outlined at the front of the catalog.

## **Description of Courses**

*(See Explanation of Course Descriptions)*

Many of the courses for Applied Science are described in Chemistry, Computer Science, Mathematics, and Physics sections of this catalog. Wherever a William and Mary course is specified as a prerequisite or corequisite, it is understood that an equivalent course, taken

at another institution, may be substituted. Typically, Readings in Applied Science differs from Topics in Applied Science in that a topic implies regular meetings in a course/lecture format.

### **525. Introduction to Solid Surfaces and Interfaces.**

*Fall (3) Prerequisites: Chemistry 302 or Physics 313.*

An introduction to deposition, patterning, and properties of thin films emphasizing microelectronic applications. Plasma techniques are described for physical and chemical deposition, growth, and etching of thin films. Ion and neutral atom interactions with solids are reviewed, including diffusion, implantation, scattering, reflection, chemical reaction, and sputtering. Also treated are methods of characterization and measurement including SEM, Auger spectroscopy, and ESCA.

### **601. Computational Methods for Molecular Dynamics.**

*Spring (3) Prerequisites: Working knowledge of elementary statistical mechanics, ability to program in Fortran and/or C, access to at least a Pentium-level computer, and consent of the instructor.*

This course is intended to give graduate students the ability to design and implement molecular dynamic simulations, which are useful in their research projects. Topics to be covered include Newtonian and Langevin dynamics, periodic boundary conditions, constraint forces, correlation functions, and selected applications in chemistry and physics.

### **603. Introduction to Scientific Research I.**

*Fall (2) Prerequisite: Consent of the instructor.*

This course, designed for the first year graduate student, acquaints them with the range and scope of research opportunities in Applied Science. Following a series of introductory talks by Applied Science faculty, students participate in a series of 'rotation periods' to become familiar with the activities of particular research groups. These periods run for several weeks, during which students participate in group meetings of the selected faculty's research program.

### **604. Introduction to Scientific Research II.**

*Spring (2) Prerequisite: Applied Science 603 and consent of instructor.*

Continuation of Applied Science 603.

### **607. Mathematical and Computational Methods I.**

*Fall (4)*

This course is a survey of important mathematical principles and techniques used to solve problems encountered in a variety of scientific disciplines and industrial applications. These disciplines and applications include chemistry, physics, and materials science. Computation is a major aspect of the course and will occupy a substantial portion of the curriculum. Computational instruction will include both analytical and numerical techniques and will make use of symbolic and numerical software packages.

### **608. Mathematical and Computational Methods II.**

*Spring (4) Prerequisite: Applied Science 607 or consent of instructor.*

Continuation of Applied Science 607.

### **621. Principles of Material Science.**

*Fall (4)*

Students learn advanced concepts for bonding, macromolecular ordering, and structure-property relationships in materials. The course begins with macromolecular bonding

as it relates to material dipoles, crystallographic ordering, and surfaces/interfaces. The second unit focuses on processing and morphology involving metals, ceramics, polymers, composites, adhesives, plasticizers, and solvents. The final portion of the course considers material interactions (with other materials or with electromagnetic radiation). Feynman's Coupled States approach is invoked for determining energies of electronic states arising in solid materials. Reduction/oxidation potentials, acidity/basicity, corrosion, adsorption, adhesion, electronic mobility/polarizability, and optical phenomenon are discussed in the context of the perturbation or interaction of electronic states.

#### **622. Quantitative Materials Characterization.**

*Spring (4) Prerequisite: Applied Science 621.*

This course presents a wide variety of means by which the properties and characteristics of materials can be experimentally determined. These include electrical, optical, acoustic, thermal, spectroscopic, and resonance methods. The objective is to discuss these separate means under the umbrella of 'fundamental of interactions of matter with particles and waves'. The course will address issues of data acquisition, such as sampling, discretization, and signal processing. Applications of these techniques to research in materials development, synthesis, processing, and in situ manufacturing of devices and/or structures will also be discussed.

#### **625. Device Processing.**

*Fall (3) Prerequisites: Chemistry 302 or Physics 313 and Mathematics 302.*

This course is an introduction to the applied science of thin film devices and manufacturing. The course covers vacuum physics and technology, microstructure in thin film nucleation and growth, film deposition methods, surface implantation, and lithography and patterning. Plasma, ion, and neutral atom interactions with solids are described. The fundamentals of the electronic properties of thin films and semiconductor device physics will be presented, including the relationship between processing methods, device damage, and device performance.

#### **627. Lasers in Medicine, Science, and Technology.**

*Spring (3) Prerequisites: Physics 101/102 or Physics 107/108.*

A basis for understanding and use of lasers and modern optics in medicine, science, and technology. Particularly interaction of laser beams with biological materials and tissue, refractive surgery, spectroscopic applications including Raman and fluorescence imaging, laser remote sensing, and laser safety.

#### **637. Introduction to Optoelectronics.**

*Spring (3) Prerequisites: Physics 621, Physics 741, and APSC 627 is recommended.*

This course is a comprehensive introduction to waveguide optics and photonics in semiconductor structures, and provides the basic knowledge for understanding the concepts of optoelectronic devices for transmission and processing of optical signals. These optical communications engineering devices are becoming increasingly important for optical disk storage systems, optical chip-chip interconnections and optical fiber transmission and exchange.

#### **647. Correlated Electron Systems.**

*Fall (3) Physics 621, and Physics 741 is recommended.*

This course is concerned with the microscopic aspects of magnetic and superconducting states encountered in nature, their properties, and possible technological applications. These purely electronic phenomena cannot be explained within the independent-

electron (Hartree-Fock) approximation, i.e. traditional band theory. They involve strong electron correlation effects and require many-body theory. The following topics will be discussed: Itinerant Electron Magnetism, Spin Waves, BCS Theory of Superconductors, Vortices in Type II Superconductors, Josephson Effect, and Quantum Interferometers. The course can be understood with minimal prerequisites and the mathematical techniques used are fairly elementary. However a basic knowledge of spin and angular momentum is essential, since quantum mechanics lies at the heart of both magnetism and superconductivity.

#### **651. Cellular Biophysics**

*Spring (3) Prerequisites: Mathematics 111 and 112 or Mathematics 113.*

This course is an introduction to simulation and modeling of dynamic phenomena in cell biology and neuroscience. Topics covered include membrane transport and

diffusion, the biophysics of excitable membranes, the gating of voltage- and ligand-gated ion channels, intracellular calcium signaling, and electrical bursting in neurons and other cell types.

#### **654. Introductory Bioinformatics**

*Fall (3) Prerequisites: Mathematics 111 and 112 or Mathematics 113, Biology 203 Computer Science 141 or permission of instructor.*

This course is an introduction to the basic algorithms of computational molecular biology including nucleotide and amino acid sequence comparison, DNA fragment assembly, phylogenetic tree construction, and RNA and protein secondary structure prediction.

#### **681. Patent Law.**

*Spring (2)*

The course will present the essential principles of the patent law, as well as significant policy considerations which are the basis for any patent doctrines. Highlighted will be decisions of the Supreme Court and the Court of Appeals for the Federal Circuit.

#### **\*\*690. Readings in Applied Science.**

*Fall, Spring and Summer (Hours and credits to be arranged).*

Subject and text to be selected by the instructor and the students.

#### **\*\*691. Topics in Applied Science.**

*Fall, Spring and Summer (Hours and credits to be arranged).*

Subject and text to be selected by the instructor and the students.

#### **\*\*692. Colloquium in Applied Science.**

*Fall and Spring (variable - 1 to 3 credits)*

#### **694. Internship.**

*Fall, Spring and Summer (Hours and credits to be arranged).*

Research in accelerator science, atmospheric science, polymer science, or quantitative materials characterization at the NASA-Langley Research Center in Hampton or the Thomas Jefferson National Laboratory (TJNAF) in Newport News. Approval of the Director of Applied Science is required prior to enrollment.

#### **\*\*695. Research.**

*Fall, Spring and Summer (Hours and credits to be arranged).*

**698. Scientific Writing for Publication and the Dissertation.***Fall*

Overview of organization techniques for journal publication, with emphasis on writing conventions. Students should have a research project in progress. Frequent writing, with emphasis on revision is required. This course has a special focus on problem areas for non-native speakers.

**\*\*700. Thesis.***Fall, Spring and Summer (Hours and credits to be arranged).***701. Fundamentals of Data Acquisition and Signal Processing.***Fall (3) Prerequisites: Mathematics 211, 212, and 302.*

Data acquisition of signals; sampling and discretization; the sampling theorem; undersampling and aliasing; convolution; correlation; frequent domain representation and analysis; discrete Fourier transform and FFT spectrum and filters; power spectrum estimation; z-transform and time-representation and analysis; wave shaping.

**710. Research Project.***Fall and Spring (2)*

Students will select a faculty advisor in their area of research interest, undertake a research project, and write a paper describing their research. This course is normally taken after a student has completed 18 credit hours toward the MS degree. However, students are advised to begin the process of selecting a research area and an advisor, and to begin meeting with the advisor before completing 18 credits. It is not open to students who receive credit for APSC 700.

Students wishing to register for APSC 710 must submit a short abstract describing their research project to the Graduate Director at least two weeks before the class is scheduled to begin. The faculty member who will direct the research must sign this abstract. Any tenure track faculty may direct a research project. Any student, who is unable to convince any other faculty member to be their APSC 710 advisor, will be assigned to the Applied Science graduate program director. Any student in this situation must still submit a short abstract to the Graduate Director for approval at least two weeks before the semester begins. Completion of the course includes completion of the project, writing a report and receiving approval from the advisor. All requirements must be completed by the last day of classes (not of the exam period) for the student to receive credit in a given semester.

**721. Metallic Materials Characterization.***Fall (3) Prerequisite: Mathematics 302.*

Examination of the intrinsic structure and defective nature of materials, particularly metals and metal composites, with emphasis on structure, strengthening mechanisms, defect growth, response to temperature, and environmental deterioration.

**722. Quantitative Nondestructive Evaluation I.***Fall (3)*

An overview of techniques and physical principles for determining material properties and detecting and characterizing defects in materials. Ultrasonic and thermographic methods receive special emphasis.

**723. Quantitative Nondestructive Evaluation II.***Spring (3) Prerequisites: Applied Science 722.*

This course is a continuation of Applied Science 722, and covers nondestructive evaluation techniques such as acoustic microscopy, optical, eddy current and radiographic NDE.

**726. Solid Surfaces and Interfaces.***Spring (3) Prerequisite: Applied Science 625.*

An extension and continuation of the discussion of physical and chemical deposition, growth, and etching of surfaces. Detailed study of plasma-surface interactions of importance for material processing. Diagnostics of plasma, gas phase reactors and solid surfaces. Discussion of plasma sources and diagnostics including parallel plate, electron cyclotron resonance, helicon, lower-hybrid, and other advanced geometries, and the science and technology of manufacturing uses of surface modification methods.

**764. High Performance Composites.***Spring (3) Prerequisite or corequisite: Applied Science 511 or 512.*

Fundamental aspects of high performance composite materials. Topics include organic, inorganic, and carbon fiber reinforcements; fiber/resin interfaces; epoxy and other thermoset matrices; thermoplastic and metal matrices; lamina and laminate properties; static and dynamic mechanical tests; failure and damage tolerance; processing; nondestructive evaluation; resin/composite property relationships; and applications.

**768. Polymer III - Special Topics in Polymer Chemistry.***Spring (2) Prerequisites: Applied Science 511 and 512.*

The students are given a topic relating to Polymer Chemistry. After reviewing the literature on their subject the students are required to present two, one hour, lectures instructing the rest of the class on the material they have reviewed. Typical polymer topics to be covered include liquid crystalline polymers, birefringence, wide and small angle x-ray scattering, neutron diffraction, and other characterization techniques.

**776. Acoustic Wave Propagation in Solids.***Fall (3) Prerequisite: Applied Science 722.*

Wave propagation in solids with emphasis on the evaluation of materials and defects. Linear and non-linear wave propagation, mode analysis and mixing, reflection and refraction at interfaces, and wave scattering from defects in isotropic and anisotropic media will be discussed, along with the relationship between wave behavior and the reconstruction of material constitutive equations. The course also will describe the practical aspects of the generation and detection of acoustic waves for non-destructive evaluation of materials.

**782. Measurement of Material Properties.***Spring (3) Prerequisite: Applied Science 721 or permission.*

An introduction to the principles and techniques of measuring physical and mechanical material properties. Topics include optical, acoustic and electron microscopies (SEM, TEM, SAM, STM); x-ray analysis (diffractometer, Laue camera, EDS and WDS systems); and mechanical testing (tension, creep, hardness, fatigue, fracture toughness and corrosion).



**784. Measurement Methods.***Spring (3)*

Measurement methods and techniques of interest in materials characterization. Topics covered include review of underlying basic science; common instrumental building blocks; incident electromagnetic techniques and related methods; incident particle techniques and related methods; X-ray methods; microscopies and methods involving imaging; considerations for special applications.

**785. Acoustic and EM Scattering.***Spring (3) Prerequisite: Applied Science 776.*

Acoustic, electromagnetic and elastic wave scattering for materials characterization and remote sensing. Subjects to be covered are: field equations, boundary conditions, Green's functions; integral representations and integral equations, scattering amplitude and scattering matrices; plane, spherical and cylindrical scalar and vector wave functions; scattering of waves by spheres and cylinders; inverse scattering techniques.

**\*\*790. Readings in Applied Science.***Fall, Spring and Summer (Hours and credits to be arranged)*

Subject and text to be selected by the instructor and students.

**\*\*791. Topics in Applied Science.***Fall, Spring and Summer (Hours and credits to be arranged)*

Subject and text to be selected by the instructor and students.

**\*\*792. Colloquium in Applied Science.***Fall and Spring (variable - 1 to 3 credits).***794. Internship.***Fall, Spring and Summer (Hours and credits to be arranged).*

Research in accelerator science, atmospheric science, polymer science, or quantitative materials characterization at the NASA-Langley Research Center in Hampton or the Thomas Jefferson Labs (TJNAF) in Newport News. Approval of the Chair of Applied Science is required prior to enrollment.

**\*\*795. Research.***Fall, Spring and Summer (Hours and credits to be arranged).***\*\*800. Doctoral Dissertation.***Fall, Spring and Summer (Hours and credits to be arranged).*

## Biology

**PROFESSORS** Lawrence L. Wiseman (Chair) (Ph.D., Princeton), Eric L. Bradley (Ph.D., California at Santa Barbara), Norman J. Fashing (Ph.D., Kansas), Stanton F. Hoegerman (Ph.D., North Carolina State), S. Laurie Sanderson (Ph.D., Harvard), Joseph L. Scott (Ph.D., California at Irvine), and Stewart A. Ware (Ph.D., Vanderbilt). **ASSOCIATE PROFESSORS** Lizabeth Allison (Ph.D., University of Washington), Ruth A. Beck (M.Ed., Virginia), Sharon T. Broadwater (Ph.D., William and Mary), Gregory M. Capelli (Ph.D., Wisconsin), Martha A. Case (Ph.D., Michigan State), Randolph M. Chambers (Ph.D., University of Virginia), Paul D. Heideman (Ph.D., Michigan), Margaret Saha (Ph.D., Virginia), and Diane C. Shakes (Ph.D., Johns Hopkins). **ASSISTANT PROFESSORS** Daniel A. Cristol (Ph.D., Indiana at Bloomington), Mark H. Forsyth (Ph.D., Connecticut), George W. Gilchrist (Ph.D., University of Washington), John P. Swaddle (Ph.D., University of Bristol, U.K.), Cindy Lee Van Dover (Ph.D., Massachusetts Institute of Technology and Woods Hole Oceanographic Institution Joint Program), and Patty Zwollo (Ph.D., University of Utrecht). **RESEARCH PROFESSORS** Mitchell A. Byrd (Ph.D., Virginia Polytechnic) and C. Richard Terman (Ph.D., Michigan State). **RESEARCH ASSISTANT PROFESSORS** Todd Bierbaum (Ph.D., Michigan State), Cheryl D. Jenkins (Ph.D., Texas at Austin) and Brian Watts (Ph.D., University of Georgia). **ADJUNCT ASSOCIATE PROFESSOR** Donna M. E. Ware (Ph.D., Vanderbilt). **VISITING ASSISTANT PROFESSOR** Beverly Sher (Ph.D., California Institute of Technology).

## Departmental Requirements for the Degree of Master of Arts

(See p. 25-26 for general College requirements.)

## Admission Requirement

The department requires both the General and an appropriate Advanced GRE.

## Thesis Program

Each student must have a committee consisting of a major adviser and at least two other faculty from the department. This committee will be responsible for supervising the student's research, advising the student regarding coursework and other aspects of the program, and administering a final oral exam at the time of the thesis defense.

In addition to at least 1 credit of Biology 700 (Thesis), a candidate must complete 24 semester hours of courses, of which at least 12 are numbered 600 or above, with a grade average of 'B' or better.

Each student must pass a Graduate Student Qualifying Examination covering basic and advanced principles of biology. The exam is given annually in the Spring semester. Details of the examination and other procedures are provided in the current version of the Biology Department Graduate Handbook.

Each student must also complete a research thesis approved by the committee. The work must be presented in a seminar open to all members of the department; the seminar is followed by an oral examination administered by the committee. Students who wish to work with a specific faculty member are encouraged to contact him or her prior to entering the program.

A minimum residency period of one year is required.

## Non-Thesis Program

Non-thesis students must complete 32 semester hours of courses, at least 16 of which must be numbered above 600, with a grade average of 'B' or better.

Non-thesis students may take up to a total of 3 credits for research, as Biology 690 or Biology 680 (Advanced Topics).

Non-thesis students must also pass a Graduate Student Qualifying Examination.

## General Information

With the approval of his or her committee, a student may take up to 10 credits in other departments. Depending on background and preparation, a student may be additionally required to take one or more undergraduate courses that will not count toward the degree.

Teaching Assistantships will be awarded without reference to track. Both thesis and non-thesis students will be eligible for 4 consecutive semesters of support as long as they remain in good standing. Non-thesis students are not eligible for summer support.

All students must formally designate their intended track by the beginning of their second semester. This date also serves as the deadline for the establishment of a thesis committee for students in the thesis program. After this date, a change may be made only upon approval of the Graduate Committee. Permission for a thesis student to change to the non-thesis program will be given only under extraordinary circumstances and will require repayment of funds received by the student in support of summer research.

All students receiving an Assistantship may not register for more than 12 course credits. For additional information regarding requirements, consult the Department of Biology Graduate Handbook (available upon request).

## Cooperative Program in Secondary School Teaching

For information concerning the cooperative program in Secondary School Teaching with the School of Education write to the School of Education, College of William and Mary.

## Description of Courses

### 501. Evolutionary Genetics.

*Spring (3) Gilchrist. Prerequisite: BIO 204.*

The course is designed to consider evolution as a process: Basic population genetic theory; sources of variation; natural selection; isolating mechanisms and speciation. Three lecture hours.

### 502. Microbiology.

*Fall (4) Forsyth. Prerequisite: BIO 204.*

Homologies are stressed in the study of life using the elementary systems of selected bacteria and other microorganisms. With the ultimate goal of an understanding of current research, the areas covered include classical and modern techniques, biochemistry, sexual and asexual genetics. Two class hours, eight laboratory hours.

### \*504. Topics in Biology.

*Fall and Spring (Credits to be arranged) Staff.*

Areas of special current research interest presented by resident and visiting faculty members as opportunity and demand arise. May be repeated for credit. Hours to be arranged.

### **506. Cell Biology.**

*Fall (3) Shakes.*

An introduction to the principles by which eukaryotic cells function with an emphasis on the molecular biology of cells and experimental approaches to their analysis. Three class hours.

### **507. Cell Biology Laboratory.**

*Fall (1) Shakes. Prerequisite or corequisite: BIO 506.*

An introduction to the use of light and electron microscopy, histological procedures and biochemical techniques, including electrophoresis, centrifugation, respirometry and isotopes. Three laboratory hours.

### **510. Animal Behavior.**

*Spring (3) Cristol. Prerequisite: BIO 206. PSY 201 recommended.*

The study of vertebrate and invertebrate behaviors as adapted traits under the influence of both genes and the environment. Animal behavior, including that of humans and endangered species, will be placed in an ecological and evolutionary context. Three class hours.

### **511. Animal Behavior Laboratory.**

*Spring (1) Cristol. Prerequisites or corequisites: BIO 510 and any course in statistics.*

Alternate years. This lab is not required for students taking BIO 510. Course designed to give students experience in designing and undertaking publication-quality research to solve real questions about animal behavior. Three laboratory hours, out-of-class data acquisition necessary.

### **512. Vascular Plant Systematics.**

*Fall (4) Case. Prerequisite: BIO 205.*

A study of the principles and research methods of vascular plant systematics, emphasizing classification, evolution, and comparative morphology of the major families of vascular plants. Three class hours, four laboratory hours.

### **514. Biochemistry.**

*Spring (3) Coleman. Prerequisites: CHEM 305 or CHEM 308 or consent of instructor.*

A study of the molecular basis of living processes. The chemistry of the important constituents of living matter; energy metabolism; enzyme kinetics; thermodynamics; biosynthesis; metabolic control. Three class hours.

### **515. General Endocrinology.**

*Spring (4) Bradley. Prerequisites: BIO 206, CHEM 307.*

The role of hormones in homeostasis, control of metabolic processes, and reproduction. This is an introductory course and is a prerequisite for Experimental Endocrinology. Three class hours. Four laboratory hours.

### **516. Ornithology.**

*Fall (4) Cristol. Prerequisite: BIO 206. BIO 510, BIO 413 recommended.*

Alternate years. Lectures, laboratory exercises, field experiments and birding trips will provide a comprehensive introduction to the ecology and evolution of birds. Phylogenetic relationships, behavior, conservation and identification of Virginia's avian fauna will be stressed. Three class hours, three laboratory hours, several early morning field trips.

**517. Population and Community Ecology**

*Fall (4) Ware. Prerequisites: BIO 206, 206 or equivalents.*

Discussion of the structure and dynamics of ecological populations and biotic communities. Emphasis will be on environmental constraints and species interactions that control population growth and determine both diversity and similarities in community structure and function. Three class hours, three laboratory hours.

**518. Functional Ecology.**

*(S) Spring (3) Sanderson. Prerequisite: BIO 206. (Alternate years).*

Concepts and approaches in physiological ecology, biomechanics, and ecological morphology. The course emphasizes critical thinking, discussion, and student presentations on journal articles from the primary literature. Hypothesis formulation and methods of data collection and analysis will be studied. Three class hours.

**519. Plant Physiology.**

*Spring (4) Staff. Prerequisites: BIO 205, CHEM 307, 308 recommended.*

Mechanisms of absorption, translocation, synthesis and utilization of materials; the role of internal and external factors in plant growth. Selected laboratory experiments are used to illustrate physiological principles. A research problem is required. Three class hours. Four laboratory hours.

**520. Genetic Analysis.**

*Fall (3) Hoegerman. Prerequisites: BIO 203, 204.*

Discussion of classical and modern genetics. Topics will be drawn from the following: Mendelian inheritance, recombination and linkage, cytogenetics, model genetic systems, mutation analysis, mitochondrial and chloroplast genetics. Three class hours.

**521. Genetic Analysis Laboratory.**

*Spring (1) Hoegerman. Prerequisite or corequisite: BIO 420/520.*

Designed to illustrate genetic principles through experimental work with living organisms, including *Drosophila*, flowering plants and fungi. Three laboratory hours.

**522. Phycology.**

*Fall (4) Scott. Prerequisite: BIO 205.*

A study of eukaryotic algae emphasizing the local marine flora. Systematics, morphology, life histories, development, ecology and economic importance will be presented. The laboratory will offer opportunities for collection and identification of macrophytic marine forms and phytoplankton. Three class hours, three laboratory hours.

**526. Aquatic Ecology.**

*Fall (4) Capelli. Prerequisites: BIO 100 or BIO 204.*

Introduction to the ecology of natural water; discussion of the important physical and chemical characteristics of aquatic environments and the adaptations of organisms living in water; community structure and the important processes affecting it, including major aspects of water pollution. Emphasis is on freshwater communities but various aspects of marine ecology are discussed also. Three class hours, three laboratory hours.

**528. General Entomology.**

*Fall (4) Fashing. Prerequisites: BIO 100, or BIO 203 and 204.*

An introduction to the biology of insects designed to give the student an overview of entomology. Included are such topics as classification, morphology, physiology, behavior, ecology, and economic importance. Three class hours. Four laboratory hours.

### **531. Physiological Ecology of Plants.**

*Spring (3) Ware. Prerequisite: BIO 205. (Alternate years).*

Consideration of the effects of environment on the growth, physiology, and distribution of plants. The factors which determine the adaptability of plants to various habitats will be discussed. Three class hours.

### **532. Principles of Animal Physiology.**

*Fall and Spring (4,4) Bradley, Heideman. Prerequisites: BIO 206, CHEM 307.*

The function of the animal as a whole as indicated by the physiology and interrelationships of different organs and organ systems. The emphasis is on vertebrates, with comparative examples from selected invertebrates. Three class hours. Three laboratory hours.

### **533. Developmental Biology.**

*Spring (3) Saha. Prerequisite: BIO 206.*

An introduction to embryonic and postembryonic developmental processes in animals emphasizing cellular differentiation, the generation of form and shape, growth regulation, cellular recognition and communication, molecular control mechanisms of gene expression, developmental neurobiology, and cancer. Three class hours.

### **534. Developmental Biology Laboratory.**

*Spring (1) Saha. Prerequisite or corequisite: BIO 433/533.*

An intensive examination of molecular techniques as applied to developmental processes; this semester-long laboratory will involve cloning and analyzing a developmentally significant gene. Four laboratory hours.

### **535. Colloquium in Developmental Biology.**

*Spring (1) Staff. Prerequisite: BIO 433/533. (Offered on demand).*

A consideration of specific major areas, problems and current research efforts in developmental biology. Course may be repeated; contents will vary from year to year. One class hour.

### **536. Advanced Cell Biology.**

*Spring (3) Shakes. Prerequisite: BIO 406/506.*

An in-depth study of a specific topic in cell biology based on readings from the current primary literature. Topics will vary but may include the cytoskeleton or cell signaling. Course may be repeated for credit when topics differ. Three class hours.

### **538. Immunology Laboratory.**

*Fall (1) Zwollo. Prerequisite or corequisite: BIO 537.*

An introduction to current techniques available to study immune responses in mice. Includes tissue culture of lymphocytes, measuring antibody levels using ELISA techniques, and detection of proteins expressed during lymphocyte development using Western blot analyses.

### **542. Molecular Genetics.**

*Spring (3) Allison. Prerequisites: BIO 203, 204.*

Molecular genetic of microbial and higher organisms. Replication and repair of DNA synthesis of RNA and protein, control of gene expression, genetic engineering. Three lecture hours.

**545. Neurobiology.**

*Fall (3) Saha. Prerequisites: BIO 203, 206.*

An introduction to the fundamental concepts of neurobiology; this course will cover basic neuroanatomy and electrophysiology, but will emphasize the molecular basis of neuronal development and signaling, including sensory systems, motor systems, learning and memory, behavior, and diseases of the nervous system. Three class hours.

**546. Topics in Nuclear Structure and Gene Activity.**

*Fall (3) Allison. Prerequisite: BIO 442, or permission of instructor.*

An in-depth advanced exploration of the structure of the nucleus and molecular mechanisms of eukaryotic gene regulation, based on readings from the current primary literature. Topics will include mechanisms regulating nuclear import and export of transcription factors and RNA, the role nuclear architecture plays in gene activity and RNA processing, and how failure to appropriately coordinate these processes leads to abnormal or diseased states. Three class hours.

**610. Topics in Animal Behavior.**

*Spring (3) Cristol. Prerequisite: BIO 206. PSY 201 recommended.*

The study of vertebrate and invertebrate behaviors as adapted traits under the influence of both genes and the environment. Students must also attend, complete assignments, and take exams for Biology 510 but are not permitted to register for both classes. Course requires a comprehensive research paper based on library research. Three class hours in lecture plus one hour discussion section.

**627. Wetland Ecosystems.**

*Fall (4) Chambers.*

An investigation of the structure and function of wetland ecosystems, considering their formation and distribution at local, regional and continental scales. Interactions amongst biologic, geologic and hydrologic components in wetland development will be presented in lecture, lab and field exercises. Three class hours, three laboratory hours.

**636. Topics in Advanced Cell Biology.**

*Spring (3) Shakes. Corequisite: BIO 536.*

Current literature in cell biology will be critically reviewed by class members, with students rotating as discussion leaders. Students must also attend and take exams in BIO 536 but are not permitted to register for both classes. Four class hours.

**637. Topics in Immunology.**

*Fall (3) Zwollo.*

Discussions of research articles on topics related to the structure and function of the immune system. Students must also attend, complete assignments, and take exams for BIO 437 (Immunology) but are not permitted to register for both classes. Four class hours.

**639 Gene Regulation.**

*Spring (3) Zwollo. Prerequisites: either BIO 442 or BIO 437 or permission of instructor.*

This course will give students experience in reading and critically analyzing articles from the primary literature. Topics will vary but will involve current research approaches in the field of gene regulation during development of the immune system. Can be taken independently of BIO 437. Course may be repeated for credit when topics vary. Three class hours, one discussion hour.

**646. Topics in Nuclear Structure and Gene Activity.**

*Fall (3) Allison. Prerequisite: BIO 442 or permission of instructor.*

Current literature on the structure of the nucleus and molecular mechanisms of eukaryotic gene regulation will be critically reviewed by class members, with students rotating as discussion leaders. Students must also attend, complete assignments, and take exams for Biology 546 but are not permitted to register for both classes. Four class hours.

**647. Neurophysiology.**

*Spring (4) Griffin. Prerequisites: BIO 203, BIO 206, or permission of instructor.*

An exploration into the basic concepts related to the activity of the nervous system. The course will focus on electrical and chemical signaling within the nervous system and the ability to control and regulate other physiological systems. Three class hours, three laboratory hours, one discussion hour.

**648. Evolutionary Biology.**

*Spring (3) Swaddle. Prerequisite: BIO 204 or 206.*

An introduction to the mechanisms and outcomes of evolution. Examples are drawn from many disciplines (e.g. genetics, behavior, and paleontology) to discuss how researchers study the evolution of organisms and develop evolutionary theory. Emphasis will be given to organismal processes. Three class hours.

**651. Topics in Entomology.**

*Fall (4) Fashing. Corequisite: BIO 528.*

Current literature in selected fields of entomology will be critically reviewed by class members, with students rotating as discussion leaders. Students must also attend lectures and take exams in Biology 528 but are not permitted to register for both courses. Four class hours, four laboratory hours.

**652. Cytogenetics.**

*Spring (4) Hoegerman. Offered on demand*

Components of cells as related to genetics. Preparation and study of chromosomes with approximately equal time spent on plant and mammalian materials. Three class hours. Three laboratory hours.

**653. Molecular Biology Laboratory.**

*Spring (1) Staff. Corequisite: BIO 542.*

Exercises illustrating current techniques in the field of molecular biology, including preparation and labelling of DNA, use of restriction enzymes, gel electrophoresis, bacterial transformation, and detection of DNA sequences by hybridization techniques. Hours to be arranged.

**654. Biogeography.**

*Spring (3) Ware. Alternate years.*

Consideration of modern theories relating to the world-wide and local distribution of animals (especially vertebrates) and plants, both as species and as components of faunas, floras, and biotic communities. Three class hours.

**657. Interactive Processes in Development.**

*Offered on demand (3) Wiseman.*

A study of the mechanisms which underlie the interacting systems in animal development. Particular attention will be given to morphogenetic cell movement, cell adhesion, inductive processes.



**659. Topics in Evolutionary Genetics.***Fall (3) Staff. (Not offered 2002-2003).*

Current literature in population genetics and evolution critically reviewed by class members. Students will rotate weekly as discussion leaders. Students must also attend lectures in Biology 501 but are not permitted to register for both courses. Four class hours.

**660. Topics in Functional Ecology.***Spring (3) Sanderson. Alternate years.*

Current literature in functional ecology will be critically reviewed by class members, with students rotating as discussion leaders. Students must also attend and take exams in BIO 518 but are not permitted to register for both classes. Four class hours.

**662. Concepts of Community Ecology.***Spring (3) Ware. Alternate years.*

Consideration of historical and modern concepts of the structure, function, development, and dynamic nature of natural communities and ecosystems, stressing examination of the original scientific literature on dominance and diversity, energy flow and mineral cycling, competitive interactions, ecological succession, and related topics. Three class hours.

**663. Biological Microscopy.***Spring (4) Scott.*

An introduction to optical and photographic principles and procedures that underlie light and electron microscopic image formation, with a major emphasis on transmission electron microscopy (TEM). Techniques of brightfield, darkfield, phase contrast, differential interference contrast and fluorescence light microscopy will be presented along with scanning electron microscopy (SEM) and TEM. These methodologies will be applied to problems in biological research by means of several independent research projects. Four class hours, four laboratory hours.

**664. Topics in Plant Conservation.***Spring, alternate years (2) Case. Prerequisites: BIO 205, BIO 417**(Population and Community Ecology).*

This is primarily a discussion-based course that introduces key theoretical concepts in the discipline of plant conservation, and examines the current literature focusing on the conservation of population, species, and communities. Students will present papers in the discussion sessions. Two class hours.

**665. Topics in Endocrinology.***Spring (4) Bradley.*

Current literature in endocrinology critically reviewed by class members. Students will present papers and lead discussions. Students must also attend lectures and laboratories in Biology 515 but are not permitted to register for both courses. Four class hours, four laboratory hours.

**666. Behavioral Ecology.***Fall (3) Cristol. Prerequisite: BIO 410 or 510.*

Alternate years. Advanced study of the processes by which animal behavior has evolved. Special attention will be given to reproduction, communication, foraging, aggression, cooperation and sociobiology. Three class hours.

**667. Mechanisms of Bacterial Pathogenesis.**

*Fall (3) Forsyth. Prerequisites: BIO 402, or permission of instructor.*

This course explores the molecular basis for bacterial diseases as well as the basis of bacterial host mutualistic relationships. Classic disease causing organisms and their mechanisms for host insult will be compared and contrasted with interactions with beneficial results for both participants. Three class hours.

**668. Experimental Endocrinology.**

*Spring (Var Credit) Bradley.*

Detailed study of selected areas of endocrinology. Two class hours. Laboratory hours to be arranged.

**673. Topics in Developmental Biology.**

*Spring (3) Saha.*

Current literature in developmental biology critically reviewed by class members. Students will rotate weekly as discussion leaders. Students must also attend lectures in Biology 533 but are not permitted to register for both courses. Four class hours.

**675. Topics in Neurobiology.**

*Fall (3) Saha.*

Current literature in neurobiology critically reviewed by class members. Students will rotate weekly as discussion leaders. Students must also attend lectures in Biology 545 but are not permitted to register for both courses. Four class hours.

**676. The Autonomic Nervous Systems.**

*Fall (3) Griffin. Prerequisites: BIO 445 or BIO 447, or permission of instructor.*

An in-depth look at the division of the central nervous system responsible for much of the basic regulation and drive responsible for survival. This course will focus on the functional anatomy and physiologic responses involved in this control. Three lecture hours, one discussion hour.

**\*680. Advanced Topics in Biology.**

*Fall and Spring (3,3) Staff.*

Areas of special current research interest presented by resident and visiting faculty members as opportunity and demand arise. (Hours to be arranged.)

**682. Graduate Colloquium.**

*Fall and Spring (1,1) Staff.*

Presentations on and discussions of selected biological topics by graduate students. One class hour. May be repeated for credit up to a maximum of 4 credits.

**\*690. Problems in Biology.**

*Fall and Spring (3,3) Staff. Consent of Departmental Graduate Committee.*

**700. Thesis.**

*Fall and Spring (1,1) Staff.*

## Chemistry

Associate Professor **Gary W. Rice** (Chair, Ph.D., Iowa State). Professors **Christopher J. Abelt** (Ph.D., California, Los Angeles), **Gary C. DeFotis** (Ph.D., Chicago), **Stephen K. Knudson** (Ph.D., Massachusetts Institute of Technology), **David E. Kranbuehl** (Ph.D., Wisconsin), **Robert A. Orwoll** (Ph.D., Stanford), **William H. Starnes, Jr.** (Ph.D., Georgia Institute of Technology), and **David W. Thompson** (Ph.D., Northwestern). Associate Professors **Carey K. Bagdassarian** (Ph.D., California, Los Angeles), **Deborah C. Bebout** (Ph.D., Cornell), **Randolph A. Coleman** (Ph.D., Purdue), **Robert J. Hinkle** (Ph.D., Utah) and **Robert D. Pike** (Ph.D., Brown). Assistant Professors, **Elizabeth J. Harbron** (Ph.D., North Carolina, Chapel Hill), **Lisa M. Landino** (Ph.D., Virginia) and **John C. Poutsma** (Ph.D., Purdue).

The Department of Chemistry offers three tracks for the Master of Science degree: a traditional M.S. in the research areas of Organic, Physical, Polymer, Inorganic, Analytical, and Biochemistry. This program is designed for students who desire additional academic experience before pursuing an industrial career, a professional degree, or a Ph.D. degree. Individual attention for each student is ensured.

The second is a joint M.S. in Chemistry/Ph.D. in Applied Science, and the third a joint B.S./M.S. in Chemistry. The Department also offers two tracks for the Master of Arts degree: a traditional M.A. in Chemistry and the M.A. in Environmental Chemistry in cooperation with the School of Marine Science.

### Admission

All applicants must submit scores for the aptitude portions of the Graduate Record Exam. The subject portion (Chemistry) is recommended but not required. Admission to the M.S. in Chemistry/Ph.D. in Applied Science program will be made by a joint departmental committee.

Matriculating undergraduates interested in the B.S./M.S. program should contact the Chemistry Department when they arrive for advising. Chemistry concentrators may apply for formal admission to the joint program in the second semester of their sophomore year.

Applicants must have completed the first two years of chemistry as well as the physics and math prerequisites before their 3rd year, and they must possess an overall GPA average of 3.0 and a 3.0 in chemistry courses.

### Departmental Requirements for the Degree of Master of Science

*(In addition to the general College requirements)*

A candidate for the degree of Master of Science in Chemistry:

- \* shall make a selection of graduate courses under the guidance of a departmental advisor; undergraduate courses may have to be taken or repeated in those areas where adequate preparation appears to be lacking;
- \* must attend the Graduate Seminar during each semester in residence, and must give two oral presentations as part of his or her Graduate seminar program;
- \* must acquire at least twelve semester credits (with a minimum of six credits in Chemistry not including 665 or 700) in 600 level courses;
- \* must prepare a Thesis based upon research carried out under the guidance of a staff member;
- \* must pass a comprehensive oral examination based upon the entire work done for graduate credit and after approval of the thesis by an examining committee.

## Departmental Requirements for the Degree of Master of Science/joint B.S. program

*(In addition to the general College requirements)*

Students must maintain an overall GPA average of 3.0 and a 3.0 in chemistry courses through their 3rd year. All non-chemistry courses required for the B.S. degree must be completed before the 4th year. During the fall semester of the 4th year students make take no more than one undergraduate chemistry course to complete their B.S. degree. All B.S. degree requirements must be completed before the second semester of the student's 4th year. Students must begin the research leading to their Master's Thesis the summer following their 3rd year. They are required to continue full time research the summer following their 4th year. They will complete the graduate coursework during their 4th year and be enrolled in graduate research. The remaining requirements are the same as for the Degree of Master of Science.

## Departmental Requirements for the Degree of Master of Arts

*(In addition to the general College requirements)*

A candidate for the degree of Master of Arts in Chemistry must satisfy all of the requirements for the M.S. degree except for the Thesis. In addition the candidate must acquire 8 additional credit hours in courses numbered 600 and above.

A candidate for the degree of Master of Science in Chemistry in the joint Ph.D. program with Applied Science must satisfy the course requirements specified by the Applied Science Ph.D. program. The comprehensive exam for the Applied Science Ph.D. will satisfy the comprehensive exam for the M.S. degree. A typical schedule of courses is shown below. No thesis is required.

### Year 1, Summer

Chemistry research (CHEM 695, variable credit)

### Year 1, Fall

Principles of Material Science (APSC 621, 4 credits)

An applied chemistry course, usually Polymer Chemistry I (CHEM 511, 3 credits)

An elective chemistry course (3 credits)

Chemistry research (CHEM 695, variable credit)

Chemistry seminar (CHEM 665, 1 credit)

### Year 1, Spring

Quantitative Materials Characterization (APSC 622, 4 credits)

An applied chemistry course, usually Polymer Chemistry II (CHEM 512, 3 credits)

An elective chemistry course (3 credits)

Chemistry research (CHEM 695, variable credits)

Chemistry seminar (CHEM 665, 1 credit)

### Year 2, Summer

Chemistry research (CHEM 695, variable credit)

## Year 2, Fall

Mathematics and Computational Methods I (APSC 607, 3 credits)

Introduction to Scientific Research I (APSC 603, 2 credits)

Chemistry research (CHEM 695, variable credits)

Chemistry seminar (CHEM 665, 1 credit)

A candidate for the degree of Master of Science in Environmental Chemistry shall make a selection of graduate courses under the guidance of the chemistry graduate director and must complete the following Chemistry courses:

\* 309 (Instrumental Methods of Analysis)

\* 508 (Advanced Analytical Chemistry)

\* 665 (Graduate Seminar) and the following Marine Science course:

\* 563 (Environmental Chemistry)

Of the remaining required credits, at least two courses must be in Chemistry.

## Description of Courses

### 501. Advanced Physical Chemistry.

*Fall (3) DeFotis.*

Quantum chemistry and molecular spectroscopy.

### 502. Advanced Inorganic Chemistry.

*Spring (3) Pike.*

Principles and applications of symmetry to structure, bonding, and spectroscopy.

### 503. Advanced Organic Chemistry.

*Fall (3) Abelt.*

A structure-reactivity approach to reaction mechanism and synthesis.

### 506. Radiochemistry.

*Spring (3) Staff. Not offered in 2004*

A study of radioactive decay; interaction of radiation with matter; nuclear structure and reactions; radiochemical techniques.

### 508. Advanced Analytical Chemistry.

*Spring (3) Rice.*

Advanced topics in analytical chemistry.

### 511. Polymer Science I.

*Fall (3) Starnes.*

An introduction to the chemical aspects of polymer science at the molecular level. Topics include the preparation, modification, degradation, and stabilization of polymers. Reaction mechanisms are stressed.

### 512. Polymer Science II.

*Spring (3) Kranbuehl.*

A study of the relationships of chemical and physical properties of synthetic and biological polymers to their molecular structure.

**514. Biochemistry.***Spring (3) Bebout.*

A study of the molecular basis of living processes, the chemistry of important constituents of living matter, biosynthesis, metabolism, bioenergetics, enzyme kinetics, metabolic control, transport mechanisms.

**515. Advanced Biochemistry.***Fall (3) Landino.*

A continuation of the study of biological processes on a molecular level begun in Chemistry 514. Membrane biochemistry, molecular immunology, protein structure and function, biochemical applications of genetic engineering, and other topics of current interest.

**516. Polymer Laboratory.***Spring (1) Staff.***652. Topics in Physical Chemistry.***Spring (3) Staff.***653. Topics in Nuclear Chemistry.***Fall (3) Staff.***654. Topics in Inorganic Chemistry.***Spring (3) Staff.***655. Topics in Analytical Chemistry.***Fall (3) Staff.***656. Topics in Organic Chemistry.***Fall (3) Staff.***657. Organic Synthesis.***Fall (3) Hinkle.*

An advanced treatment of organic synthetic methods which includes examples of natural products preparations.

**658. Organic Spectroscopy.***Spring (3) Abelt. Not offered Spring 2004*

Structure elucidation using routine spectroscopic methods and the theory and use of single and multidimensional Fourier Transform spectroscopy.

**664. Topics in Biochemistry.***Fall (3) Staff.***665. Graduate Seminar.***Fall and Spring (1,1) Staff. Graded P or F.***695. Research.***Fall and Spring (hours to be arranged) Staff.*

A maximum of six credits may be applied toward the M.A. or M.S. degree course requirements. Graded P or F.

**700. Thesis.***Fall and Spring (hours to be arranged) Staff. Graded P or F.*

## Computer Science Department

PROFESSORS **Xiaodong Zhang** (Chair) (Ph.D., Colorado), **Gianfranco Ciardo** (Ph.D., Duke), and **Robert E. Noonan** (Ph.D., Purdue) ASSOCIATE PROFESSORS **Nikos Chrisochoides** (Ph.D., Purdue), **Stefan Feyock** (Ph.D., Wisconsin), **J. Philip Kearns** (Ph.D., Virginia), **Weizhen Mao** (Ph.D., Princeton), **Evgenia Smirni** (Ph.D., Vanderbilt), **Andreas Stathopoulos** (Ph.D., Vanderbilt), and **Virginia J. Torczon** (Ph.D., Rice). ASSISTANT PROFESSORS **David Coppit** (Ph.D., Virginia), **Parke Godfrey** (Ph.D., Maryland), **Bruce Lowekamp** (Ph.D., Carnegie Mellon) and **Dimitrios Nikolopoulos** (Ph.D., Patras). INSTRUCTORS **Deborah S. Noonan** (M.S., William & Mary) and **Haining Wang** (M.S., North Carolina State). PROFESSORS EMERITUS **William L. Bynum** (Ph.D., North Carolina), **Richard H. Prosl** (Ph.D. Rensselaer) and **Paul K. Stockmeyer** (Ph.D., Michigan). ADJUNCT PROFESSORS **Rex K. Kincaid** (Ph.D., Purdue), **Lawrence M. Leemis** (Ph.D., Purdue) and **Robert G. Voigt** (Ph.D., Maryland). ADJUNCT ASSOCIATE PROFESSORS **Margaret K. Schaefer** (Ph.D., Northwestern) and **Michael W. Trosset** (Ph.D., California-Berkeley). ADJUNCT ASSISTANT PROFESSORS **R. Michael Lewis** (Ph.D., Rice), and **Zia-ur Rahman** (Ph.D., Virginia).

### General Description

The department offers a Master of Science (M.S.) in computer science and a Doctor of Philosophy (Ph.D.) in computer science. In conjunction with faculty from the Mathematics Department, the department also offers a M.S. with a specialization in computational operations research. As part of the Computational Science Cluster, the department offers a M.S. and a Ph.D. with a specialization in computational science. Well-qualified students who earn a M.S. with a specialization in computational operations research are encouraged to apply for admission to the Ph.D. program.

Faculty are actively engaged in research in the following areas:

- Computer Systems: operating systems, networks, architecture, parallel and distributed computation, parallel I/O;
- Modeling and Simulation: discrete-event simulation, discrete linear systems, stochastic systems;
- Computational Science: serial and parallel numerical methods, numerical optimization;
- Foundations: analysis of algorithms, graph theory;
- Programming Languages: compiler construction, parser generators;
- Operations Research: nonlinear programming, discrete optimization, metaheuristics, inventory theory, reliability, computational statistics, stochastic optimization;
- Scientific Visualization: graphics, image processing;
- Artificial Intelligence: natural language processing, machine learning, model-based reasoning, robotics.

Some faculty and graduate students participate in joint research activities with two nearby national research facilities: the NASA Langley Research Center and the Thomas Jefferson National Accelerator Facility (Jefferson Lab).

The department maintains several heterogeneous networks to support teaching and research. These networks include personal computers, Unix workstations, and multiprocessors. Additional information about the department can be found at the URL <http://www.cs.wm.edu>.

## General Admission Requirements

Applicants must submit test results for the aptitude portion of the Graduate Record Examination and are encouraged (but not required) to submit results from a suitable subject area. Students from non-English speaking countries must submit TOEFL results.

### Admission requirements for the M.S. and Ph.D. in computer science

Students seeking the M.S. or Ph.D. degrees in computer science are expected to have a background that includes the following:

Mathematics: two calculus courses and one linear algebra course.

Computer Science: two introductory programming courses (CS1 and CS2 in the standard computer science curriculum) and one course in each of discrete mathematics, data structures, algorithms, and computer organization.

Applicants lacking this background may be admitted provisionally into the M.S. program. In that case, the department will establish a suitable set of qualifying courses at the time of admission. To achieve regular status, provisionally accepted students must earn at least a B in each qualifying course. There is no provisional admission into the Ph.D. program.

### Admission requirements for the M.S. with a specialization in computational operations research

Students seeking the M.S. degree with a specialization in computational operations research are expected to have a background in mathematics, science or engineering and the ability to program in a high-level language. Students with an insufficient background in computer science may be required to enroll in CSci 529 and CSci 539. Applicants lacking an appropriate background may be admitted provisionally.

### Admission requirements for the M.S. with a specialization in computational science

Students seeking the M.S. degree with a specialization in computational science are expected to have a background in mathematics, science or engineering that includes the following:

Mathematics: two calculus courses and one linear algebra course

Computer Science: two introductory programming courses (CS1 and CS2 in the standard computer science curriculum).

Students with an insufficient background in data structures, algorithms and computer organization may be required to enroll in CSci 529 and CSci 539. Applicants lacking an appropriate background may be admitted provisionally.

## General Degree Requirements

(For general College requirements, see p. 26-27.)

Students who have taken twelve or more credits in courses leading to a graduate degree must maintain a minimum grade point average of 3.0. Students with less than a 3.0 average may appeal in writing to the department's Committee on Admission, Retention, and



Financial Aid to remain in the graduate program. The committee normally rejects appeals from students with less than a 2.75 grade point average.

### **Degree requirements for the M.S. in Computer Science**

Student may choose to write a thesis or not. Students who do not choose the thesis option must complete 32 graduate credits, including CSci 710, Research Project. Students who choose the thesis option must complete 24 graduate credits including Csci 700, M.S. Thesis, and defend their thesis at an oral examination, open to the faculty and to whomever else the department may invite. CSci 710, Research Project may not be applied to the 24 credits. In either case, students may apply at most 12 credits in courses numbered below 600 and must satisfactorily complete CSci 653 and two of the following three courses: CSci652, CSci654, CSci664.

Students must submit a 2-year plan of study at the beginning of their first semester in the M.S. program, which must be endorsed by their faculty advisors and then approved by the Graduate Admission Committee.

### **Degree requirements for the M.S. with a specialization in computational operations research**

Students must complete 32 graduate credits, including CSci 710, of which at least 20 credits must be earned in courses numbered 600 and above. Students must satisfactorily complete either CSci 653 or CSci 663 at William & Mary. Students must also satisfactorily complete at least four but no more than six courses from the eight-course computational operations research area: Csci 618, 628, 638, 688, 718, 728, 738, and 768. There is no thesis option for this specialization.

### **Degree requirements for the M.S. with a specialization in computational science**

Students must complete 32 graduate credits, including CSci 710, of which at least 20 credits must be earned in courses numbered 600 and above. Students must also satisfactorily complete CSci 549, CSci 649 and CSci 653 at William & Mary as well as two graduate courses from outside the Computer Science Department. Each student will have a three-person computational science advisory committee within the department to advise the student about what is needed to meet the certification requirements of the Computational Science Cluster, and to approve the two graduate courses taken from outside the Computer Science Department, prior to registration. There is no thesis option for this specialization.

### **Requirements for the Degree of Doctor of Philosophy**

*(For general College requirements, see p. 27.)*

Students seeking the Ph.D. in computer science must complete a seven-course requirement with at least a 3.7 grade point average in the seven courses, and with no individual grade lower than B-. All seven courses must be taken at William and Mary. All Ph.D. students must take:

- Csci 653 Analysis of Algorithms
- Csci 654 Advanced Computer Architecture
- Csci 664 Advanced Operating Systems

The remaining four courses may be chosen from the 600 or 700 level courses in the department, excluding: 670, Colloquium; 690, Readings; 695, Research; 700, M.S. thesis; 710, Research Project; 770, Colloquium; 790, Readings; and 795, Research. At least three of these four courses must be at the 700 level, and at most two may be taken outside the Computer Science Department.

For the Degree of Doctor of Philosophy with a specialization in computational science the student must satisfy all of the department's requirements for the degree of Doctor of Philosophy, including the seven-course requirement. In support of the specialization in computational science, the student must take at least three graduate courses from outside the department. Of these three courses, at most two can also be used to satisfy the department's seven-course requirement.

Each computational science student will have a three-person computational science advisory committee within the department to advise the student about what is needed to meet the certification requirements of the Computational Science Cluster. The committee will approve the three graduate courses from outside the department, and insure that the dissertation topic incorporates computation in a creative way, either by developing an enabling computational technology, or by using such technologies to obtain a significant scientific result.

Doctoral students must complete a year of continuous residence as a full-time student at William & Mary. Students who obtain a M.S. or M.A. degree must complete their residency requirement after satisfying the requirements for a M.S. or M.A. degree (at William & Mary or elsewhere). Students who do not obtain a M.S. or M.A. degree must complete their residency requirement after satisfying the department's seven course requirement. There is no foreign language requirement.

In addition to required course work, doctoral students will identify a principal research advisor, form a doctoral advisory committee, and petition the department for acceptance into candidacy for the Ph.D. degree. After acceptance into candidacy, students must pass the thesis proposal exam. This examination is oral, is conducted by the candidate's committee, and is open to the faculty and to whomever else the department may invite.

Approximately six months before the anticipated dissertation defense, the candidate is required to meet with the committee. At this meeting, the candidate is expected to describe in detail the status of the research upon which the dissertation is based and plan for conducting the work that remains to be done. The purpose of this meeting is to provide the committee with an opportunity to evaluate the candidate's work and plans, and to provide feedback and advice in advance of the defense. The committee may require, at its discretion, additional meetings before a defense date can be scheduled.

Candidates must submit and satisfactorily defend a dissertation to a committee of at least five members, with at least one member from outside the department. The dissertation is based on original research and should contribute to the discipline's body of knowledge. The defense is oral and is open to the faculty and to whomever else the department may invite. Each year, the faculty will review how well doctoral students have progressed toward completion of their Ph.D. degree. The department provides written guidelines to help students judge their own progress. In addition, the department provides more specific regulations than those conveyed in this catalog. Students are solely responsible for familiarizing themselves with all guidelines and regulations of the department.

In Computer Science and Computer Science with a specialization in Computational Science, students receiving regular admission to the M.S./Ph.D. program have (7) seven years from the time they enter the graduate program to complete all degree requirements. There is no provisional admission to the Ph.D. programs in Computer Science.

In Computer Science with a specialization in Computational Operations Research, students receiving admission to the M.S. program in Computational Operations Research

must apply to the Ph.D. program in Computer Science after completing the M.S. degree requirements. Such students would have (7) seven years from the time of this second admission to complete the Ph.D. requirements.

## Description of Courses

Wherever a William & Mary course is specified as a prerequisite, it is understood that appropriate experience or an equivalent course, taken at another institution, may be substituted for the specified prerequisite. Each such substitution must be approved by the instructor of the course for which a substitution is appropriate. Generally, graduate students should also consult with their advisors to verify that they meet all course prerequisites.

*Note that 500-level courses are cross-listed as 400-level courses in the undergraduate catalog and will thus be open to undergraduates. In these cross-listed courses, there will be higher expectations and additional requirements for graduate students. Students should consult with the instructor of such a course for further information.*

### 509. Concepts of Computer Science for School Teachers.

*Summer (3) Two hour lecture and two hour lab.*

Designed for school teachers. An overview of computer science: elementary computer organization, arithmetic, algorithms, translation, operating systems, file systems and database structures. The laboratory sessions cover application software appropriate to school teachers. Cannot be applied toward any graduate degree in computer science.

### 520. Elementary Topics.

*Fall and Spring (1, 2, or 3 credits, depending on material) Prerequisites: Will be published in the registration schedule.*

A treatment of elementary topics of interest not routinely covered by existing courses. Material may be chosen from various areas of computer science.

### 521. Implementation of Database Systems.

*Spring (3) Prerequisite: An introductory course in database.*

Issues involved in designing efficient database systems, and the strategies, data structures, and algorithms used in the implementation of such systems. Some advanced topics covered: data warehousing, online analytical processing, data mining, spatial data management.

### 523. Finite Automata and Theory of Computation.

*Fall and Spring (3,3) Prerequisites: Linear Algebra, Algorithms.*

Theory of sequential machines and finite automata. Turing machines, recursive functions, computability of functions.

### 524. Computer Architecture.

*Spring (3). Prerequisite: Computer Organization.*

An introduction to the principles of computer design. Topics include data representation, including adders, signed integer arithmetic, floating point representation and character representation. A study of microprocessor, minicomputer and mainframe architecture including clocks, memory management, bus communication and input/output.

**526. Simulation.**

*Fall (3) Prerequisites: Calculus, Algorithms.*

Introduction to simulation. Discrete and continuous stochastic models, random number generation, elementary statistics, simulation of queuing and inventory systems, Monte Carlo simulation, point and interval parameter estimation. Selected applications.

**527. Computer Graphics.**

*Fall (3) Prerequisites: Linear Algebra, Algorithms, Computer Organization.*

Introduction to computer graphics and its applications. Topics include coordinate systems, the relationship between continuous objects and discrete displays, fill and flood algorithms, two-dimensional geometric transformations, clipping, zooming, panning, and windowing. Topics from three-dimensional graphics include representations for objects, geometric and projection transformations, geometric modeling, and hidden line/surface removal algorithms.

**529. Computer Organization and Programming Languages.**

*Spring (3) Prerequisites: Knowledge of C or C++ programming.*

A transition course for graduate students entering the program who lack courses in computer organization and programming languages. Topics covered: computer performance evaluation, computer organization at the machine language level, computer arithmetic, syntax and semantics of programming languages, variable binding, scopes, types, expressions, statement level control structures, parameter passing, and activation records. Runtime support of high-level programming languages at the machine language level will be a focus of the course. Not applicable to any graduate degree in computer science except the M.S. with a specialization in computational operations research.

**530. Computer Languages.**

*Fall and Spring (1 or 2 credits, depending on material). Prerequisites: Will be published in the preregistration schedule.*

Topics include syntax, semantics, and pragmatics of one computer language as well as aspects of that language's intended areas of application which influenced its design. The language studied will vary; students may repeat the course for different languages.

**531. Artificial Intelligence.**

*Fall (3) Prerequisites: Algorithms, Programming Languages.*

Problem solving techniques including state space searching, hill climbing and/or graphs, and game playing. Knowledge representation schemes such as frames, rules, and predicate calculus. Perception, natural language understanding and learning.

**534. Network Systems and Design.**

*Fall (3) Prerequisites: Systems Programming, or permission of instructor.*

The Internet; principles and design of network applications, including web servers and multimedia; transport, network and data link layers; network security; network performance evaluation and capacity planning.

**535. Software Engineering.**

*Spring (3) Prerequisites: Programming Languages.*

The software life cycle. Software design methodologies. Testing and maintenance. Programming teams.

**539. Data Structures and Algorithms.***Fall (3) Prerequisites: Knowledge of C or C++ programming.*

A transition course for graduate students entering the program who lack courses in data structures and algorithms. Data structures and their representations, data abstraction, internal representation. Specific data structures, including lists, stacks, queues, trees, priority queues, hash tables, and their applications. Systematic study of algorithms, their complexity, and programming implementation. Survey of methods for achieving high algorithmic efficiency by using good data structures and sophisticated design. Not applicable to any graduate degree in computer science except the M.S. with a specialization in computational operations research.

**542. Compiler Construction.***Spring (3) Prerequisites: Algorithms, Computer Organization, Programming Languages.*

Principles and tools for the construction of translators for programming languages. Topics include lexical analysis, block structure, grammars, parsing, error recovery, program representation, run-time organization and code generation.

**544. Principles of Operating Systems.***Fall (3) Prerequisites: Algorithms, Computer Organization, Systems Programming.*

The conceptual view of an operating system as a collection of concurrent processes; semaphores, monitors, and rendezvous. Real and virtual memory organization, resource allocation, file organization and management, processor allocation and management, and external device management.

**549. Scientific Computing.***Spring (3) Prerequisites: Linear Algebra, Algorithms or CSci 539.*

The accuracy and performance of the numerical calculations that form the core of scientific computing. Topics include: floating point arithmetic, numerical error; memory hierarchy and its effect on performance, and parallel and distributed computation. Practical issues include the effects of the programming environment, programming language, and numerical technique on the performance of a given computation.

**597 Problems in Computer Science.***Fall, Spring and Summer (1 Credit). Graded P (Pass) or F (Fail).*

Supervised projects selected to suit the needs of the graduate student, including those wishing to perform an internship as part of the Curricular Practical Training Program. Projects to be chosen in consultation with the student's advisor. Acceptable research outlines and project reports are required. Students may count credits received in only one offering of this course toward the number of credits required for their degree.

**616. Stochastic Models in Computer Science.***Fall (3) Prerequisites: Discrete Mathematics, Calculus.*

An introduction to stochastic models, problem solving, and expected value analysis as applied to algorithms and systems in computer science. Topics include probability, discrete and continuous random variables, discrete-time Markov chains, and continuous-time birth-death processes.

**618. Models and Applications in Operations Research.***Spring (3) Co-requisite: Algorithms or CSci 539.*

A study of realistic and diverse Operations Research problems, with emphasis upon model formulation, interpretation of results, and implementation of solutions. Topics

include applications of linear programming, goal programming, decomposition of large-scale problems, and job scheduling algorithms. Problems will be solved using appropriate software tools.

### **621. Advanced Databases**

*Fall (3) Prerequisite: An introductory course in database.*

Formal semantics of relational databases and systems, physical database tuning, advanced issues in query optimization and transaction processing, advanced database facilities as triggers and materialized views, query caching, and database mediation. Current topics in database research and development.

### **628. Linear Programming.**

*Fall (3) Co-requisite: Algorithms or CSci 539.*

Theory and applications of linear programming. Topics include the simplex method, duality theory, sensitivity analysis and interior point methods. problems will be solved using appropriate software tools.

### **638. Non-Linear Programming.**

*Fall or Spring (3) Co-requisite: Algorithms or CSci 539.*

Topics include unconstrained optimization, nonlinear least-squares, feasible-point methods, and penalty and barrier methods, with an emphasis on effective computational techniques.

### **652. Advanced Compiler Construction.**

*Fall (3) Prerequisite: Finite Automata, Compiler Construction.*

Construction of compilers for programming languages, involving primarily the following phases: lexical analysis, parsing, semantic analysis, and code optimization. Course involves a semester project incorporating significant global code optimization. Other topics may include: error analysis and recovery, run-time organization, and code generation.

### **653. Analysis of Algorithms.**

*Fall (3) Prerequisite: Algorithms.*

Algorithm design techniques including divide-and-conquer, dynamic programming and greedy method. Analysis methods including worst case and average case. Additional topics chosen from among amortized analysis, lower bound theory and NP-completeness.

### **654. Advanced Computer Architecture.**

*Fall or Spring (3) Prerequisite: Computer Architecture.*

A study of high performance computer architecture with emphasis on experiments and simulation. Topics include pipelining, memory hierarchies, I/O, multiprocessors, and new designs for performance improvements.

### **663. Theory of Computation.**

*Spring (3) Prerequisites: Finite Automata and a strong mathematical background.*

An in depth study of Turing machines and the equivalent computational models such as recursive function theory and lambda calculus. Church's thesis and incompleteness results. Computational complexity including NP-completeness.

**664. Advanced Operating Systems.***Spring (3) Prerequisite: Operating Systems.*

Advanced topics in the design and implementation of modern operating systems, especially those which support a distributed computer environment. Topics include: synchronization, mutual exclusion, language support, process and thread management, scheduling, remote procedure call, fault tolerance, network and parallel file systems, security, modeling and performance.

**670. Colloquium.***Fall and Spring (1,1).*

Each full-time graduate student is required to enroll in this course. No credits earned in this course may be applied to the number of credits required for a degree.

**674. Parallel Computing.***Fall (3) Prerequisites: CSci 654, CSci 653, or permission of the instructor.*

This course introduces parallel computation as a means of achieving high performance in modern parallel architectures. A unified approach is followed, where the design of parallel algorithms, their implementation and performance evaluation is studied in relation to the underlying system.

**680. Topics.***Fall and Spring (1, 2, or 3 credits, depending on the material covered).*

Prerequisite: Will be published in the preregistration schedule.

A treatment of Master's level topics of interest not routinely covered by existing courses. Material may be chosen from various areas of computer science.

**688. Topics.***Fall and Spring (1, 2, or 3 credits, depending on the material covered). Prerequisite: Will be published in the preregistration schedule.*

A treatment of Master's level topics of interest not routinely covered by existing courses. Material may be chosen from various areas of computational operations research.

**\*\*690. Readings in Computer Science.***Fall or Spring (1, 2, or 3 credits, depending on the material covered). Graded P (Pass) or F (Failure). Prerequisite: Permission of the instructor and the Chair.*

A description of the intended contents of the readings course must be approved by the Chair before the student may register for the course. Students electing to satisfy M.S. requirements by taking 24 credits and writing a thesis may not count credits received in this course toward the required 24. Students electing to satisfy M.S. requirements by taking 32 credits may count credits received in only one offering of this course toward the required 32.

**695. Research.***Fall and Spring (Hours and credits to be arranged).*

Required of all full-time students who have not attained Research Graduate status. No credits earned in this course may be applied to the number of credits required for a degree.

**\*700. M.S. Thesis.**

*Fall and Spring (Hours and credits to be arranged).*

**710. Research Project.**

*Fall and Spring (2,2). Graded P (Pass) or F (Failure.) Prerequisites: Permission of Graduate Director.*

Students will select a faculty advisor and committee in their area of research interest, prepare a research proposal abstract for approval by the department's director of graduate studies, undertake a research project, and write a paper describing their research. This course is normally taken after a student has completed 18 credit hours toward the M.S. degree. Not open to students who receive credit for CSci 700.

**712. Advanced Compiler Construction II.**

*Spring (3) Prerequisites: CSci 542, CSci 652.*

A project-oriented course involving compilers or compiler generators. Possible topics include syntactic error recovery, semantic analysis, code optimization and code generation.

**718. Statistical Decision Theory.**

*Fall (3) Co-requisite: CSci 616.*

Development and use of systematic procedures for assisting decision makers in evaluating alternative choices. Emphasis is on problem formulation, uncertainty and risk assessment, Bayes, minimax and other decision rules and applications. Problems will be solved using appropriate software tools.

**721. Artificial Intelligence II.**

*Spring (3) Prerequisites: CSci 531.*

Advanced aspects of problem solving techniques and expert systems. Production systems, the predicate calculus and resolution theorem proving, rule-based deduction systems and plan generating systems.

**723. Advanced Analysis of Algorithms.**

*Fall (3) Prerequisites: CSci 653 or consent of the instructor.*

Advanced aspects of the design and analysis of computer algorithms. The study of probabilistic algorithms and parallel algorithms for solving problems from graph theory, geometry, and number theory. Lower bound theory. Intractability theory and its application to modern cryptography.

**726. Discrete Event Simulation.**

*Spring (3) Prerequisites: CSci 526.*

Methods of discrete-event simulation. Markov chains. Simulation of open and closed networks of queues. Simulation of non-stationary Poisson processes. Transient and steady-state analysis. Event list algorithms and data structures. Theoretical and empirical tests of randomness. Selected applications.

**727. Digital Image Processing.**

*Fall (3) Prerequisites: Calculus, Linear Algebra, Algorithms.*

Single-image statistics. Image enhancement by graylevel transformation. Multi-image statistics, the principal component transformation, clustering and classification. The discrete 2-D Fourier transform. Image enhancement by linear and non-linear spatial filtering. Linear image restoration.



**728. Network Optimization.***Fall (3) Prerequisites: CSci 628.*

Network flow theory and algorithms, including transportation, maximum flow shortest path and minimum spanning tree problems. Applications to a variety of areas are also stressed. Problems will be solved using appropriate software tools.

**731. Expert Systems.***Fall (3) Prerequisites: CSci 531.*

An introduction to the expert system; transfer of expertise of basic knowledge and processes, the testing problem, learning, domain-specific knowledge management, heuristic search, global strategies, differential diagnosis, causality. Implementation strategies, implementation languages, efficiency considerations. Analysis of existing expert systems.

**734. Distributed Computing Systems.***Fall (3) Prerequisites: CSci 544 or equivalent.*

Time and order in distributed systems. Synchronous and asynchronous systems. Models of faulty behavior in distributed systems. Paradigms of distributed computing: network mutual exclusion, deterministic agreement (Byzantine and fail-stop), elections, global state acquisition, atomic transactions. Issues in programming distributed systems. Reliable distributed systems. Distributed databases. Selected case studies.

**736. Discrete Linear Systems.***Spring (3) Prerequisites: Calculus, Linear Algebra, Algorithms, CSci 526 or CSci 616.*

Modeling and analysis of discrete linear systems. The sampling theorem, Nyquist frequency and aliasing. Digital filters. Convolution, the discrete and fast Fourier transform. Data compression, coding, transmission and reconstruction. Information theory, signal-to-noise ratio and noise suppression. Selected applications.

**738. Discrete Optimization.***Spring (3) Prerequisites: CSci 628.*

Topics include relaxation techniques, constructive heuristics, improving search techniques (simplex method, simulated annealing, tabu search), branch and bound schemes, and valid inequalities for branch and cut methods. Problems will be solved using appropriate software tools.

**741. Data Mining.***Spring (3) Prerequisites: An introductory course in database.*

The course will cover concepts, principles, architecture, design, implementation, and application of data mining. Some systems for data mining will be introduced. Some specific topics covered in the course include: data preprocessing, data mining primitives, languages and systems, descriptive data mining: characterization and comparison, association analysis, classification and prediction, cluster analysis, mining complex types of data, applications and trends in data mining.

**746. Discrete-State Stochastic Models.***Spring (3) Prerequisites: CSci 616.*

Logic, performance, and reliability analysis of discrete-state systems. Exploration of the state space. Queuing networks, fault trees, reliability block diagrams, task graphs, Petri nets and domain-oriented languages. Underlying stochastic processes, solutions and approximations.

**749. Numerical Algorithms.**

*Spring (3) Prerequisites: CSci 549, ApSc 607. Co-requisite: ApSc 608 or consent of the instructor.*

In-depth study of modern numerical algorithms central to solving many scientific and engineering problems, and of the techniques used to develop and analyze those algorithms, with an emphasis on algorithmic issues.

**754. Performance Evaluation of Computer Systems.**

*Fall or Spring (3) Prerequisites: Computer Architecture, CSci 544, CSci 616 or consent of the instructor.*

Analytical modeling techniques and their application in computer system performance modeling and prediction. Modeling of resource allocation policies in parallel systems, web server analysis, measurements and workload characterization of parallel computations and multimedia applications, hardware/software design, and bottleneck analysis.

**768. Reliability.**

*Spring (3) Prerequisites: CSci 616.*

Introduction to probabilistic models and statistical methods used in analysis of reliability problems. Topics include models for the lifetime of a system of components and statistical analysis of survival times data. Problems will be solved using appropriate software tools.

**770. Colloquium.**

*Fall and Spring (1,1).*

Each full-time graduate student is required to enroll in this course. No credits earned in this course may be applied to the number of credits required for a degree.

**780. Advanced Topics.**

*Fall or Spring (1, 2, or 3 credits, depending on material). Prerequisites: Will be published in the preregistration schedule.*

A treatment of doctoral-level topics of interest not routinely covered by existing courses. Material may be chosen from various areas of computer science.

**\*\*790. Readings in Computer Science.**

*Fall or Spring (1, 2, or 3 credits, depending on the material covered). Graded P (Pass) or F (Failure). Prerequisites: Permission of the instructor and the Graduate Director.*

A description of the intended contents of the readings course must be approved by the Graduate Director before the student may register for the course. Students electing to satisfy M.S. requirements by taking 24 credits and writing a thesis may not count credits received in this course toward the required 24. Students electing to satisfy M.S. requirements by taking 32 credits may count credits received in only one offering of this course toward the required 32.

**795. Research.**

*Fall and Spring (Hours and credits to be arranged).*

Required of all full-time students who have not attained Research Graduate status. No credits earned in this course may be applied to the number of credits required for a degree.

**\*\*800. Doctoral Dissertation.**

*Fall and Spring (Hours and credits to be arranged).*

# History

**CHAIR** James N. McCord, Jr., (Ph.D., Johns Hopkins). **PROFESSORS** James L. Axtell, William R. Kenan, Jr. Professor of Humanities (Ph.D., Cambridge), Edward P. Crapol, William F. Pullen Professor (Ph.D., Wisconsin), Melvin P. Ely (Ph.D., Princeton), Judith Ewell, Newton Family Professor (Ph.D., New Mexico), Dale E. Hoak, Chancellor Professor (Ph.D., Cambridge), Bertram Wyatt-Brown, James Pinckney Harrison Visiting Professor of History and Research Fellow (Ph.D., Johns Hopkins), Ronald Hoffman<sup>1</sup> (Ph.D., Wisconsin), Rhys Isaac<sup>2</sup> (B.A., Oxford), Richard Price, Duane A. and Virginia S. Dittman Professor (Ph.D., Harvard), and Abdul-Karim Rafeq, William and Annie Bickers Professor (Ph.D., University of London). **ASSOCIATE PROFESSORS** Ismail H. Abdalla (Ph.D., Wisconsin), Chandos M. Brown (Ph.D., Harvard), Craig N. Canning (Ph.D., Stanford), Christopher Grasso<sup>3</sup> (Ph.D., Yale), Cindy Hahamovitch (Ph.D., North Carolina-Chapel Hill), LuAnn Homza (Ph.D., Chicago), Kris E. Lane (Ph.D., Minnesota), Charles McGovern (Ph.D., Harvard), Leisa D. Meyer (Ph.D., Wisconsin), Scott R. Nelson (Ph.D., North Carolina-Chapel Hill), Kimberley L. Phillips (Ph.D., Yale), Edward E. Pratt<sup>4</sup> (Ph.D., Virginia), Ronald B. Schechter (Ph.D., Harvard), Carol Sheriff, Director of Graduate Studies and University Professor of Excellence (Ph.D., Yale), and James P. Whittenburg<sup>5</sup> (Ph.D., Georgia). **ASSISTANT PROFESSORS** Nwando Achebe (Ph.D., UCLA), Frederick Corney (Ph.D., Columbia), Philip H. Daileader (Ph.D., Harvard), Laurie S. Koloski (Ph.D., Stanford), Paul W. Mapp (Ph.D., Harvard), Brett Rushforth<sup>6</sup> (Ph.D., California-Davis) and Chitralekha Zutshi (Ph.D., Tufts). **VISITING ASSOCIATE PROFESSOR** Joost Augusteijn (Ph.D., University of Amsterdam). **VISITING ASSISTANT PROFESSORS** Beth English (Ph.D., William & Mary), Eliza Ferguson, (Ph.D., Duke), Walter A. Skya (Ph.D., Chicago), Lisa Swartout (Ph.D., California-Berkeley). **LECTURERS** Marley R. Brown III<sup>7</sup> (Ph.D., Brown), Cary Carson<sup>8</sup> (Ph.D., Harvard), Charles F. Hobson<sup>9</sup> (Ph.D., Emory), James Horn<sup>10</sup> (Ph.D., University of Sussex), Heather Huyck<sup>11</sup> (Ph.D., Minnesota), Kevin P. Kelly<sup>12</sup> (Ph.D., Washington), William M. Kelso<sup>13</sup> (Ph.D., Emory), Carl Lounsbury (Ph.D., George Washington), Fredrika Teute<sup>14</sup> (Ph.D., Johns Hopkins), and Camille Wells (Ph.D., William & Mary).

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<sup>2</sup> Distinguished Professor of American History and Public Policy, National Institute of American History and Democracy

<sup>3</sup> Editor, William & Mary Quarterly, Omohundro Institute of Early American History and Culture.

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<sup>7</sup> Director, Archaeological Excavation and Conservations Department, The Colonial Williamsburg Foundation

<sup>8</sup> Vice President of Research, The Colonial Williamsburg Foundation

<sup>9</sup> Editor, John Marshall Papers

<sup>10</sup> Director, John D. Rockefeller, Jr. Library, Colonial Williamsburg Foundation

<sup>11</sup> Regional Chief Historian, National Park Service

<sup>12</sup> Research Historian, Research Department, The Colonial Williamsburg Foundation

<sup>13</sup> Director of Archaeology, Association for the Preservation of Virginia Antiquities

<sup>14</sup> Editor of Publications, Omohundro Institute of Early American History and Culture

## Departmental Requirements for Degrees of Master of Arts and Doctor of Philosophy

(See pp. 25-27 for general College requirements.)

### Admission

A required supplemental application is available from the department office, as well as on the department's web page at [www.wm.edu/history](http://www.wm.edu/history). Applicants must submit official undergraduate transcripts, three letters of recommendation, and scores from the Graduate Record Examination. A writing sample is required. A separate application is not necessary for financial aid. Completed applications must be received by January 5. Minimum requirements for admission include an overall academic average of 3.0 on a 4.0 scale and the completion of 24 semester hours of work in history. Additional hours in history and course work in a foreign or classical language are highly recommended.

### Master of Arts

Candidates for the degree must be in full-time residence for at least two semesters and must complete 24 credit hours of coursework, not including credits for History 700. These 24 credit hours will include History 701-702, a research seminar, two courses in directed research, and electives. Students must achieve a quality point average of at least 3.0 on a 4.0 scale. Candidates must demonstrate by departmental examination a reading knowledge of a foreign or classical language in which there is a significant historical literature; must pass a comprehensive examination; and must submit a thesis approved by his/her thesis committee.

### Apprenticeship and Internship Programs

In addition to traditional preparation in teaching and research, the Department of History—in conjunction with the Omohundro Institute of Early American History and Culture, the Earl Gregg Swem Library, the Department of Anthropology, the William & Mary Archaeological Project Center, and the Colonial Williamsburg Foundation—offers a unique opportunity for master's and doctoral students to obtain practical experience in career fields related to history. Apprenticeships for master's and first-year doctoral students and internships for advanced doctoral students are available in archives and manuscript collections, the editing of historical books and magazines, humanities computing, and historical archaeology. Apprenticeships commence on July 1 or August 1 of each year and extend to June 30 of the succeeding year. The History Department also requires doctoral students to participate in a teaching internship that provides supervised experience in teaching college classes.

### Doctor of Philosophy

At least three years of graduate study, of which one beyond the first must be spent in continuous residence as a full-time student at William and Mary, are required for the Doctor of Philosophy degree. Doctoral students must have completed the course requirements for the Master of Arts degree at William and Mary, or have fulfilled similar requirements at an equivalent institution. In addition, candidates for the Ph.D. degree must complete at least 27 hours of graduate coursework in History (not including History 800) beyond the master's level within the first three semesters of residency. They must take research seminars in two separate fields of American history. A student who has taken required courses in the master's year need not repeat them at the doctoral level. Dissertation fields are limited to Early American and United States history. No later than

the end of the third year of graduate study, doctoral students must take a written and an oral comprehensive qualifying examination in three fields of Early American or United States history and one field outside Early American or U.S. history. The fields offered are: Early American History to 1789; United States History, 1789-1877; United States History 1877 to present; Africa to 1800; Africa 1800 to the Present; England to 1485; England, 1485-1714; England since 1714; Medieval Europe, 400-1450; The Modern Middle East: 1500-1800; The Modern Middle East: 1800 to the Present; Europe, 1400-1648; Europe, 1648-1815; Europe, 1815-1945; Russia and Europe, 1905 to present; Western Civilization; Colonial Period of Latin American History; National Period of Latin American History since 1824; East Asia, 1600-1850; East Asia, 1850 to present. Course work also may be required in cognate fields. Students may substitute a topical field in American history (for example, African American history or women's history) for one of the chronological American fields other than the dissertation field.

All doctoral candidates must have completed all requirements for the M.A. degree, including the language requirement, the thesis, and all course work, before proceeding to their comprehensive examinations.

Doctoral students who have not received their M.A. degrees from William and Mary or another accredited institution by the May Commencement of their second year of graduate study will not be eligible for continuation of graduate financial aid until they receive the degree.

## Description of Courses

### **\*\*501, 502. Independent Study in History.**

*Fall and Spring (3,3) Staff.*

An independent study course that may be repeated for credit as long as there is no duplication of material.

### **503. Colonial Virginia.**

*Fall and Spring (3) Staff.*

A specialized study of the founding and development of the Virginia colony with special emphasis on the evolution of its social and political structure.

### **504. France in North America.**

*Fall or Spring (3) Axtell. (Not offered in 2003-2004)*

An exploration of the French presence in North America from the sixteenth-century voyages of Verrazano and Cartier to the fall of Quebec in 1759, the growth of settlement and empire from Canada to Louisiana, and relations with the Indians.

### **509, 510. Stuart England.**

*Fall and Spring (3,3) Hoak.*

The first semester, 1485-1603; the second semester, 1603-1714.

### **513, 514. Modern England.**

*Fall and Spring (3,3) McCord. (Hist 514 not offered in Spring 2004)*

An examination of the political, economic, social, and intellectual changes which explain England's transition from an aristocratic to a democratic society. The course divides in the mid-Victorian period.

### 525. The United States, 1861-1901: The Gilded Age.

*Fall (3) Nelson.*

An exploration of the collapse of Reconstruction, the rise of big business, and the emergence of a modern nation-state. Topics will include Victorian sexuality, the Jim Crow South, craft unionism, cities in the West, and literary naturalism.

### 526. Gender and Change in Modern Africa.

*Fall or Spring (3) Abdalla. (Not offered in 2003-2004)*

A seminar on the activities of women in modern Africa in economics, politics, medicine, rituals, and the arts. It dispels the erroneous notion of the passivity of African women.

### 529. Exploring the Afro-American Past.

*Spring (3) Price.*

A study of the commonalities and differences across Afro-America from the U.S. to Brazil. Works in Anthropology, History, and Literature will be used to explore the nature of historical consciousness within the African Diaspora and diverse ways of understanding the writing about Afro-American pasts. (Cross-listed with ANTH529 and AMST 529)

### 532. Maroon Societies.

*Fall (3) Price. (Not offered in 2003-2004)*

An exploration of the African American communities created by escaped slaves throughout the Americas, from Brazil up through the Caribbean and the Southern United States.

### 541. The Caribbean.

*Fall or Spring (3) Ewell. (Not offered in 2003-2004)*

A survey of the colonial history of the region followed by an analysis of the economic, social and political developments of the nineteenth and twentieth centuries in the major island and mainland states.

### 542. Brazil.

*Fall or Spring (3) Ewell, Lane. (Not offered in 2003-2004)*

Antecedents of modern Brazil, 1500-present, with accent on economic, social, and cultural factors as well as on political growth in the Portuguese colony, the Empire, and the Republic.

### 545. The Cold War Era.

*Fall (3) Crapol.*

An intensive analysis of the origins of the cold war, the policy of containment, global conflict since 1945, the strategy of foreign aid, and the ideological contest in the underdeveloped world.

### 546. Ethnicity and State in Africa.

*Fall or Spring (3) Abdalla. (Not offered in 2003-2004)*

A study of the process of state formation, the institution of government, and tension between central hegemony and regional autonomy. In selected cases, emphasis will be placed on the problems of legitimization of office holders, expansion and consolidation of the state, and inter-ethnic rivalry.

**547. Crises of European Society.***Fall or Spring (3) Hoak. (Not offered in 2003-2004)*

Selected aspects of early modern Western society, including (for example) the social and economic foundations of Renaissance culture; poverty, crime, and violence; revolution and rebellion; death, disease, and diet; humanism and reform; witchcraft, magic, and religion; the new cosmography.

**553, 554. American Cultural and Intellectual History from the Beginning through the Early Twentieth Century.***Fall and Spring (3,3) C. Brown. (Hist 553 not offered in Fall 2003)*

An interdisciplinary approach to the development of colonial and early national American culture and society, with special emphasis during the first semester on the transit of European culture, regionalism, and the emergence of the ideology of American exceptionalism. Second semester explores the social construction of knowledge, race, gender, and class in the nineteenth and early twentieth-century United States, through an intensive reading of primary sources.

**557. Disease, Medicine and Society in Africa.***Fall (3) Abdalla.*

An examination of the relationship between environment, disease, and people in Africa. The course stresses the interdependence of beliefs and medical practice and assesses the impact these have on the demography and politics of African societies.

**559. Problems in Modern History.***Fall or Spring(3) Staff. (This course may be repeated for credit if there is no duplication of topic.)***561. Early American Social History.***Fall or Spring (3) Whittenburg. (Not Offered in 2003-2004)*

An examination of American social patterns from 1607 to 1800. Special emphasis on long-range trends of change and consistency. Topics will include, but not be limited to, economic, demographic, political, and religious developments.

**564. The New South.***Fall or Spring (3) Staff. (Not offered in 2003-2004)*

An examination of the political, economic, social and intellectual developments in the South since the Civil War. Readings will include both primary and secondary materials.

**571. Contemporary Russia.***Fall or Spring (3) Corney. (Not offered in 2003-2004)*

A seminar on topics in Russian history, 1953 to the present. Themes include the legacy of the Stalin era and issues of continuity and change in the post-Stalin years. The collapse of the Soviet Union and the problems of post-Communist Russia are also examined.

**572. The Russian Revolution.***Fall or Spring (3) Corney. (Not offered in 2003-2004)*

The origins, course, and impact of revolution in twentieth-century Russia, c. 1905-1953. Considerable use is made of primary materials. Themes include the dilemmas of late imperial Russia, the impact of modernization and war, and the issue of totalitarianism.

# **574. Ethnographic History.**

*Fall (3) Price. (Not offered in 2003-2004)*

Critical readings of recent works by anthropologists and historians, with an emphasis on cross-disciplinary theory and method.

# **577. History of Mexico.**

*Spring (3) Ewell.*

Development of the Mexican nation from the Spanish conquest to the present. Sequential treatment of the interaction of Spanish and Indian cultures, expansion of the frontier, independence, nineteenth-century liberalism and caudillism, the Mexican Revolution of 1910 and its institutionalization.

# **\*590, 591. Topics in History.**

*Fall and Spring (3) Staff.*

Topic changes each year. (These courses may be repeated for credit if there is no duplication of topic.)

## **Topics for Fall 2003**

### **Vernacular Architecture.** *Lounsbury.*

This course will serve as a study of everyday buildings as historical documents. It will include recording techniques, research strategies, theoretical approaches, landscape architecture and field trips.

### **Public History.** *Isaac.*

This course uses Colonial Williamsburg to explore the meaning of "history," focusing on ways that knowledge of the past is presented in various media and formats, from monographs, movie and video documentaries to museum interpreters on Duke of Gloucester Street.

### **Sites of Women's History.** *Huyck.*

This course will examine the tangible history found in historic sites (landscapes, structures, artifacts) pertinent to women's history and how to use historic sites to research and teach history. We will build an intellectual framework for using tangible resources to do women's history and a template for sites to use. Coursework will include on-site visits to key local and D.C. sites, as well as, extensive web-work, writing and research. Sites chosen will reflect temporal, ethnic and regional variety.

### **Consumption, Goods and American Society.** *McGovern.*

This seminar offers an intensive examination—theoretical, historical, material—of consumption practices in the United States. Primary concentration will be on the 20th century, although readings and materials will be drawn from throughout American history.

## **Topics for Spring 2004**

### **Writing and Reading Culture.** *Price.*

Trends in ethnography (and ethnographic history) during the past two decades. Students will begin with a "classic monograph," go on to read about the "crisis" in representation as depicted in Clifford and Marcus, and then devote themselves to a critical analysis of a range of more recent work.



**Introduction to Public History.** *Huyck.*

Examination of the philosophy and practices of preserving and presenting historic resources. Topics include historic sites, structures, artifacts, manuscripts and archeology. Interdisciplinary approach with individual and team projects to understand our tangible past.

**Archaeology of Colonial Williamsburg and Tidewater Virginia.** *M. Brown.*

This course examines the archaeological research on sites located in and around Williamsburg, the capital of the colony of Virginia from 1699-1781. The course explores the contributions that archaeological research has made to understanding the development of Jamestown and Williamsburg, in relation to a regional, plantation-based economy and society. Consideration is also given to larger issues surrounding the relative position of Williamsburg and its hinterland within the Atlantic World. Specific comparisons will be made with the development of other English colonies such as Bermuda and Barbados.

**Reinterpreting Colonial Virginia.** *Horn.*

Draws on a selection of primary documents, archaeology, and museums to discuss recent interpretations of colonial Virginia, 1580-1780. Themes include contact and encounter, culture change, ethnicity and race, "becoming American," revolution and republicanism. NIAHD Collegiate Program Spring Core Course.

**600 – 687. Reading Courses.**

*Fall and Spring (3) Staff.*

Reading courses in fields as indicated by course title. These courses are open only to candidates for advanced degrees. Instructor may require students to audit relevant undergraduate lectures and take a final exam.

**\*\*607, 608. Introduction to Historical Archaeology & Material Culture.**

*Spring (3) Staff.*

This course serves as an introduction for historians to Historical Archaeology and Material Culture. It surveys the development of the field, current theory and methods, as well as significant research on the cultural aspects of the colonization, industrialization, and urbanization of North America. Emphasis is placed on broad issues, practical skills, and on historical archaeology and material culture in a museum setting. (Open only to candidates for advanced degrees.)

**\*612. European History, 1357-1598.**

*Fall or Spring (3,3) Homza. (Not offered in 2003-2004)*

**\*615, 616. European History, 1648-1871.**

*Fall and Spring (3,3) Schechter. (Not offered in 2003-2004)*

**\*619, 620. History of England.**

*Fall and Spring (3,3) Augusteijn, Visiting Associate Professor, Leiden University, McCord. (Hist 619 not offered in Fall 2003)*

**\*631. Spanish History, 1469-1939.**

*Fall or Spring (3) Homza. (Not offered in 2003-2004)*

**\*633, 634. History of Germany.**

*Fall and Spring (3,3) Campbell, Associate Professor, Modern Languages. (Hist 633 not offered in 2003-2004)*

**\*637, 638. French History, 1648 to Present.**

*Fall and Spring (3,3) Ferguson. (Hist 637 not offered in 2003-2004)*

**\*639, 640. Latin American History.**

*Fall and Spring (3,3) Lane, Ewell. (Hist 640 not offered Fall 2003)*

**\*643, 644. United States Foreign Relations.**

*Fall and Spring (3,3) Crapol.*

**\*648, 649. History of Russia.**

*Fall and Spring (3,3) Corney.*

**\*650. Invasion of North America.**

*Fall or Spring (3) Axtell. (Not offered in 2003-2004)*

**\*651, 652. African History.**

*Fall and Spring (3,3) Abdalla. Achebe.*

**\*653. Race Relations in South Africa.**

*Fall or Spring (3) Abdalla. (Not offered in 2003-2004)*

**\*655, 656. Medieval Europe.**

*Fall and Spring (3,3) Daileader. (Not offered in 2003-2004)*

**\*658. European Exploration of the World, 1450-1600.**

*Fall or Spring (3) Axtell.*

**\*679, 680. Modern Middle East.**

*Fall and Spring (3) Rafeq.*

**\*683. Japanese History, 1600-Present.**

*Fall or Spring (3) Staff. (Not offered in 2003-2004)*

**\*684. Chinese History, 1644-Present.**

*Fall (3) Canning.*

**\*685. Korean History.**

*Fall or Spring (3) Staff. (Not offered in 2003-2004)*

**\*686. U.S.-China Relations since 1784**

*Fall or Spring (3) Canning.*

**\*\*700. Thesis.**

*Fall and Spring (3) Sheriff.*

Research and writing for Master's thesis.

**\*\*701-702. History and Literature of History.**

*Sec. 1. American History. Fall and Spring, (3,3) Crapol, Ely, Grasso, Hahamovitch, Mapp, Meyer, Nelson, Whittenburg.*

*Sec. 2. European History. Fall and Spring, (3,3) Daileader, Homza, Koloski.*

A review of the principal themes of modern scholarship on American or European history. Coverage of major writers, the topics that most attracted their attention, and the schools of interpretation into which they may be grouped. (Open only to candidates for advanced degrees.)

**\*\*703. Quantitative Methods.**

*Fall or Spring (3) Whittenburg. (Not offered in 2003-2004)*

An introduction to quantitative methods with emphasis on acquiring the ability to understand and evaluate the work of scholars who use statistical tools. (Open only to candidates for advanced degrees.)

**705. Teaching History.**

*Spring (1) Axtell.*

An exploration of the variety of teaching philosophies, techniques, and outcomes in higher education, taught by the faculties of History and American Studies. Required of all doctoral students who wish to serve as teaching fellows, but open to all degree candidates in those fields. This course will be graded pass/fail.

**\*\*710 – 714. Research Seminars.**

*Fall (3) Staff.*

Research seminars in fields as indicated by course title. These courses are open only to candidates for advanced degrees.

**\*\*710. Research Seminar: America to 1789.**

*Fall (3) Axtell.*

**\*\*711. Research Seminar in American History, 1760-1877.**

*Fall (3) Sheriff.*

**\*\*712. Research Seminar in United States History since 1861.**

*Fall (3) Meyer.*

**\*\*713. Research Seminar in European History.**

*Fall (3) Staff. (Not offered in 2003-2004)*

**\*\*714. Research Seminar in British History.**

*Fall (3) Hoak. (Not offered in 2003-2004)*

**\*\*715. Pro-seminar in Early American History to 1789.**

*Fall and Spring (3,3) Axtell, Brown, Grasso, Hoffman, Lane, Whittenburg.*

Pro-seminars explore, primarily through secondary literature, specific areas or aspects of history. Courses may be repeated for credit when instructors determine there will be no duplication of material. (Open only to candidates for advanced degrees.) The topic marked + may fulfill requirement for History 716. Topics frequently offered include:

Invasion of North America. Axtell.

Colonialism and Resistance in the Americas. Axtell.

Puritans and Puritanism. C. Brown.

+Religion and American History to 1865. Grasso.

U.S. History, 18th-century intellectual/cultural. Grasso.

Readings in the American Revolution Era. Hoffman.

The Early Chesapeake. Hoffman.

Comparative Slavery. Achebe, Lane.

+The Backcountry, 18-19th C. Whittenburg.

**\*\*716. Pro-seminar in American History, 1789-1877.**

*Fall and Spring (3,3) C. Brown, Crapol, Ely, Grasso, Hahamovitch, Meyer, Nelson, Sheriff.*

Pro-seminars explore, primarily through secondary literature, specific areas or aspects of history. Course may be repeated for credit when instructor determines there will be no duplication of material. (Open only to candidates for advanced degrees.) Topics marked ++ may fulfill requirement for History 717. Topics frequently offered include:

- 19C. Cultural History & Theory. C. Brown.
- American Foreign Relations, 1776-1865. Crapol.
- American Foreign Relations, 1865-1917. Crapol.
- African-American History to 1865. Ely.
- Southern Society to 1861. Ely.
- Early Republic. Grasso.
- Religion and American History to 1865. Grasso.
- ++American Economic History. Nelson.
- ++American Ethnic History since 1865. Hahamovitch.
- ++Labor History Since 1800. Hahamovitch.
- ++History of Sexuality. Meyer.
- ++Women in the US since 1830. Meyer.
- American West. Sheriff.
- 19C. Social History. Sheriff.

**\*\*717. Pro-seminar in United States History since 1877.**

*Fall and Spring (3,3) Crapol, Hahamovitch, McGovern, Meyer, Nelson, Phillips.*

Pro-seminars explore, primarily through secondary literature, specific areas or aspects of history. Course may be repeated for credit when instructor determines there will be no duplication of material. Topic marked +++ may fulfill requirement for History 716. Topic marked ++++ may fulfill requirement for History 715 or 716. Topics frequently offered include:

- Foreign Relations, New Deal to Cold War. Crapol.
- Origins of the Welfare State. Hahamovitch.
- U.S. Immigration History – Civil War to Present. Hahamovitch.
- Nation, Culture and Citizenship in America. McGovern.
- 20th-century Cultural and Political History. Meyer.
- +++Women's/Gender History. Meyer.
- +++History of Sexuality. Meyer.
- Gilded Age. Nelson.
- African-American History since 1865. Phillips.
- ++++Interdisciplinary Methods. Phillips.

**\*\*718. Pro-seminar in European History.**

*Fall and Spring (3,3) Staff. (Not offered in Fall 2003)*

Pro-seminars explore, primarily through secondary literature, specific areas or aspects of history. Topics change each semester. Courses may be repeated for credit when instructors determine there will be no duplication of material. (Only open to candidates for advanced degrees.)

**\*\*719. Pro-Seminar in British History.***Fall and Spring (3,3) Hoak. (Not offered in Fall 2003)*

Pro-seminars explore, primarily through secondary literature, specific areas or aspects of history. Topics change each semester. Courses may be repeated for credit when instructors determine there will be no duplication of material. (Open only to candidates for advanced degrees.)

**721 – 746. Advanced Reading Courses.***Fall or Spring (3) Staff.*

Reading courses in fields as indicated by course title. Course may be repeated for credit when instructor determines there will be no duplication of material. These courses are open only to candidates for advanced degrees. Instructor's permission required.

**\*\*721, 722. Early American History to 1815.***Fall and Spring (3,3) Axtell, Grasso, Hoffman, Whittenburg.***\*\*723. United States History Since 1815.***Fall and Spring (3,3) C. Brown, Crapol, Eby, Hahamovitch, Meyer, Nelson, Sheriff.***\*\*724. United States History Since 1861.***Fall and Spring (3,3) Crapol, Hahamovitch, Meyer, Nelson, Phillips.***\*\*725. Colonial Period of Latin American History.***Fall or Spring (3,3) Lane.***\*\*726. National Period of Latin American History since 1824.***Fall or Spring (3,3) Ewell.*

Normally intended for students preparing a doctoral field in Latin American history.)

**\*\*731. Medieval Europe: 400-1450.***Fall and Spring (3,3) Daileader.***\*\*732. Europe: 1400-1648.***Fall and Spring (3,3) Homza, Koloski.***\*\*733. Europe 1648-1815.***Fall and Spring (3,3) Schechter. (Not offered in 2003-2004)***\*\*734. Europe 1815-1945.***Fall and Spring (3,3) Koloski.***\*\*735. Russia and Europe 1905 to the Present.***Fall and Spring (3,3) Corney.***\*\*736. England to 1485.***Fall and Spring (3,3) Staff.***\*\*737. England 1485-1714.***Fall and Spring (3,3) Hoak.***\*\*738. England since 1714.***Fall and Spring (3,3) McCord.*

**\*\*741. East Asia: 1600-1850.**

*Fall and Spring (3,3) Staff. (Not offered in 2003-2004)*

**\*\*742. East Asia 1850 to Present.**

*Fall and Spring (3,3) Canning.*

**\*\*743. Africa: 1800 to the Present.**

*Fall and Spring (3,3) Abdalla, Achebe. (Not offered in Spring 2004)*

**\*\*745. The Modern Middle East: 1500 to 1800.**

*Fall and Spring (3,3) Rafeq.*

**\*\*746. The Modern Middle East: 1800 to the Present.**

*Fall and Spring (3,3) Rafeq.*

**\*\*758. Directed Research.**

*Fall and Spring (3,3) Staff. Instructor's permission required. Course may be repeated.*

**\*\*759. Topics in History.**

*Fall and Spring (3,3) Staff.*

An examination of selected topics in history. Course may be repeated once when instructor determines there will be no duplication of material. Graded Pass/Fail. Instructor's permission required. (Only open to doctoral candidates.)

**\*\*800. Dissertation.**

*Fall and Spring (1) Sheriff.*

Research and writing of doctoral dissertation.

## Physics

**PROFESSORS** William E. Cooke (Chair) (Ph.D., MIT), Carl E. Carlson (Class of 1962 Professor) (Ph.D., Columbia), John B. Delos (Ph.D., MIT), Morton Eckhause (Ph.D., Carnegie-Mellon), John M. Finn (Ph.D., Catholic U.), Keith A. Griffioen (Ph.D., Stanford), Gina L. Hoatson (Ph.D., East Anglia), John R. Kane (Ph.D., Carnegie-Mellon), William J. Kossler (Ph.D., Princeton), Henry Krakauer (Ph.D., Brandeis), Dennis M. Manos (CSX Professor of Applied Science) (Ph.D., Ohio State), Charles F. Perdriat (D.Sc., ETH, Zurich), Kenneth G. Petzinger (Ph.D., Pennsylvania), Edward A. Remler (Ph.D., North Carolina), Marc T. Sher (Ph.D., Colorado), Eugene R. Tracy (Chancellor Professor) (Ph.D., Maryland), George M. Vahala (Ph.D., Iowa), Hans C. von Baeyer (Chancellor Professor) (Ph.D., Pennsylvania State). **ASSOCIATE PROFESSORS** David S. Armstrong (Class of 1963 Associate Professor of Physics) (Ph.D., British Columbia), Christopher D. Carone (Ph.D., Harvard), and Shiwei Zhang (Sally Gertrude Smoot Spears Associate Professor of Physics) (Ph.D., Cornell). **ASSISTANT PROFESSORS** Todd D. Averett (Ph.D., Virginia), Jan L. Chaloupka (Ph.D., Rochester), Anne C. Reilly (Ph.D., Michigan) and Marc Vanderhaeghen (Ph.D., Gent). **PROFESSORS EMERITUS** Roy L. Champion (Chancellor Professor) (Ph.D., Florida), George W. Crawford (Ph.D., Ohio), Herbert O. Funsten (Ph.D., Virginia), Franz L. Gross (Ph.D., Princeton), John L. McKnight (Ph.D., Yale), and Harlan E. Schone (Ph.D., California, Berkeley), and J. Dirk Walecka (Governor's Distinguished CEBAF Professor) (Ph.D., MIT). **TJNAF PROFESSOR** Lawrence S. Cardman (Ph.D., Yale). **TJNAF ASSOCIATE PROFESSOR** Roger D. Carlini (Ph.D., New Mexico). **ADJUNCT PROFESSORS** H. Frederick Dylla (Ph.D., MIT), Joseph S. Heyman (Ph.D., Washington U.), Joel S. Levine (Ph.D., Michigan), Richard Madey (Ph.D., Berkeley), Alfred R. Osborne (Ph.D., Houston), and Stuart A. Wolf (Ph.D., Rutgers). **ADJUNCT ASSOCIATE PROFESSOR** Stanislaw Majewski (Ph.D., Warsaw). **ADJUNCT ASSISTANT PROFESSORS** Paul M. Danehy (Ph.D., Stanford) and Allison F. Lung (Ph.D., American U.). **RESEARCH ASSOCIATE PROFESSORS** D. Chris Benner (Ph.D., Arizona), Stephen D. Landy (Ph.D. Johns Hopkins), and Malathy Devi Venkataraman (Ph.D., Kerala). **RESEARCH ENGINEER** John P. Bensch (Ph.D., U. Pennsylvania).

## Departmental Requirements for the Degrees of Master of Science and Doctor of Philosophy

(See p. 26-27 for general College requirements.)

The Department follows the general College-wide admission rules; it requires applicants to submit their scores for the GRE subject test (Physics) as well as the GRE general test.

Although exceptions are made, it is recommended that graduate students begin their course work in the fall semester. However, new students who will be supported during the academic year may receive research assistantships for the summer before they begin their formal course work if funds are available.

### MASTER OF SCIENCE

The candidate must complete a program of courses required by the Department. This program depends on the candidate's preparation and special interests, but will include Physics 601, 603, 610, 621, 622, and 630. The candidate must pass a qualifying examination at the M.S. level. The exam deals with the undergraduate material, the content of the first-year graduate courses, and information obtained from seminars, colloquia, and journals. The candidate is required to register for Colloquium, (Physics 650) for a minimum of two

semesters of residence. In addition, the candidate must accumulate 32 credit hours, including registering for Physics 651 or 652 to obtain a minimum of two semesters teaching experience.

## DOCTOR OF PHILOSOPHY

The candidate must complete a program of courses required by the Department. This program depends on the candidate's preparation and special interests, but, in addition to the master's level courses, will include: Physics 611, 721, an additional semester of Colloquium, either Teaching or Research, a variety of specialty courses appropriate to his or her research areas with at least one elective inside and one outside his or her research area. The candidate must pass examinations that test familiarity with the principal fields of physics. Details of procedure will vary. It is required that the candidate pass the qualifying examination at the Ph.D. level and demonstrate competence in several advanced topics courses. The candidate must perform research which is an original and substantial contribution. The dissertation must be approved by a faculty committee and successfully defended in a public oral examination.

## Description of Courses

### 600. Independent Study.

*Fall, Spring (3,3) Staff.*

Course concerning special topics in physics not covered in regular course offerings. Course may be repeated for credit if instructor determines there will be no duplication of material.

### 601. Classical Mechanics.

*Fall (4) Vahala.*

The mechanics of particles and rigid bodies, methods of lagrangian and hamiltonian mechanics, relativistic mechanics, approximation techniques.

### 603. Mathematical Physics.

*Fall (4) Tracy.*

Complex variables and analytic functions. Vector spaces (finite dimensional and infinite dimensional), operators and matrix representations.

### 610. Classical Electricity and Magnetism-I.

*Spring (4) Eckhause.*

Electrostatics. Solution of boundary value problems. Green's functions and direct solution of Laplace's equation. Magnetostatics and steady currents. Maxwell's equations and plane wave solutions.

### 611. Classical Electricity and Magnetism-II.

*Fall (3) Eckhause. Prerequisite: PHYS610.*

Waves inside conducting boundaries. Radiation from simple current systems, spherical waves and multipole radiation. Covariant formulation of electromagnetism. Interaction of radiation with matter.

### 621. Quantum Mechanics-I.

*Fall (4) Delos.*

Axiomatic development of wave mechanics and the Schroedinger equation in one and three dimensions; wave packets, scattering theory.



**622. Quantum Mechanics-II.***Spring (4) Delos. Prerequisite: PHYS621.*

Scattering theory; spin; matrix methods; symmetry; perturbation theory and other approximate methods; identical particles.

**630. Statistical Physics and Thermodynamics.***Spring (4) Staff. Prerequisites: PHYS601, PHYS621.*

Statistical ensembles and averages, classical equilibrium, thermodynamics and statistical mechanics, quantum statistics, kinetic theory and transport properties.

**650. Physics Colloquium.***Fall and Spring (1,1) Cooke.***651, 652. Teaching Physics.***Fall and Spring (2,2) Cooke.*

Designed for entering students teaching a lab or tutoring one of our undergraduate courses. Respective faculty will instruct students in relevant ways.

**690. Advanced Topics in Physics.***Fall and Spring (Hours and credits to be arranged.) Staff.*

Special topics of current interest. This course may be repeated for credit when the instructor determines there will not be a duplication of material.

**690. Computer Simulation.***Fall (3) Zhang.*

Fundamentals of computer simulations and use to treat otherwise intractable real problems such as particle transport, fluid flows, earthquakes, forest fires, fracture mechanics, quantum physics, phase transitions, and statistical physics.

**690. Quantum Order, Classical Chaos.***Fall (3) Staff. (Not offered 2003-2004.)*

Order, Chaos, and the Relationship between Classical Mechanics and Quantum Mechanics. Modern developments in classical mechanics, nonlinear dynamics and chaos. Semiclassical approximations, and the connection between quantum and classical descriptions.

**695. Research.***Fall and Spring (v,v) Cooke.***702. Advanced Mathematical Physics.***Spring (3) Krahauser. Prerequisite: PHYS603.*

Differential equations, Green's functions, some hypergeometric functions, group theory, representation of groups.

**721. Field Theory and Relativistic Quantum Mechanics.***Fall (3) Carlson. Prerequisite: PHYS622.*

Classical field theories, Dirac Equation, canonical quantization, Interacting field theories, Feynman diagrams. Relation to non-relativistic many-body theory, and applications to atomic transitions. Quantum electrodynamics and introduction to radiative corrections.

**722. Quantum Field Theory.**

*Spring (3) Staff. Prerequisite: PHYS721.*

Functional integral quantization of field theories. Quantization of gauge theories. Renormalization. Spontaneous Symmetry Breaking and the Higgs mechanism.

**741, 742. Solid State Physics.**

*Fall and Spring (3,3) Krakauer. Prerequisites: PHYS622, PHYS630.*

Introduction to solid state physics; crystal structure, phonons, electrons, electric and magnetic properties, impurities, elementary excitations, band theory and experiment, correlation function methods.

**761, 762. Atomic and Molecular Processes.**

*Fall and Spring (3,3) Delos. Prerequisite: PHYS622. (Not offered 2003-2004.)*

Theory of atomic structure; emission and absorption of radiation; fine and hyperfine structure; coupling schemes. Molecular structure and intermolecular forces; atomic and molecular collisions. Modern applications.

**771, 772. Nuclear and Particle Physics.**

*Spring and Fall (3,3) Carone, Vanderhaeghen. Prerequisite: PHYS622.*

Two-nucleon forces and the deuteron; nucleon scattering and polarization; nuclear systematics and models. Unitary symmetry; quarks and leptons, electrodynamics of fermions; weak interactions, QCD, and the standard model.

**773, 774. Advanced Particle Physics.**

*Fall and Spring (3,3) Staff. Prerequisite: PHYS622. (Not offered 2003-2004.)*

Topics of current interest in strong, electromagnetic, and weak interactions. This course may be repeated for credit when the instructor determines that there will not be a duplication of material.

**783. Plasma Physics.**

*Fall (3) Staff. (Not offered 2003-2004.)*

An introduction to plasma physics and magnetohydrodynamics. Particle orbit theory, macroscopic equations, waves in collisional and collisionless plasmas. Vlasov equation.

**784. Advanced Plasma Physics.**

*Spring (3) Staff. Prerequisite: PHYS783. (Not offered 2003-2004.)*

Selected topics such as plasma waves in a magnetic field, waves in a bounded plasma, plasma kinetic theory, and plasma radiation.

**786. General Relativity and Cosmology.**

*Spring (3) Carone.*

Introduction to general relativity, tensor analysis, gravitational field equations, gravitational waves, Schwarzschild and Kerr solutions, cosmological models, gravitational collapse.

**790. Advanced Topics in Physics.**

*Fall and Spring (Hours and credits to be arranged.) Staff.*

Special topics of current interest. This course may be repeated for credit when the instructor determines there will not be a duplication of material.

**800. Doctoral Dissertation.**

*Fall and Spring (Hours and credits to be arranged.) Cooke.*

## Psychology

PROFESSORS **W. Larry Ventis** (Chair) (Ph.D., Tennessee), **John B. Nezelek** (Ph.D., Rochester), **Michael P. Nichols** (Ph.D., Rochester), **Kelly G. Shaver** (Ph.D., Duke), and **Glenn D. Shean** (Ph.D., Arizona). ASSOCIATE PROFESSORS **Christopher T. Ball** (Ph.D., Flinders Univ. South Australia), **Joseph Galano** (Ph.D., Bowling Green State), **Pamela S. Hunt** (Ph.D., SUNY-Binghamton), **Lee A. Kirkpatrick** (Ph.D., Denver), **Harvey J. Langholtz** (Ph.D., Oklahoma), **Constance J. Pilkington** (Ph.D., Georgia), and **Neill Watson** (Ph.D., Harvard). ASSISTANT PROFESSORS **Robert C. Barnett** (Ph.D., SUNY-Binghamton), **Joshua A. Burk** (Ph.D., New Hampshire), and **Adam J. Rubenstein** (Ph.D., Texas-Austin). VISITING ASSISTANT PROFESSORS **J. Daly** and **C. Parish**. ADJUNCT FACULTY **Bierenbaum, Bisconer, Eischeid, Frieden, Gross, Mott and Tiller.**

### Department Requirements for the Degree of Master of Arts

(see p. 25-26 for general College requirements)

The program outlined below is substantially the first two years of a doctoral program. Only students intending to continue to a doctorate are admitted.

All students are expected to be in full-time residence for two years. All students are required to take 602, 604, 605, 607, 608, 618-619, 631, 633, and 706. Enrollment in 620 is required each semester. In order to continue in the program a student must earn a 3.0 (B) average over all courses taken the first year in residence. In order to be eligible for an assistantship in the second year, a student must have a minimum 3.0 GPA in the required first-year courses (proseminars, 631, 633, and 695). Professional behavior, as described in the Ethical Standards of the American Psychological Association, will also be considered in making decisions concerning retention and eligibility for an assistantship.

Additional requirements are detailed in the Departmental policy statement concerning the graduate program. The Graduate Record Exam is required for admission. Applicants for whom English is a second language should also submit scores on the Test of English as a Foreign Language (TOEFL). All application materials must be received by February 15th.

### Description of Courses

#### 500. Topics in Psychology.

*Fall and Spring (3,3) Staff.*

Course concerning special topics not covered in detail in regular course offerings. Course may be repeated for credit when the instructor determines there will be no duplication of material.

#### 602. Proseminar in Cognition and Thinking.

*Spring (3) Staff.*

An examination of the research and theory that helps define and explain the structure and function of the mind. The emphasis is on information processing in the registration, encoding, and retrieval of knowledge as well as its creative application of solutions to problems.

#### 604. Proseminar in Behavioral Neuroscience.

*Spring (3) Hunt.*

The study of behavior in the context of the physiology of the organism. Selected topics will be used to illustrate the research techniques and investigative procedures commonly employed by physiological psychologists.

**605. Proseminar in Psychopathology.**

*Fall (3) Shean.*

A critical examination of theory and research on the etiology and treatment of the major forms of psychopathology.

**607. Proseminar in Personality.**

*Spring (3) Staff.*

An examination of significant historical and contemporary issues in the study of personality. Emphasis will be placed upon questions of theoretical importance and upon the methodology of research in personality.

**608. Proseminar in Social Psychology.**

*Fall (3) Pilkington.*

A survey of classic and contemporary theory and research in social psychology. Topics include social cognition, interpersonal relationships, and interpersonal interaction.

**618-619 Professional Development Seminar.**

*Fall and Spring (2,2) Kirkpatrick.*

This course will foster the professional development of our M.A. students by holding weekly seminars over the first two semesters of the MA program. Research skills will be the primary focus of the course. They will consist of readings and discussions of philosophy of science, research methodology and design, research ethics, critical analysis of published studies, and research presentation.

**620. Colloquium.**

*Fall and Spring (1,1) Kirkpatrick.*

Course may be repeated for credit when the instructor determines there will be no duplication of material. (Graded Pass/Fail.)

**631. Advanced Statistics.**

*Fall (3) Kirkpatrick. Corequisite: PSY 631L.*

A course in small sample theory, nonparametric statistics, analysis of variance and experimental design with an introduction to computer programming.

**631L. Advanced Statistics Laboratory.**

*Fall (0) Kirkpatrick. Corequisite: PSY 631.*

**633. Multivariate Analysis.**

*Spring (3) Kirkpatrick. Psy 631 or equivalent. Corequisite: PSY 633L.*

An introduction to multivariate statistics including such topics as multiple regression, multivariate analysis of variance, and factor analysis.

**633L. Multivariate Analysis Laboratory.**

*Spring (0) Kirkpatrick. Corequisite: PSY 633.*

**655. Applied Decision Theory.**

*Spring (3) Langholtz.*

This course will examine the application of decision theory in real-life decision situations. Topics will include decision making under certainty, risk, and uncertainty; assessment, analysis, accuracy, heuristics, utility; cognitive aspects of decision making, organizational decision making; implementation of decisions; and other topics.

**690. Directed Readings.**

*Fall and Spring (v,v) Kirkpatrick.*

Course may be repeated. Credit will be from one to three hours depending upon work undertaken.

**695. Independent Research.**

*Fall and Spring (3,3) Kirkpatrick.*

This course constitutes the research apprenticeship for all students in the first year of the M.A. program. Students design and conduct research with a faculty advisor of their choice. Course may be repeated for credit. (Previously numbered PSY625.)

**700. Thesis.**

*Fall and Spring (v,v) Thesis. Kirkpatrick.*

Must be currently enrolled in the Graduate Psychology program.

**706. Proseminar in Life Span Developmental Psychology.**

*Fall (3) Rubenstein.*

An overview of current issues, theories and research in human development across the lifespan.

## The Degree of Doctor of Psychology

The Doctorate of Psychology in Clinical Psychology (Psy.D.) is offered through a consortial program, sponsored by the College of William and Mary, Eastern Virginia Medical School, Norfolk State University, and Old Dominion University. The program is administered by the Virginia Consortium Program in Clinical Psychology, a cooperative interinstitutional mechanism for coordinating the resources of these supporting institutions. The program is accredited by the American Psychological Association.

The mission of the Virginia Consortium Program is to graduate practicing clinical psychologists who are educated in the basic subjects and methods of psychological science, capable of critically assimilating new knowledge, proficient in the delivery and evaluation of psychological services in the public and private sectors, and able to assume leadership positions in mental health service delivery systems.

Scientific knowledge and methods form the foundation for effective clinical services. Although the objectives of the basic researcher and the clinical practitioner are different, productivity for both involves articulating current problems and issues, formulating creative solutions to those problems, and validating hypotheses by systematically gathering empirical evidence. Continuing professional development for both requires the discipline to critically appraise the scientific merits of new theoretical and empirical developments in the behavioral sciences. Thus, methodological training in the Virginia Consortium includes statistical theory and techniques, research design, and ethics of research with human participants. Traditional nomothetic group comparison methods, quasi-experimental research designs, program evaluation methods, and single-participant time-series investigations in clinical settings are all valued research procedures.

The clinical psychologist encounters a diversity of client populations and human problems. Implementation of effective services and programs requires an understanding of the complex array of biological, psychological, and sociocultural factors affecting human behavior. Accordingly, the curriculum of the Virginia Consortium contains instruction in fundamental content areas of psychology. Those substantive areas include physiological psychology, learning, developmental psychology, abnormal behavior, social psychology, and community psychology.

Through more thorough knowledge of a specialized area is encouraged late in training, premature specialization is discouraged in order to avoid a dogmatic and doctrinaire approach to clinical problems. Accordingly, the basic education for professional service is generic in content and in theoretical orientation. Prior to the development of an area of concentration, the curriculum exposes the student to the major theoretical and technical models: psychodynamic, behavioral, phenomenological, family-systemic, and community-prevention. Although provisions are made for the student to pursue individual interests, no theoretical model, intervention modality, or client population is accorded primacy in the basic education of the student.

The clinical psychologist functions in a diversity of professional settings and service roles. Training is provided in evaluation and intervention at the neuropsychological, individual, family system, and community/organizational levels. To prepare for leadership roles in professional settings the curriculum also includes instruction in ethical issues, legal factors, interprofessional relations, organizational management, and standards of accountability for service providers.

Knowledge and skills acquired in the classroom are applied in an orderly sequence of supervised practica. Practicum objectives are integrated with the goals of didactic education to facilitate the systematic acquisition and refinement of clinical skills. In the third year of the curriculum, the student coordinates practicum training and elective coursework with a clinical dissertation in a year of advanced training and study, drawing on resources

in neuropsychology, individual therapy, family therapy, and community-prevention. For intensive professional training, the student completes a full-year, supervised internship in the fourth year of the curriculum.

Though the program's consortial arrangement provides a wealth of resources to the student, it also involves the inconvenience of travel among four schools. Courses are coordinated in order to minimize travel.

A student has (7) seven years to complete all degree requirements from the time he/she enters the program.

The general requirements for the degree of Doctor of Psychology are listed on page 28. Information on specific degree requirements, application procedures and deadline, admissions, financial aid, student evaluation, etc., is published in a separate catalog available only from The Virginia Consortium. See the program's website at [www.vccpcp.odu.edu/vccpcp](http://www.vccpcp.odu.edu/vccpcp).

## **COURSES IN THE DOCTOR OF PSYCHOLOGY PROGRAM TAUGHT AT THE COLLEGE OF WILLIAM AND MARY**

### **706. Proseminar in Life Span Developmental Psychology.**

*Fall (3) Rubenstein.*

An overview of current issues, theories and research in human development across the lifespan.

### **765. Clinical Health Psychology.**

*Summer (3) Staff.*

Defines clinical health psychology as a health care profession in medical settings. Surveys, assessment, diagnostic, and treatment issues in psychophysiological disorders, behavioral medicine, pain management, physiological self-regulation, hypnosis, biofeedback, medical psychology consultation, psychophysiological stress profiling, relapse prevention, practice management, research, program development, and special ethical issues.

### **768. Research Methods III: Research in Psychotherapy.**

*Fall (3) Ventis.*

As a review of research in therapy, the course examines research on the variables that influence the process and outcome in therapy, including relationship variables and the problem of negative effects. Research in clinical assessment is also included.

### **775. Prevention and Community Psychology.**

*Fall (3) Galano.*

This course explores community psychology and the role of prevention in mental health. Contemporary prevention theory is presented emphasizing an ecological and developmental approach to understanding risk and protective factors. Equal emphasis is placed on research and practice. State-of-the-art model programs and community-based approaches are highlighted.

### **780. Clinical Psychopathology.**

*Fall (3) Shean.*

The course includes review and application of the diagnostic system (DSM-IV).

### **785. Phenomenological Assessment and Psychotherapy.**

*Fall (3) Watson.*

This course considers phenomenological theories of psychopathology and the practice of phenomenological psychotherapy. Theorists include Adler, Angyal, Binswanger, Kelly, Laing, and Rogers. Particular attention is given to client-centered therapy and to

constructivist psychology. The history of existential and humanistic therapies is considered. An epistemological perspective is used to compare phenomenological therapies to other systems of psychotherapy.

#### **790. Directed Readings.**

*Fall, Spring, Summer (v) Staff.*

Course may be repeated. Credit will be from one to three credits depending on work undertaken.

#### **792. Family Therapy.**

*Summer (3) Nichols.*

This course introduces family therapy not merely as another technique but as a different way to look at human problems. Systems theory and its application in various approaches to family therapy and its application in various approaches to family therapy will be examined, with an emphasis on clinical practice.

#### **793. Practicum.**

*Fall and Spring (3,3) Watson, Galano. May be repeated for credit.*

During each practicum the student is assigned to a practice setting where he/she is given an opportunity to learn the skills of a clinical psychologist under close supervision. Various mental health settings throughout southeastern Virginia are used for this experience. This training is supplemented by laboratories on specific topics throughout the semester.

#### **794. Advanced Practicum.**

*Fall, Spring, Summer (3-6,3-6,3-6) Watson, Watson, Nichols. May be repeated for credit.*

In this practicum the student is supervised in the development of advanced skills in clinical psychology in a practice setting. The practicum is part of third-year advanced training in the Psy.D. Program.

#### **795. Clinical and Ethical Issues.**

*Fall and Spring (1) Watson, Galano. May be repeated for credit.*

#### **796. Practicum in Family Therapy.**

*Fall (3-6) Nichols. Prerequisite: appropriate clinical experience.*

**Psychology 798 is taken concurrently. For Psy.D. students only.**

In this course the student is supervised in the practice of family therapy in a setting approved by the instructor. This course is the practicum training component of the Fall semester of a third-year concentration in family therapy in the Psy.D. Program.

#### **797. Practicum in Family Therapy.**

*Spring (3-6) Nichols. Prerequisite: appropriate clinical experience. For Psy.D. students only.*

In this course the student is supervised in the practice of family therapy in a setting approved by the instructor. This course is the practicum training component of the Spring semester of a third-year concentration in family therapy in the Psy.D. Program.

#### **798. Advanced Family Therapy.**

*Fall (3) Nichols. Prerequisite: appropriate coursework. Consent of the instructor required.*

This course focuses on techniques of family therapy, highlighting their application in a variety of clinical contexts. Emphasis is on structural family therapy, but the Bowenian and psycholanalytic models also will be covered.



**800. Clinical Dissertation.**

*Fall, Spring, Summer (3-6, 3-6, 3-6) Staff.*

The dissertation is coordinated with practica and electives during the third year to provide the student with an opportunity to develop an area of concentration. The dissertation presents the results of applied research.

COURSES IN THE DOCTOR OF PSYCHOLOGY PROGRAM TAUGHT AT EASTERN VIRGINIA MEDICAL SCHOOL, NORFOLK STATE UNIVERSITY, AND OLD DOMINION UNIVERSITY

**632. Intellectual Assessment.**

*Fall (3) NSU.*

**633. Learning and Applications.**

*Fall (3) NSU.*

**635. Multicultural and Lifestyles Issues.**

*Spring (3) NSU.*

**650. Social Psychology.**

*Spring (3) NSU.*

**741. Research Methods IV: Program Evaluation.**

*Spring (3) NSU.*

**755. Group Therapy.**

*Fall (3) NSU.*

**791. Independent Study.**

*Fall and Spring (3) NSU.*

**824. Research Methods I: Statistics & Research Design.**

*Fall (3) ODU.*

**825. Research Methods II: Statistics & Research Design.**

*Spring (3) ODU.*

**858. Clinical and Ethical Issues.**

*Spring, Summer (1) ODU.*

**859. Cognitive & Behavioral Therapies.**

*Spring (3) ODU.*

**860. Practicum #5 and #6.**

*Spring, Summer (3) ODU.*

**862. Psychodynamic Psychotherapy.**

*Spring (3) ODU.*

**873. Biological Bases I: Physiological Psychology.**

*Spring (3) ODU.*

**874. Biological Bases III: Drugs and Behavior.**

*Spring (3) ODU.*

**890. Internship in Clinical/Community Psychology.**

*Fall, Spring, Summer (4) ODU.*

**892. Practicum #3.**

*Summer (3) NSU.*

**892L. Clinical and Ethical Issues.**

*Summer (1) NSU.*

**894. Clinical Dissertation.**

*Fall, Spring, Summer (3-6, 3-6, 3-6) ODU.*

**895. Practicum #4.**

*Fall (3) NSU.*

**895L. Clinical and Ethical Issues.**

*Fall (1) NSU.*

**896. Advanced Practicum.**

*Fall, Spring, Summer (3-6, 3-6, 3-6) NSU.*

**899. Clinical Dissertation.**

*Fall, Spring, Summer (3-6, 3-6, 3-6) NSU.*

**900. Directed Study.**

*Fall and Spring (3) EVMS.*

**925. Child Development and Psychopathology.**

*Summer (3) EVMS.*

**930. Personality Assessment I.**

*Spring (3) EVMS.*

**935. Personality Assessment II.**

*Summer (3) EVMS.*

**960. Biological Bases II: Clinical Neuropsychology.**

*Summer (3) EVMS.*

**970. Leadership Issues/Ethics.**

*Summer (3) EVMS.*

**985. Advanced Clinical Neuropsychology I.**

*Fall (3) EVMS.*

**986. Advanced Clinical Neuropsychology II.**

*Spring (3) EVMS.*

**990. Clinical Dissertation.**

*Fall, Spring, Summer (3-6, 3-6, 3-6) EVMS.*

**993. Advanced Clinical Practicum.**

*Fall, Spring (3-6, 3-6) EVMS.*

## Public Policy

**Robert B. Archibald** (Director) (Ph.D., Purdue; Director, Center for Public Policy Research and Professor of Economics), **Berhanu Abegaz** (Ph.D., Pennsylvania; Associate Professor of Economics), **David P. Aday, Jr.** (Ph.D., Kansas; Professor of Sociology), **Samuel H. Baker III** (Ph.D., Virginia; Professor of Economics), **Arnab K. Basu** (Ph.D., Johns Hopkins; Assistant Professor of Economics), **Lynda L. Butler** (J.D., Virginia; Professor of Law), **Donald E. Campbell** (Ph.D., Princeton; CSX Professor of Economics and Public Policy), **Edward P. Crapol** (Ph.D., Wisconsin; Chancellor Professor of History), **Neal E. Devins** (J.D., Vanderbilt; Professor of Law), **Davidson M. Douglas** (LL.B. and Ph.D., Yale; Professor of Law), **C. Lawrence Evans** (Ph.D., Rochester; Professor of Government), **David H. Feldman** (Ph.D., Duke; Professor of Economics), **David H. Finifter** (Ph.D., Pittsburgh; Dean of Research and Graduate Studies and Professor of Economics), **Dorothy E. Finnegan** (Ph.D., Pennsylvania State; Associate Professor of Education), **Robert E. Fritts**, Ambassador (ret.) (B.A., Michigan; Senior Fellow in Foreign Policy), **John B. Gilmour** (Ph.D., California-Berkeley; Associate Professor of Government), **George W. Grayson** (Ph.D., Johns Hopkins; Class of 1938 Professor of Government), **Susan S. Grover** (J.D., Georgetown; Associate Professor of Law), **William J. Hausman** (Ph.D., Illinois; Professor of Economics), **James S. Heller** (J.D., San Diego; Professor of Law), **Carl H. Hershner** (Ph.D., Virginia; Associate Professor of Marine Science), **Christopher D. Howard** (Ph.D., Massachusetts Institute of Technology; Associate Professor of Government), **David A. Jaeger** (Ph.D., Michigan; Associate Professor of Economics), **Eric R. Jensen** (Ph.D., Michigan; Professor of Economics), **Charles H. Koch, Jr.** (LL.M., Chicago; Dudley W. Woodbridge Professor of Law), **Gary A. Kreps** (Ph.D., Ohio State; Professor of Sociology), **Daniel A. Krier** (Ph.D., Kansas; Assistant Professor of Sociology), **David W. Leslie** (Ed.D., Pennsylvania State; Professor of Education), **Linda A. Malone** (J.D., Duke; Marshall-Wythe Foundation Professor of Law), **Elaine S. McBeth** (M.A., Virginia; Associate Director and Adjunct Professor of Economics and Public Policy), **John J. McGlennon** (Ph.D., Johns Hopkins; Professor of Government), **John A. McLaughlin** (Ed.D., Temple; Research Associate), **Alan J. Meese** (J.D., Chicago; Professor of Law), **Jennifer M. Mellor** (Ph.D., Maryland; Assistant Professor of Economics), **James E. Moliterno** (J.D., Akron; Professor of Law), **Carlisle E. Moody, Jr.** (Ph.D., Connecticut; Professor of Economics), **Roy L. Pearson** (Ph.D., Virginia; Chancellor Professor of Business Administration), **Alfredo M. Pereira** (Ph.D., Stanford; Professor of Economics), **Katherine Rahman** (Ph.D., Virginia; Director, Washington Program and Assistant Professor of Government), **Ronald B. Rapoport** (Ph.D., Michigan; John Marshall Professor of Government), **William M. Rodgers, III** (Ph.D., Harvard; Francis and Edwin L. Cummings Associate Professor of Economics), **Yana van der Meulen Rodgers** (Ph.D., Harvard; Associate Professor of Economics), **Ronald H. Rosenberg** (J.D., North Carolina - Chapel Hill; Professor of Law), **Louis F. Rossiter** (Ph.D., North Carolina - Chapel Hill; Senior Research Fellow, Center for Public Policy Research), **Kathleen F. Slevin** (Ph.D., Georgia; Professor of Sociology), **Sarah L. Stafford** (Ph.D. Johns Hopkins; Assistant Professor of Economics), and **Dennis L. Taylor** (Ph.D., Wales; A. Marshall Acuff, Jr. Professor of Marine Science).

# The Thomas Jefferson Program in Public Policy

## General Description

The university offers a two-year interdisciplinary master's degree program that prepares students for careers in public service by combining training in quantitative techniques and economic analysis with instruction in the political, legal, and organizational environments in which policy is made and implemented.

The goal of The Thomas Jefferson Program in Public Policy is to help prepare students for the rigorous demands of responsible careers in public service by providing them with the range of skills and insights that are needed; the analytical and quantitative skills that are essential professional tools; a comprehensive understanding of the policy-making process; and thorough grounding in the ethics of policy-making and the goals of public policy. We aim to train individuals who have the ability to make a major contribution to the efficiency and the responsiveness of government at all levels.

While the primary purpose of the program is to prepare individuals for public service, we recognize that the skills developed in the program are useful in other settings as well, including the private and the non-profit sectors and in the growing linkage between government and the other sectors.

The Thomas Jefferson Program also includes an interdisciplinary undergraduate major in public policy, conferences, lectures, and visiting faculty and practitioners.

## JOINT DEGREE IN LAW AND PUBLIC POLICY

A combined law and public policy program is available in which the student may obtain both a master's degree (M.P.P.) and a J.D. degree in four years, instead of the five years that would be required if each degree were pursued separately. Candidates interested in this joint degree program must apply to and gain acceptance by both the School of Law and The Thomas Jefferson Program in Public Policy.

## JOINT DEGREE IN BUSINESS AND PUBLIC POLICY

A combined business administration and public policy program is available in which the student may obtain both a Master of Business Administration degree and a Master of Public Policy degree in three years, instead of the four years that would be required if each were pursued separately. Candidates interested in this joint degree program must apply to and gain acceptance by both the Graduate School of Business Administration and The Thomas Jefferson Program in Public Policy.

## CONCURRENT DEGREE IN MARINE SCIENCE AND PUBLIC POLICY

A combined marine science and public policy program is available in which the student may obtain both a M.S. in Marine Science and an M.P.P. degree in three years, instead of the four years that would be required if each degree were pursued separately. Candidates interested in this concurrent degree program must apply to and gain acceptance by both the School of Marine Science and The Thomas Jefferson Program in Public Policy.

## CONCURRENT DEGREE IN COMPUTATIONAL OPERATIONS RESEARCH AND PUBLIC POLICY

A combined computational operations research and public policy program is available in which the student may obtain both a M.S. in C.O.R. and an M.P.P. degree in three years, instead of the four that would be required if each degree were pursued separately. Candidates interested in this concurrent degree program must apply to and gain acceptance by both the Department of Computer Science and The Thomas Jefferson Program in Public Policy.

## ADMISSION

Application forms for admission to graduate study should be requested from the Associate Director of The Thomas Jefferson Program in Public Policy. Beginning graduate students will enter in the fall. To insure full consideration for admission and financial assistance, applications, including all supporting materials and test scores, should be completed by February 15. Applications received after February 15 will be reviewed on a space available basis. For admission to The Thomas Jefferson Program an applicant must have completed the requirements for a bachelor's degree at an accredited college and must have the recommendation of the Graduate Admissions Committee of The Thomas Jefferson Program. All admissions must be approved by the Dean of Research and Graduate Studies, Arts and Sciences. Applicants are required to take the Graduate Record Examination.

To be admitted to the program, a student must demonstrate, through his or her undergraduate record, scores on the Graduate Record Examination, and three letters of recommendation, potential for success in the required quantitative courses, the ability to understand the policy-making process, and the potential to function effectively as a professional in a demanding policy position. No single undergraduate major is required, but students will be expected to have completed course work in the principles of economics. In addition, intermediate microeconomics and introductory statistics are strongly recommended. Students whose preparation is deficient may be required to take advanced undergraduate courses before matriculating.

## Academic Status

### 1. Continuance in Program

After each semester, the student must meet minimum levels of academic progress. The minimum requirements for continuance are as follows:

After semester	Cumulative Academic Credits	Cumulative Q.P.A.
1	13	2.5
2	25	2.75
3	37	3.0

A student who does not achieve the minimum level of academic progress for continuance will be required to immediately withdraw from the program for academic deficiencies.

### 2. Satisfactory Progress

In order to graduate, students must have completed 49 hours in the program with a quality point average (Q.P.A.) of 3.0.

To continue in the program, a student must make satisfactory progress toward the degree requirements. Satisfactory progress is defined as achieving and maintaining at least a 3.0 Q.P.A. for each semester of graduate study.

Students whose Q.P.A. falls below 3.0 in any semester will automatically be placed on academic probation for the following semester. Students permitted to continue in the program on academic probation must earn a minimum of 12 academic credits and a minimum Q.P.A. of 3.0 during the probationary semester. A student who fails to meet the probationary standard will be required to withdraw from The Program for academic deficiencies.

## PROGRAM REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC POLICY

(See p. 26 for general College requirements.)

The master of public policy (M.P.P.) degree program is a two-year, full-time, residential program requiring forty-nine hours of course credit.

1. The following core courses are required: PUBP500-Mathematics for Public Policy Analysis; PUBP601-The Political Environment; PUBP602-Quantitative Methods I; PUBP603-Quantitative Methods II; PUBP604-Microeconomics of Public Policy; PUBP606-Benefit-Cost and Evaluation Methodology; PUBP607-Law and Public Policy; PUBP609-Ethics and Public Policy; PUBP610-Policy Research Seminar; PUBP612-Public Management and Organizational Behavior.
2. Students are required to complete an internship (at least 10 weeks) in the summer after their first year of the program.
3. In addition to the core, students are required to take seven program electives; at least one elective must be a law course. Students may pursue one of the suggested tracks or any alternative set of courses developed with consent of the Director.

**Human Resource Policy** - Courses: PUBP623-Health Care Policy; PUBP640-Human Resource Policy Analysis; PUBP642-Legal Foundations of American Social Programs [cross listed with LAW430]; PUBP643-Employment Discrimination [cross listed with LAW452]; PUBP644-The Financing of Higher Education [cross listed with ED676]; PUBP645-Higher Education and Public Policy [cross listed with ED677]; PUBP646-Employment Law [cross listed with LAW456]; LAW579-The Family and the State; LAW492-Women and the Law.

**International Policy** - Courses: PUBP650-International Trade: Theory and Policy; PUBP651-Economic Development Policy; PUBP652-Public International Law [cross listed with LAW409]; PUBP660-Power, Security and Interdependence; BUS538-International Business Management; LAW496-International Commercial Law; LAW497-International Trade Law.

**Regulatory Policy** - Courses: PUBP620-Regulation of Markets; PUBP621-Administrative Law [cross listed with LAW453]; PUBP623-Health Care Policy; PUBP624-Law and Medicine Seminar [cross listed with LAW518]; PUBP625-Economic Principles of Fisheries Management [cross listed with MS529]; PUBP626-Law and Resource Management [cross listed with MS543]; PUBP627-Law, Policy and Environment [cross listed with LAW439]; PUBP628-Environmental Law [cross listed with LAW424].

**State and Local Policy** - Courses: PUBP630-The Economics of Policy-Making at the State and Local Level; PUBP631-State and Local Politics and Policy-Making; PUBP632-Local Government Law [cross listed with LAW429]; PUBP633-Land Use Control [cross listed with LAW425]; PUBP644-The Financing of Higher Education [cross listed with EPL676].

## Description of Courses

### 500. Mathematics for Public Policy Analysis.

*Fall (1 credit - pass/fail) McBeth. Prerequisite: College-level algebra.*

An introduction to mathematical methods applied to economics and policy analysis. The emphasis is on learning the techniques rather than proving theorems. Topics include: linear algebra, comparative static analysis, and optimization problems.

### 600. Topics in Public Policy.

*Fall and Spring (Variable credit, 1 to 3 credits) Staff.*

Course content varies: special topics courses; independent supervised research; experimentation with new seminars. Short courses (1-2 credits) will count as graduate credit, but will not count toward the 49 credits for the M.P.P. degree.

**601. The Political Environment.***Fall (3) Evans, Howard.*

An introduction to the political environment in which policy making occurs. Major themes include the impact of electoral incentives on the design of policy instruments, the importance of institutional structure, and the roles played by uncertainty and expertise in the political process.

**602. Quantitative Methods I.***Fall (3) Hausman.*

An introduction to the methods and techniques of statistical analysis with emphasis on public policy applications. Topics include: descriptive statistics; probability; sampling; survey design; hypothesis testing; correlation; regression; and introduction to multiple regression.

**603. Quantitative Methods II.***Spring (3) Jaeger, Jensen, Moody, W. Rodgers. Prerequisites: PUBP602.*

An introduction to theory and practice of econometrics with emphasis on techniques most useful to policy analysts. Topics include: regression estimation and the theory of least squares including examination of Gauss-Markov assumptions, properties of estimators, and estimation issues when Gauss-Markov assumptions are violated.

**604. Microeconomics of Public Policy.***Fall (3) Archibald.*

This course develops basic concepts of microeconomic theory, with an emphasis on the economics of the public sector. Topics include: market economy, prisoner's dilemma, preferences, constrained choice, consumer demand, profit maximization in a competitive market, market failure, and the effects of taxes, subsidies, and regulations.

**605. Survey Methodology.***Spring (3) Rapoport.*

An introduction to the formulation, implementation and analysis of political and public policy surveys. Topics to be covered include the psychology of the survey response, sampling, interviewing, focus groups, experimental design, hypothesis testing and data analysis. Students will carry out individually designed and group designed surveys, and write papers and reports around these projects.

**606. Benefit-Cost and Evaluation Methodology.***Spring (3) Finifter, Pereira.*

This course examines basic concepts and techniques involved with benefit-cost analysis. This approach will be applied to a variety of public policy issues and programs. Topics include: choice of discount rate, treatment of income distribution, intergovernmental grants, tax expenditures, regulation, and program evaluation.

**607. Law and Public Policy.***Fall (3) Butler, Devins, Grover, Heller.*

An introduction to public law decision making. Topics include: judicial authority, federalism, separation of powers, how to read court opinions, the role of the elected branches in shaping constitutional values, and the role of multiple disciplines in evaluating law-based public policy disputes.

**108. Budget Policy-Making.**

Fall (3) Gilmour, Howard.

An introduction to public budgeting at the national, state, and local levels, presented from three perspectives: macroeconomics, political science, and public administration. Emphasis is also given to the budgetary strategies employed by bureaucrats, politicians, and interest group representatives as they pursue their policy agendas.

**109. Ethics and Public Policy.**

Spring (3) Staff.

This course examines the ethical dimensions of domestic and international policy problems. It contrasts moral policy-assessment with economic, legal and political analysis; outlines a policy-making procedure that includes moral assessment; considers a code of professional ethics.

**110. Policy Research Seminar.**

Fall (3) Finifter.

This one semester research and writing intensive seminar involves both the further development of policy research skills and communication skills relevant to policy-making. Students will be involved in small-group, client-driven policy analysis projects and an individual project. In addition, students will analyze at least one quick-turnaround policy problem.

**112. Public Management and Organizational Behavior.**

Spring (3) Gilmour.

An examination of the ways in which public organizations and their leaders cope with the policy and management challenges that confront administrative agencies in a democratic society. Theoretical literature as well as case studies will be utilized.

**115. Cross Section Econometrics.**

Fall (3) Jensen, Rodgers. Prerequisite: PUBP 603

Economic data often come as a cross-section of data points, frequently collected as part of a sample survey. The nature of these data calls for the use of a specialized set of tools, which will be developed in the course. Among the models to be examined are discrete, censored and truncated dependent variable, sample selectivity and duration models. Hands-on analysis of data sets will feature prominently.

**116. Time Series Econometrics.**

Spring (3) Moody. Prerequisite: PUBP 603

This course is an introduction to the econometric analysis of time series data. Topics include ARIMA models, forecasting, analysis of nonstationary series, unit root tests, cointegration and principles of modeling.

**120. Regulation of Markets.**

Spring (3) Baker.

An in-depth study of government intervention in markets. Principal focus on characteristics and effects of rules and institutions governing markets and the definition of areas of market failure. Topics include: regulation of monopoly, antitrust enforcement, and regulation of spill-overs.



**621. Administrative Law.***Fall (3) Devins, Koch.*

A study of practice in the administrative process, examining the procedures for administrative adjudication and rulemaking; legislative and judicial control of administrative action; and public access to governmental processes and information [cross listed with LAW453].

**623. Health Care Policy.***Fall (3) Mellor.*

The application of microeconomic theory, quantitative analysis, and policy evaluation to the health care delivery and financing systems. Coverage includes the economic dimensions of health care, health status, medical manpower, hospitals and other institutional providers, third party financing, quality assessment, systematic analysis, and national health policies.

**624. Law and Medicine Seminar.***Spring (3) Hubbard.*

A study of medical jurisprudence and hospital law focusing on medical malpractice and tort law reform and contemporary problems including the regulation of health care delivery systems, access to health care, and antitrust challenges [cross listed with LAW518].

**625. Economic Principles of Fisheries Management.***Fall (3) Kirkley.*

An introduction to the economic theories and principles which determine the exploitation, utilization, and management of marine resources. The course presents theories and principles in mathematical terms, but the interpretation and understanding of policies and solutions are emphasized [cross listed with MS 529].

**626. Law and Resource Management.***Spring (3) Taylor.*

An interdisciplinary course designed to examine the interrelationships between scientific and legal concepts. Issues, legislation, and institutions associated with coastal zone management, outer continental shelf development, fisheries, and other questions related to marine resource management will be examined [cross listed with MS 543].

**627. Law, Policy and Environment.***Spring (3) Malone.*

A study of the environmental policy-making process. Topics include: ecological and economic foundations of environmentalism, traditional institutional responses, the policy-making process in the context of our legal system, constitutional questions raised by judicial and agency involvement, and economic, political and ethical concerns raised by different theories of environmental decision-making [cross listed with LAW439].

**628. Environmental Law.***Spring (3) Malone, Rosenberg.*

A study of nature and causes of environmental pollution and legal techniques for its control. The course considers common law, environmental impact assessment process, and basic regulatory framework for air, water and solid hazardous waste control, and main policy issues presented by each. Other: role of federal courts in reviewing agency action, new developments in administrative law, natural resource management and allocation issues, toxic and hazardous substance regulation, and enforcement of laws [cross listed with LAW424].

### **30. The Economics of Policy-Making at the State and Local Level.**

*Fall (3) Baker.*

A topics course including, but not limited to, the measurement of state and local fiscal capacity, urban problems, urban infrastructure development, intergovernmental aid to localities, industrial location decisions, and local land use policy and its impact on growth and development.

### **31. State and Local Politics and Policy-Making.**

*Spring (3) McGlennon.*

This course examines the nature of state and local governments and their policy processes and outcomes, including relationships among levels of government, explanations for policy variations among states and localities, and constraints on attempts to deal with their public policy responsibilities.

### **32. Local Government Law.**

*Spring (3) Rosenberg.*

This course examines local government powers and relation to state and federal authority with emphasis on state and federal statutory and constitutional restraints on operation of local government entities. Topics include: Dillon's Rule, home rule, preemption, annexation, personnel matters, public contracts, borrowing and taxation, and public entity tort liability and immunity [cross listed with LAW429].

### **33. Land Use Control.**

*Spring (3) Butler, Rosenberg.*

Analysis of legal doctrines governing use of land in modern society. Topics include: zoning, land planning, sub-division regulations, rezoning, variances, conditional uses, and mandatory dedications, common law doctrines and private law methods which affect land use, and historic preservation as a land use problem [cross listed with LAW425].

### **40. Human Resource Policy Analysis.**

*Spring (3) Finifter, Jaeger.*

This course examines public policy aspects of labor markets. Topics include: role of markets in determining wages, fringe benefits, employment, labor force participation, unemployment, income distribution, and evaluation methodologies applied to education, training, equal pay and employment, unemployment insurance, social security, occupational safety and health, and welfare reform.

### **42. Legal Foundations of American Social Programs.**

*Spring (3) Koch.*

This course examines law relating to major benefits programs, including social security, medicare/medicaid, unemployment, employee rehabilitation, AFDC, and Food Stamps, including decision-making processes used in governance of these programs and the basic substantive law created for and by these programs [cross listed with LAW430].

### **43. Employment Discrimination.**

*Spring (3) Grover.*

A study of federal laws prohibiting discrimination in employment on account of race, national origin, gender, religion and handicapping condition, with emphasis on Title VII of the 1964 Civil Rights Act, the Age Discrimination in Employment Act and the Equal Pay Act [cross listed with LAW452].

**644. The Financing of Higher Education.***Fall (3) Finnegan.*

An overview of the financing of higher education. Besides becoming acquainted with the literature and main issues in finance, students will develop the ability to examine and analyze financial statements, assess the budget as an instrument of control, and relate the budget to the educational program [cross listed with EPPL676].

**645. Higher Education and Public Policy.***Spring (3) Staff.*

A seminar for advanced graduate students in which the general topic of the relationship between the government and higher education is developed. Major attention is given to developments since World War II [cross listed with EPPL713].

**646. Employment Law.***Fall (3) Douglas.*

This course will focus on a variety of common law and statutory legal issues surrounding the employer-employee relationship. Issues considered will include employment at-will, employee privacy, covenants not to compete, regulation of wages and hours, ERISA, worker's compensation, occupational health and safety, and unemployment compensation. This course will not overlap either 452 Employment Discrimination or 407 Labor Law [cross listed with LAW456].

**650. International Trade: Theory and Policy.***Spring (3) Basu, Feldman.*

Trade influences national income, resource allocation, and the distribution of income. We use economic theory to develop these ideas and to relate them to the public policy debate. Topics include: the economics of protectionism, industrial policy and strategic trade issues, regional integration, and the policymaking process itself.

**651. Patterns of Economic Development and Policy.***Fall (3) Abegaz, Y. Rodgers.*

This course applies relevant economic theories to the study of growth and structural change in less industrialized countries. Topics include sources of growth, industrialization, trade, income distribution, urbanization, and the state. Various techniques of policy analysis will be examined through selected case studies.

**652. Public International Law.***Fall (3) Malone.*

An examination of the nature and sources of international law and municipal law; the law of treaties; principles of jurisdiction; statehood and recognition of states and governments; sovereign immunity; rights of aliens; human rights; environmental issues; and regulation of international coercion [cross listed with LAW409].

**Elective Courses (Not Cross Listed)****BUSINESS**

- BUSN538-International Financial Management
- BUSN554-Human Resource Management
- BUSN578-Forecasting Methods and Applications
- BUSN583-Non-Profit Organizations

## COMPUTER SCIENCE

CS628-Linear Programming

CS718-Statistical Decision Theory [Prerequisite: Math 501]

## EDUCATION

EPPL601-Educational Policy: Development and Analysis

EPPL625-Current Issues in Higher Education

EPPL628-History of Higher Education

EPPL715-Public Schools and Public Policy

## GOVERNMENT

GOVT516-Revolution and Politics

GOVT533-Theories of the International System

GOVT544-The Politics of Metropolitan Areas

GOVT548-Public Opinion and Voting Behavior

GOVT549-U.S. Congress

## HISTORY

HIST545-History of American Foreign Policy in the Cold War Era

HIST575-Growth and Development of the American Economy

HIST576-The Rise of Urban America

HIST644-U.S. Foreign Relations

## LAW

LAW411-Antitrust

LAW412-Legislation

LAW426-Energy Law

LAW454-Economic Analysis of Law

LAW458-Health Law and Policy

LAW460-Mass Media Law

LAW481-Bioethics and the Law

LAW485-Immigration Law

LAW492-Women and the Law

LAW496-International Business Transactions

LAW497-International Trade Law

LAW524-Environmental Law Seminar

LAW538-National Security Law Seminar

LAW546-Government Contracts Seminar

LAW562-Legislation Seminar

LAW579-Family and State

## MATHEMATICS

MATH524-Introduction to Operations Research II [Prerequisite: Math501]

## MARINE SCIENCE

MS542-Principles and Theory of Resource Management

## Graduate Center Programs

The mission of the Graduate Center is to support and promote the culture of advanced study at the College of William and Mary. The Graduate Center provides students with up-to-date advice and interdisciplinary opportunities to develop the professional skills needed to take charge of their own careers. Functioning as a focal point between the University and the surrounding community, the Graduate Center will also promote greater public understanding of the role of graduate studies in the life of the University.

Student participation in all Graduate Center programs is voluntary. Workshops, seminars and courses are open to all William and Mary graduate students. The Graduate Center offers workshops and seminars on academic and non-academic job hunting, giving effective presentations, non-traditional career paths, professional ethics, public policy, starting your own business, and other topics. In addition to these informal seminars and workshops, the Graduate Center also sponsors a variety of short courses. These meet, typically, one or two hours per week to avoid scheduling conflicts with the traditional disciplinary courses. These College Courses are open to all William and Mary graduate students. Most are designated '0' credit, implying there is no cost to the student or home department. These 'College' courses are listed below. Please check for updated course offerings on our website (<http://www.wm.edu/graduate/center>).

### Course Offerings

#### **COL 501-502. English Language and Culture for International Graduate Students.**

*Fall, Spring (variable credit, graded) Davis.*

This is a course in conversational and written English for students, who may already be quite competent in the specialized English of their chosen fields, to gain competence and confidence in non-technical English. This aim is furthered through reading, writing, participation in discussions, making class presentations, learning current research skills, and talking with members of the University and local communities in informal situations.

#### **COL 503. Academic Writing for International Graduate Students.**

*Fall or Spring (0 credit, P/F) Monteith.*

In this course students learn how to identify their audience, organize information, and improve the style and flow of their writing. Short written assignments allow students to practice these elements, and the peer review process is used to evaluate and improve written assignments.

#### **COL 504. Scientific Writing for International Graduate Students**

*Fall or Spring (0 credit, P/F) Monteith.*

Overview of organizational techniques for preparing journal publications and dissertations, with emphasis on writing conventions, self editing, and revision. Students enrolled in this course should have a research project in progress. Cross listed with APSC 698.

#### **COL 506. Scientific Communication Skills.**

*Fall (2 credits) Milliman.*

Review of the important elements of oral and written presentation skills for communicating scientific research. Critical evaluation of literature, development of scientific questions and rationale for research, formulation of conceptual models for developing high-quality scientific research projects. Oral and written presentation skills are emphasized through written exercises and class presentations, with peer review. Cross listed as SMS/VIMS 506.

**COL 507. Writing for the Public.***Fall (0 credit, P/F) von Baeyer.*

A short course on non-technical, non-fiction writing for graduate students in all disciplines. Professionals are required to communicate in writing with people outside their immediate circle of colleagues. Annual reports, newsletters, synopses of grant applications, internal progress reports, instructional material, and press releases are just a few examples of ways of communicating with the public. This course provides an opportunity to practice this type of writing through critical reading and numerous short assignments that will be discussed on an individual basis. Enrollment is by permission of instructor.

**COL 510. Oral Presentation Skills.***Spring (0 credit, P/F) Staff.*

A course on the theory and application of oral communication in academic and professional contexts. Students will learn basic oral presentation skills and how to apply those skills in contexts such as conference presentations, job interviews, lectures, and media presentations.

**COL 511. Oral Presentation Skills for International Students.***Spring (0 credit, P/F) King.*

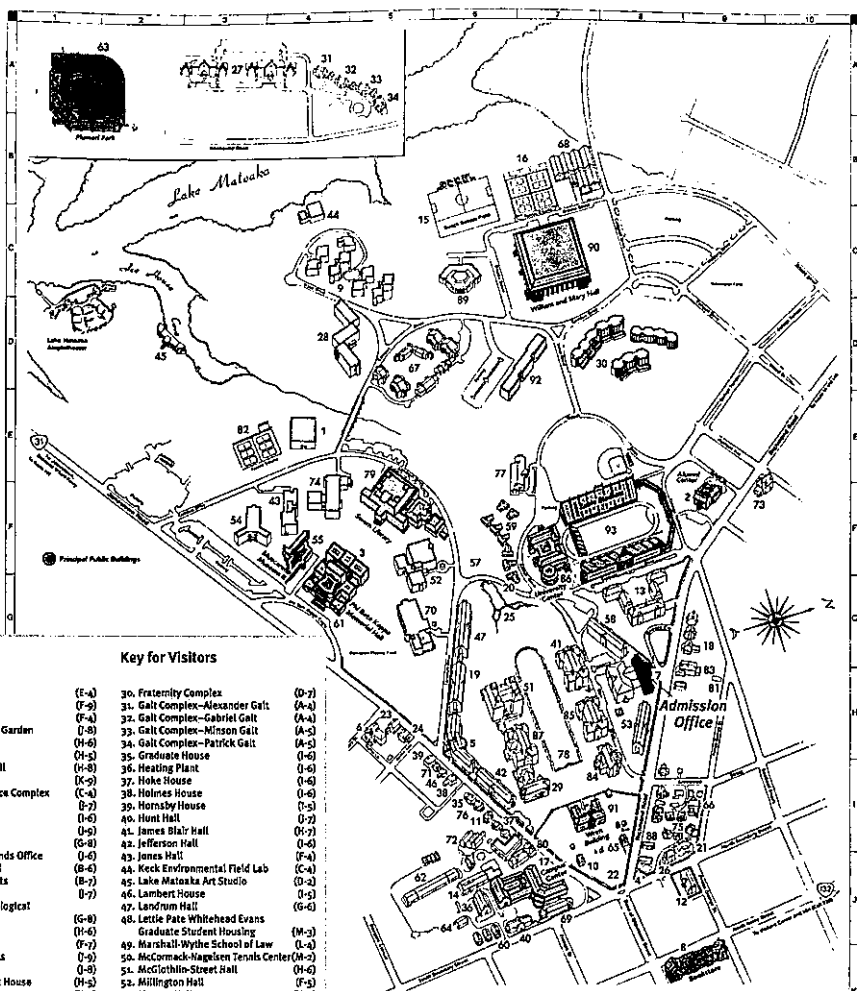
A course on the theory and application of oral communication designed for English as a Second Language (ESL) students. Students will learn and apply oral presentation skills for various academic and professional contexts. This course will address cultural norms for communication in different work settings.

**COL 513. English Conversation and Pronunciation for International Graduate Students.***Fall (0 credit, P/F) Monteith.*

This course teaches students about the rhythm, stress, and intonation patterns of spoken English, and how to effectively communicate with others. Students will practice distinguishing sounds that are unique to the English language. Recorded transcripts will be used to evaluate student needs, and assess student progress, and in-class discussions will allow students opportunities to practice their conversational skills.

**COL 521. College Teaching.***Spring (0 credit, P/F) Macdonald, Zuber.*

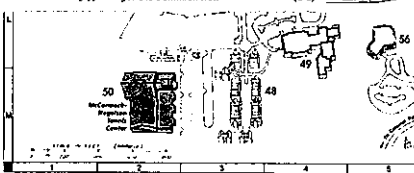
Discussion and exploration of college teaching including general issues in college teaching; various teaching strategies including lectures, discussions, group work, writing assignments; course design, syllabus and test construction, and grading; integrating research and education; and job search and application strategies. Students will develop a portfolio to include sample assignments and a general teaching statement. Readings on teaching and learning and on university education. Enrollment is by permission of instructor.



## Campus

### Key for Visitors

- |  |  |
|--|--|
| 1. Adair Gymnasium (E-4)                     | 30. Fraternity Complex (D-7)                                   |
| 2. Alumni Center (F-9)                       | 31. Galt Complex-Alexander Galt (A-4)                          |
| 3. Andrews Hall (F-4)                        | 32. Galt Complex-Gabriel Galt (A-4)                            |
| 4. Baldwin Memorial Garden (F-8)             | 33. Galt Complex-Minson Galt (A-5)                             |
| 5. Barrett Hall (H-6)                        | 34. Galt Complex-Patrick Galt (A-5)                            |
| 6. Bell Building (H-5)                       | 35. Graduate House (H-6)                                       |
| 7. Blow Memorial Hall (H-8)                  | 36. Heating Plant (H-6)  |
| 8. Bookstore (K-9)                           | 37. Hoke House (H-6)   |
| 9. Botetourt Residence Complex (C-4)         | 38. Holmes House (H-6)   |
| 10. Brafferton (D-7)                         | 39. Hornsby House (H-5)  |
| 11. Bridges House (H-4)                      | 40. Hunt Hall (D-7)  |
| 12. Brown Hall (D-9)                         | 41. James Blair Hall (H-7)                                     |
| 13. Bryan Complex (G-8)                      | 42. Jefferson Hall (H-4)                                       |
| 14. Building and Grounds Office (H-4)        | 43. Jones Hall (F-4)   |
| 15. Busch Soccer Field (H-4)                 | 44. Keck Environmental Field Lab (C-4)                         |
| 16. Busch Tennis Courts (H-7)                | 45. Lake Matlock Art Studio (D-4)                              |
| 17. Campus Center (D-7)                      | 46. Lambert House (H-5)  |
| 18. Center for Archaeological Research (G-8) | 47. Landrum Hall (G-6)   |
| 19. Chandler Hall (H-4)                      | 48. Lettie Pate Whitehead Evans Graduate Student Housing (H-3) |
| 20. Coffee House (F-7)                       | 49. Marshall-Wythe School of Law (L-4)                         |
| 21. College Apartments (D-9)                 | 50. McCormack-Naples Tennis Center (H-2)                       |
| 22. College Yard (H-8)                       | 51. McGlothlin-Street Hall (H-6)                               |
| 23. Commuter Student House (H-5)             | 52. Millington Hall (F-5)                                      |
| 24. Corner House (H-5)                       | 53. Monroe Hall (H-6)  |
| 25. Crim Dell (G-6)                          | 54. Morton Hall (F-3)  |
| 26. Davis House (H-8)                        | 55. Muscarelle Museum of Art (F-4)                             |
| 27. Dillard Complex (A-3)                    | 56. National Center for State Courts (L-3)                     |
| 28. Dupont Hall (D-4)                        | 57. Natural Wildlife Refuge (F-6)                              |
| 29. Ewell Hall (D-7)                         | 58. Old Dominion Hall (G-8)                                    |



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| 59. Old Lodges (H-6)                         | 70. Station House (H-6)                      |
| 60. Parking Services (H-6)                   | 71. Student Health Center (H-7)              |
| 61. Phil Brinkley Memorial Hall (H-6)        | 72. Sunken Garden (H-7)                      |
| 62. Physical Plant's Crafts Shop (H-6)       | 73. Sweet Chapel (F-5)                       |
| 63. Plumer Park (H-6)                        | 74. Telford Hall (H-7)                       |
| 64. Police Station (H-6)                     | 75. Telford Building (H-9)                   |
| 65. President's House (H-6)                  | 76. Thomas College Hall (H-3)                |
| 66. Prince George House (H-6)                | 77. Thomas House (Presidential Office) (H-3) |
| 67. Randolph Student Residence Complex (H-6) | 78. Tucker Hall (H-8)                        |
| 68. Recreational Sports Center (H-7)         | 79. Tyler Hall (H-7)                         |
| 69. Recreation Center (H-7)                  | 80. University Center (H-7)                  |
| 70. Student Center (H-7)                     | 81. Washington Hall (H-7)                    |
| 71. Student Union (H-7)                      | 82. Western Union Building (H-8)             |
| 72. Student Union (H-7)                      | 83. William and Mary Commons (H-8)           |
| 73. Student Union (H-7)                      | 84. William and Mary Commons (H-8)           |
| 74. Student Union (H-7)                      | 85. William and Mary Commons (H-8)           |
| 75. Student Union (H-7)                      | 86. William and Mary Commons (H-8)           |
| 76. Student Union (H-7)                      | 87. William and Mary Commons (H-8)           |
| 77. Student Union (H-7)                      | 88. William and Mary Commons (H-8)           |
| 78. Student Union (H-7)                      | 89. William and Mary Commons (H-8)           |
| 79. Student Union (H-7)                      | 90. William and Mary Commons (H-8)           |
| 80. Student Union (H-7)                      | 91. William and Mary Commons (H-8)           |
| 81. Student Union (H-7)                      | 92. William and Mary Commons (H-8)           |
| 82. Student Union (H-7)                      | 93. William and Mary Commons (H-8)           |
| 83. Student Union (H-7)                      | 94. William and Mary Commons (H-8)           |
| 84. Student Union (H-7)                      | 95. William and Mary Commons (H-8)           |
| 85. Student Union (H-7)                      | 96. William and Mary Commons (H-8)           |
| 86. Student Union (H-7)                      | 97. William and Mary Commons (H-8)           |
| 87. Student Union (H-7)                      | 98. William and Mary Commons (H-8)           |
| 88. Student Union (H-7)                      | 99. William and Mary Commons (H-8)           |
| 89. Student Union (H-7)                      | 100. William and Mary Commons (H-8)          |