

# William & Mary



## Human disturbance on Eastern bluebird breeding success

Light, Judy P. K. Che and John P. Swaddle  
Integrative Bird Behavior Studies, Biology Department, College of William & Mary, Williamsburg VA

### Results

- 1. Field data: During the 2004 breeding season, human disturbance (measured as the number of human visits to the nest) was negatively correlated with breeding success (measured as the number of fledglings per nest).
- 2. Experimental data: In a controlled experiment, human disturbance (measured as the number of human visits to the nest) was negatively correlated with breeding success (measured as the number of fledglings per nest).
- 3. Theoretical data: A theoretical model predicted that human disturbance would be negatively correlated with breeding success.

### Conclusions

- 1. Human disturbance (measured as the number of human visits to the nest) was negatively correlated with breeding success (measured as the number of fledglings per nest).
- 2. Theoretical data: A theoretical model predicted that human disturbance would be negatively correlated with breeding success.

### Acknowledgments

- 1. We thank the following people for their assistance in this project: [names]

## What do female zebra finches find attractive?

Crabtree, Mark Cabrey, Maureen Cornell & John P. Swaddle  
Integrative Bird Behavior Studies, Biology Department, College of William & Mary, Williamsburg VA

### Summary

- 1. Female zebra finches (Taeniopygia guttata) were presented with a choice of two males: one with a high song rate and one with a low song rate.
- 2. Females chose the male with the high song rate significantly more often than the male with the low song rate.

### Results

- 1. Females chose the male with the high song rate significantly more often than the male with the low song rate.

### Discussion

- 1. The results of this study suggest that female zebra finches find a high song rate attractive.

### Acknowledgments

- 1. We thank the following people for their assistance in this project: [names]

2004-2005

## Graduate Arts and Sciences Program Catalog

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





*The College Of*

**WILLIAM & MARY**

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**THE GRADUATE ARTS & SCIENCES  
PROGRAM CATALOG  
2004-2005**

**WILLIAMSBURG, VIRGINIA 23187**

**(757) 221-2467**

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

## AUGUST 2004

Note: This catalog provides announcements for the 2004-05 academic year. It is current until August 2005. 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.

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# 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 Aheron Magill '72, *Rector*

Jeffrey L. McWaters, *Vice Rector*

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

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

William P. Barr

Robert A. Blair '68

Janet M. Brashear '82

Thomas E. Capps

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

John W. Gerdelman '75

Sarah I. Gore '56

R. Philip Herget III

Suzann W. Matthews '71

Jeffrey L. McWaters

Joseph J. Plumeri II '66

Anita O. Poston, J.D. '74

Barbara B. Ukrop '61

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

### Student Representative

Edward J. Rice

*To be appointed*

College of William and Mary

Richard Bland College

### Administration for Graduate Affairs

Timothy J. Sullivan '66

President

P. Geoffrey Feiss

Provost

Dennis Manos

Vice Provost for Research and Graduate Professional Studies

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

Carl Strikwerda

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
John T. Wells	Dean, School of Marine Science and Director, Virginia Institute 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 Dittrick	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, William & Mary School of Law
Lynda L. Butler	Vice Dean and Chancellor Professor of Law, William & Mary School of Law
I. Trotter Hardy	Associate Dean for Technology and Professor of Law, William & Mary 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, William & Mary School of Law
Robert E. Kaplan	Associate Dean for Career Planning and Placement, William & Mary School of Law
Sarah F. Kellam	Associate Dean for Development and Alumni Affairs, William & Mary School of Law
Terri T. Lorincz	Chief Financial Officer/Controller, Law School Foundation, William & Mary School of Law
Faye F. Shealy	Associate Dean for Admission, William & Mary 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 M. Volp	Dean of Students
Mark Constantine	Assistant Vice President for Student Affairs
Virginia Ambler	Assistant Vice President for Student Affairs



Deborah Boykin  
Kelly Grace  
Fanchon Glover  
Linda Knight  
Gail Moses  
Mary Schilling

Director of Residence Life  
Director, Counseling Center  
Director, Multicultural Affairs  
Director, Recreational Sports  
Director, Student Health Services  
Director, Career Services

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## **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) 221-2617

## COLLEGE CALENDAR

### 2004 FIRST SEMESTER

July 9	Last day to file Notice of Candidacy with Registrar for December 2004 graduation (Friday)
August 14-26	Registration of Graduate Students (Thursday-Tuesday)
August 25	Beginning of Classes: 8 a.m. (Wednesday)
September 3	Last day to add courses (Friday)
October 1	Last day to file Notice of Candidacy with Registrar for May or August 2005 graduation (Friday)
October 9-12	Fall Break (Saturday-Tuesday)
October 29	End of ninth week of classes (Friday)
Nov 24-Nov 29	Thanksgiving Holiday: 8 a.m. Wednesday - 8 a.m. Monday
December 3	End of Classes: 5 p.m. (Friday)
December 3	Last day to submit theses and dissertations for December conferral of degrees (Friday)
December 4-5	Reading Period (Saturday-Sunday)
December 6-7	Examinations (Monday-Tuesday)
December 8	Reading Period (Wednesday)
December 9-10	Examinations (Thursday-Friday)
December 11-12	Reading Period (Saturday-Sunday)
December 13-16	Examinations (Monday-Thursday)
December 22	December Graduation Date (Wednesday)

### 2005 SECOND SEMESTER

January 6-18	Registration of Graduate Students (Thursday-Tuesday)
January 19	Beginning of Classes: 8 a.m. (Wednesday)
January 28	Last day to add courses (Friday)
March 5-13	Spring Break (Saturday-Sunday)
March 25	End of ninth week of classes (Friday)
April 8	Last day to file Notice of Candidacy with Registrar for August 2005 graduation (Friday)
April 22	Last day to submit theses and dissertations for May Commencement (Friday)
April 29	End of Classes: 5 p.m. (Friday)
April 30-May 1	Reading Period (Saturday-Sunday)
May 2-6	Examinations (Monday-Friday)
May 7-8	Reading Period (Saturday-Sunday)
May 9-11	Examinations (Monday-Wednesday)
May 5	Commencement (Sunday)

### SUMMER SESSIONS 2005

May 30	Beginning of First Term (Monday)
July 1	End of First Term (Friday)
July 5	Beginning of Second Term (Tuesday)
July 8	Last day to file Notice of Candidacy with Registrar for December 2005 graduation (Friday)
July 15	Last day to submit theses and dissertations for August conferral of degrees (Friday)
August 5	End of Second Term (Friday)
August 10	August Graduation Date (Wednesday)

## 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, and Psychology.
- **Master of Science.** Applied Science, Biology, 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 programs 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., M.B.A./M.I.M. (School of Business Administration and Thunderbird: The American Graduate School of International Management).

## Facilities

### The Earl Gregg Swem Library

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

**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.

**Collections.** Swem Library's collection includes 1,276,876 cataloged volumes; 1,463,470 microforms; 594,082 government publications; 23,143 maps; 5,404 print periodicals and serials; 28,888 multi-media materials; and 12,136 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 Administration, 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 visiting the Reference Department's web page at [www.swem.wm.edu/Services/Reference](http://www.swem.wm.edu/Services/Reference).

**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. Loan periods and other library privileges for all library patrons are posted on the library's web pages. 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](http://www.swem.wm.edu/Services/Circ).

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 [swccirc@wm.edu](mailto:swccirc@wm.edu).

**Reserve Readings.** The library operates a reserves service to assure equitable access to items that professors assign as class readings. For more information, contact the Reserves Department 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 [www.swem.wm.edu/Services/ILL](http://www.swem.wm.edu/Services/ILL). Students should allow a minimum of two weeks for an interlibrary loan request to be filled. Contact the Interlibrary Loan Department at (757) 221-3089 or [swell@wm.edu](mailto:swell@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 and the Manuscripts and Rare Books Department. 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. For the latest information on Special Collections, visit [www.swem.wm.edu/SpColl](http://www.swem.wm.edu/SpColl).

**Computers, Collaboration, Study, and Media.** Swem's recently renovated building includes networked and wireless connections throughout the building. There are more than one hundred computers, including laptops, in the library. Numerous group study rooms are available for collaborative use. During this academic year, a new Media Center, with equipment, software, and support for using and creating media, will open.

**Swem Departmental 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 McGlothlin-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 about Swem's departmental libraries, 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 Marine Science (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 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 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, marked 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 bequest 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 180 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. The Institute also cooperates with the Colonial Williamsburg Foundation in awarding short-term fellowships for research in the Foundation's collections by pre-doctoral, postdoctoral, and independent scholars.

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 regularly during the academic year, feature work in progress by both entry-level and more senior scholars and encourage William and Mary graduate students to participate 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 has been housed in Bell Hall, located at 109 Cary Street, a block from campus. It expects to return to quarters in Swem Library during the summer of 2004. 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 a technologically sophisticated building. It includes six applied science labs, four geology labs and a library, and six computer science labs. It contains extensive cable and wireless network access. The Geology department houses sophisticated microscopes and other equipment for studying geological specimens. McGlothlin-Street Hall houses specialized computational labs dedicated to research and graduate training in computational systems, networks, high-performance computing, mathematical modeling, and computational biology. In addition, polymer science, thin film materials science specializing in nanotechnology, systems neurophysiology, imaging, and computational neuroscience laboratories with vivarium access are available. 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. 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.

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.

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## **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 Masters 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 Ph.D 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 Watermens 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 or visit the website [www.vims.edu](http://www.vims.edu).

## 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 Eric R. Jensen, Director, Center for Public Policy Research, 140B Morton Hall, P.O. Box 8795, Williamsburg, VA 23187; telephone 757/221-2384; e-mail [erjens@wm.edu](mailto:erjens@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 122 and 123.

## Student Services

### Dean of Students Office

Dr. Patricia M. Volp, Dean of Students

Campus Center, Room 109 221-2510

Web site: <http://www.wm.edu/deanofstudents/>

The Office of the Dean of Students assists all students, graduate and undergraduate, from their initial orientation to the College through successful completion of their academic and personal goals. The Dean of Students is an advocate for student needs and acts as liaison between students and academic departments. Staff members provide learning assistance counseling and workshops for students who are interested in boosting their time management and study skills. Disability Services for permanent or temporary disabilities are coordinated within this office (see Disability Services section). In addition, members of the staff work with students who are experiencing unexpected or difficult circumstances that may result in a need for a medical leave or mid-semester withdrawal.

The Dean's office is responsible for managing all violations of the Code of Student Conduct and for training and advising the graduate and undergraduate Honor Councils. Staff members are available to discuss the community's standards, the systems by which they are enforced, or concerns related to the conduct of students or student groups. Any member of the community may submit reports about student conduct to this office. The Dean of Students Office publishes the Student Handbook, which include statements of Rights and Responsibilities for all students. Information about other services available to students also is included.

### Disability Services

Disability Services strives to create a comprehensively accessible living and learning environment to ensure that students with disabilities are viewed on the basis of ability by considering reasonable accommodation on an individual and flexible basis. The decision to request accommodation is voluntary and a matter of individual choice. Students seeking accommodation are strongly encouraged to notify the College and submit all supporting documentation early to allow adequate time for planning.

### Documentation of Medical Disability

In general, documentation should not be older than three years from the date of the first accommodation request. As appropriate to the disability, the College expects medical documentation to include the following seven elements:

1. A diagnostic statement identifying the disability, the date of the most current diagnostic evaluation, and the date of the original diagnosis.
2. A description of the diagnostic tests, methods, and/or criteria used.
3. A description of the current functional impact of the disability which includes specific test results and the examiner's narrative interpretation.
4. Treatments, medications, or assistive devices/services currently prescribed or in use.
5. A description of the expected progression or stability of the impact of the disability over time, particularly the next five years.
6. The credentials of the diagnosing professional if not clear from the letterhead or other forms.
7. The diagnosing professional may not be a family member.

## Documentation of Cognitive Impairment

Documentation of cognitive impairment such as a specific learning disability, an attention deficit disorder, or a physical, medical, and psychological disorder affecting learning must include a comprehensive report of psycho-educational or neuropsychological assessment that complies with the specified guidelines. For more information concerning these specific documentation guidelines, please refer to the Disability Services website: <<http://web.wm.edu/deanofstudents/disable/document.php>> Documentation is expected to demonstrate the impact of disability upon major life activities and to support all recommended accommodations. Documentation of disability is confidential will not be released without the student's written consent.

For more information about Disability Services, please contact:

Assistant Dean of Students  
109 Campus Center  
Dean of Students Office  
P.O. Box 8795  
Williamsburg, VA 23187-8795  
757-221-2510 Voice  
757-221-2302 TDD  
757-221-2538 FAX

## Ombuds Office

Research and Graduate Studies, Arts and Sciences

Philip Daileader, *Ombudsperson*

History, James Blair Hall 310, [phdail@wm.edu](mailto:phdail@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.

## Student Health Center

Dr. Gail Moses, *Director*

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

E-mail: [sthlt@wm.edu](mailto:sthlt@wm.edu); Web site: <http://www.wm.edu/health>

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 docu-

mentation 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.

## Counseling Center

Dr. Kelly Crace, *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 1p.m.-5p.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.

## 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 2004-2005 semester rates are projected to be \$2,092 for a two-bedroom apartment and \$2,042 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 & Mary Dining Services provides a comprehensive dining program featuring a variety of meal plan options to meet the individual 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. The Marketplace, in the Campus Center offers an a la carte food court. There are also five 'grab-n-go', Flex Point locations: Lodge One in the University Center, Tribe on the Go in the Commons Dining Hall, J. Hardy's Hideaway in the Dillard Complex, Swem Café in Swem Library, 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 for "Late Night" pizza delivery with Dominos on campus.

William & Mary Dining Services offer 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 by visiting the ID Office in the Campus Center or the Students' X-change located in the University Center.

To select a meal plan prior to the official add/drop period, visit Dining Service's web site at [web.wm.edu/dining](http://web.wm.edu/dining). Select 'Need a Fall 2004 Meal Plan'. Select the link and then log in using your WM user ID and IT password. If you have any questions or want to make a change after completing your registration, please visit the registration sign-up page at: <http://it.wm.edu/auxiliary/mealplan> or 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, August 23 through September 3. 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.

## 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, 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 web site 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 <http://www.wm.edu/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. until 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/deanofstudents/handbook/stuhb.php>)

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/studentactivities/](http://www.wm.edu/studentactivities/).

## 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, 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 \$45 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 not an application fee 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/program to which the applicant intends to apply or forms can be obtained by visiting at the following website, <http://www.wm.edu/graduate>. Beginning graduate students may enter in the fall, spring, or summer session of each year at the discretion of the department/program committee. Applicants should be aware that deadlines for submitting the application package vary with the individual departments/programs. Students should consult the department/program of his or her interest for its application deadline or refer to the website, <http://www.wm.edu/graduate/requirements.php>. Degree-seeking applicants may be admitted as regular or provisional graduate students. Non-degree applicants should apply as unclassified (post-baccalaureate) students through the Office of Undergraduate Admission.

**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/program committee in 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/program committee.

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

Each student applying for admission is expected to submit scores on the verbal, quantitative, and analytical sections of the GRE. In addition, some departments/programs require prospective students to include scores on the subject portion of the test. These scores must be no older than five years from the time the test was taken. GRE information bulletins with test registration forms may be obtained by visiting the website, <http://www.wm.edu/gre>.

[www.gre.org](http://www.gre.org) or calling 609-771-7670. The TOEFL is required for all students for whom English is not a first language. Information for the TOEFL can be found at <http://www.ets.org/toefl>. Inquiries about specific admissions requirements may be addressed to the department/program of interest.

**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 considered degree-seeking students may be allowed to apply to the College as an unclassified (post-baccalaureate) student. Such prospective students must present evidence to the Office of Undergraduate Admission that they have earned a bachelor's degree from an accredited institution. Prospective students should also contact the department/program of interest for consideration. Only individuals who have been approved by the department/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.

## Transfer of Graduate Credit

On the recommendation of the student's major department/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 will 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 \$4,099.00 per semester for residents of Virginia and \$9,941.00 per semester for non-residents. *Any student registered for nine hours or more for any course level (graduate or undergraduate courses) 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:

\$ 235.00 per semester hour for residents of Virginia

\$ 650.00 per semester hour for non-residents

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 either the Research, Thesis, or Dissertation course for which payment of the part time rate of one credit hour is required.

A Research Graduate student is not eligible for services that are paid for by fees (e.g., student health, and recreational center) unless the fee is paid. Research Graduate students may take courses other than Research, Thesis, or Dissertation only if payment for additional tuition has been made.

## 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.

Students wishing to apply to student loans and work-study should submit the Free Application for Federal Student Aid (FAFSA) by March 15. Award letters will be sent in June. For more information, write to [finaid@wm.edu](mailto:finaid@wm.edu) or visit the Financial Aid website at <http://www.wm.edu/financialaid/>

## 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 will be

allowed to register for graduate credit in courses under the Faculty of Arts and Sciences numbered 400 to 499 provided they submit the appropriate form with the approvals of the instructor, the student's graduate director, 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 'C' or better.

## Changes in Registration

All changes in students' schedules after the last day to add courses (as defined in the calendar on page vi) will be initiated through an Add/Drop form which can be obtained from the student's department/program and require the approval of the instructors involved, the student's graduate director, 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 27. See Section VII below for regulations governing refunds of tuition and fees.

## Auditing

Any graduate student may audit a graduate or undergraduate course with permission of the instructor and graduate director. Graduate Audit forms can be obtained from the student's department/program. Before beginning the audit, the student and the instructor must agree on what is required for the audit to be successful. The audited course with 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 quality points are awarded as shown on the following table:

A = 4	B = 3.0	C = 2.0	D+ = 1.3
A- = 3.7	B+ = 3.3	C+ = 2.3	D = 1.0
	B- = 2.7	C- = 1.7	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 listed above 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 an extension for another semester. An 'I' may not be extended more than once without the 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/program. If the faculty of a department/program determines that satisfactory progress is not being made, a student may be required to withdraw due to academic deficiency.

## **Grade Review Policy**

A student who believes that a final course grade has been unfairly assigned may request a review of the grade within the first six weeks of the next regular semester following that in which the grade was received. This review shall normally be completed by the end of that semester.

The student shall confer with the instructor of the course to discuss the grade. The student may wish to ask about such matters as the particular strengths and weaknesses of his or her course work, the general grade scale utilized by the instructor, and the relative ranking of the student's work in the class as a whole.

If the issue remains unresolved the student may, within the first six weeks of the next academic semester for which the grade was received, present a written statement requesting a further review and giving a full explanation of the reasons for the request. The written statement shall be sent to the instructor, the graduate director, and the chair of the department/program in which the course was taught, and the Dean of Research and Graduate Studies shall be notified. If the course is cross-listed in two or more departments/programs, the chair of the faculty member's home department will be the one to receive the written statement. If the grade in question was given by the department chair or program director, the student will ask the Dean of the Faculty to appoint another faculty member of the department/program to oversee the further review process. Unless the chair or director (or faculty member appointed by the Dean, in cases where the grade in question was given by the chair or director) decides the student's case is wholly without merit, he or she will discuss the matter with the instructor and seek to resolve the issue. This part of the review process should be completed within three weeks of receipt of the written statement by the student.

If the student is not satisfied with the outcome of the above procedure, he or she may appeal to the Dean. Unless the Dean decides the student's case is wholly without merit, he or she will ask the chair or director (or faculty member appointed by the Dean, in cases where the grade in question was given by the chair or director) to appoint a committee of at least three faculty members of the department/program who will review all relevant and



available materials supplied by the student, the instructor, or other individuals. Both the student and the instructor have the right to meet with the committee.

After reviewing the matter, the committee shall decide if it believes the grade should be changed, and if so, what the proper grade should be. It shall inform the instructor and the student of its conclusions in writing and, if it believes the grade should be changed, recommend that the instructor change the grade accordingly.

If the instructor refuses to accept the committee's recommendation and the committee believe that the faculty member is acting inappropriately in assigning the grade, the committee may appeal to the Dean of the Faculty. The Dean's decision to accept or reject the committee's recommendation shall be final.

## **Language Requirements**

In degree programs for which there are language requirements, the individual department/program committee will determine the methods by which students will satisfy these requirements. 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. 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**

Degree candidates who are required to complete a thesis or dissertation must submit three copies of their thesis or dissertation to the Dean of Research and Graduate Studies no later than 5 p.m. on the deadline date listed in the College Calendar contained in this catalog. 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 cashier'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 its deadline date which can be found in the College Calendar contained in this catalog. Once the student determines that they are unable to complete requirements by the specified graduation date, they must cancel the notice as soon as possible and resubmit for another graduation date.

## **Time Limits for Degrees and Extensions**

Students should complete their thesis/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 approximately one year from the date of expiration as determined by the Dean of Research and Graduate Studies and COGS (Committee on Graduate Studies). If the student's time expires during the months of June through November, the student should file for an extension before their time expires but no later than November 15<sup>th</sup> for the December graduation of the following year. If the student's time expires during the months of December through May, the student should file for an extension before their time expires but no later than April 15<sup>th</sup> for the May graduation of the following year. The student would also use these filing dates if and when applying for an additional extension.

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/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. The commencement ceremony is in May. Degree recipients of the previous 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, and special fees (i.e. applied music, art, kinesiology fees, etc.) 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, in partnership with Tuition Management Systems (TMS), offers the option of an Interest-Free Monthly Payment Plan for the Fall and/or Spring semesters of the academic year. This monthly payment plan allows you to spread your expenses for tuition, room and board over a 10-month period. For more information about this plan, please write, call or logon to [www.afford.com](http://www.afford.com):

Tuition Management Systems, Inc.  
127 John Clarke Road  
Newport, RI 02842-5636  
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.

### Withdrawal Schedule for a Full-time Graduate Student

Full-time students who withdraw from the College are charged a percentage of the tuition and fees based on the school week within which the withdrawal occurs. A school week is defined as the period beginning on Monday and ending on the succeeding Sunday. The first school week of a semester is defined as that week within which classes begin. Full-time students who withdraw from the College within the first school week of the semester are eligible for a refund of all payments for tuition and fees less the required enrollment deposit for entering students or a \$50.00 administrative fee for continuing students. After week 1 of the semester, the amount of the tuition and fees charged /refunded will be determined based on the following schedule:

Week	Percentage Charged	Percentage Refunded
1	0%	100%
2	20%	80%
3	30%	70%
4	40%	60%
5	50%	50%
6	60%	40%
After week 6	100%	0%

*Students will not be eligible for any refund of tuition and general fees if required to withdraw by the College.*

### Return of Title IV

The return of Title IV funds for students with Title IV Federal Aid (Federal PELL, Federal Subsidized and Unsubsidized Stafford, Federal SEOG, Federal Work Study, Federal Perkins, Federal PLUS) who withdraw from school will be calculated in compliance with Federal regulations. A statutory schedule is used to determine the amount of Title IV funds a student has earned as of the date the student withdraws or ceases attendance.

If a student withdraws from college prior to completing 60% of a semester, the Financial Aid Office must recalculate the student's eligibility for all funds received, including Title IV funds. Recalculation is based on a percent of earned aid using the following Federal Return of Title IV funds formula:

Percent of aid earned = the number of days completed up to the withdrawal date, divided by the total days in the semester. (Any break of five days or more is not counted as part of the days in the semester.)

Funds are returned to the appropriate federal program based on the percent of unearned aid using the following formula:

Aid to be returned = (100% minus the percent earned) multiplied by the amount of aid disbursed toward institutional charges.

Keep in mind that, when funds are returned, the student borrower may owe a balance to the college. If that is the case, the student should contact the Student Accounts/Bursar's Office to make payment arrangements.

## Example of Return of Funds Calculation

**Example 1:** Virginia resident who lives on campus

### Institutional Charges

Tuition	\$3215
Housing	\$1641

### Financial Aid Package

Pell Grant	\$1500
Subsidized Loan	\$1887
State Grant	\$3086

The student withdraws on 10/20, which is day 57 out of 116 in the semester ( $57/116 = 49.1\%$  of Title IV funds earned by the student). Title IV funds = \$3387 (\$1500 Pell + \$1887 Sub Stafford).  $\$3387 \times 49.1\% = \$1663.02$  of earned Title IV funds. The remainder of funds unearned  $\$3387 - \$1663.02 = \$1723.98$  will be returned to Federal programs. The state grant will be reduced using the same formula;  $\$3086 \times 49.1\% = \$1517.23$  earned and  $\$1568.77$  unearned.

William and Mary must return \$1723.98 to the Subsidized Stafford Loan and \$1517.23 of the state grant.

**Example 2:** Out of state student not living on campus

### Charges

Tuition	\$10608
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### Financial Aid payments

Sub Stafford	\$807
Unsub Stafford	\$1860
Perkins	\$750
FA Grant	\$9076

The student withdraws on 10/27 which is day 64 out of 116 in the semester ( $64/116 = 55.2\%$  of Title IV funds earned by the student). Title IV funds = \$3,417 (\$807 Sub Stafford + \$1860 UnSub Stafford + \$750 Perkins Loan).  $\$3,417 \times 55.2\% = \$1886.18$  of earned Title IV funds. The remainder of funds unearned  $\$3,417 - \$1886.18 = \$1530.82$  will be returned to Federal programs. The FA grant will be reduced using the same formula;  $\$9076 \times 55.2\% = \$5009.95$  earned and  $\$4066.05$  unearned.

William and Mary must return \$1531 to the Unsubsidized Stafford Loan and \$4066.05 of the FA grant.

Refund of the room rent will be prorated based on the date the resident officially checks out of the room with required paperwork completed by a Resident Life staff member. The Gold Plus, Gold and Green meal plan adjustments will be prorated on an actual usage basis given the last day of usage. The Block meal plan adjustments will be based on actual meal and flex point usage. The cutoff date for receiving a refund for your meal plan follows the full-time withdrawal schedule.

For students paying through a tuition payment plan, all refunds will be determined by comparing the amount eligible for refunding to the total monthly payments made to date. Any outstanding amounts owed the College for tuition, general fees, dormitory fees or meal plan charges after deducting the eligible refund will be due immediately upon withdrawal.

It is College policy to hold the enrolled student liable for charges incurred, therefore in the case of refunding any overpayment, refund checks will be issued in the name of the student.

### **Part-time Students Who Withdraw from the College**

Part-time students who withdraw from the College within the first school week of the semester are eligible for a full refund of tuition and fees less a \$50.00 administrative fee. After the first week, the amount of the tuition and fees to be charged will follow the full-time withdrawal schedule.

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

### **Part-time Students Who Withdraw from a course**

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

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

### **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. The Office of the Bursar/Student Accounts must receive written notification of any outside scholarship from the organization before the credit can be given towards tuition and fees. 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.

### **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.

### **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 the intention to remain in Virginia indefinitely after graduation. Residence in Virginia for the primary purpose of attending college does not warrant eligibility for in-state tuition. Applicants seeking in-state status must complete and submit the 'Application for Virginia In-State Tuition Privileges' to the Office of the University Registrar no later than the first day of classes. 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 status. 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 of 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

## 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/program.

### I. Degrees of Master of Arts and Master of Science

- A. The chairperson of the department/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/program, subject to the approval of the Committee on Graduate Studies.
- C. Each student must satisfy the language requirements (if required) prescribed by the department/program committee under which he or she is enrolled. The manner of fulfillment of language requirements shall be at the discretion of the department/program committee subject to the approval of the Committee on Graduate Studies.
- D. Students submitting a thesis must successfully complete 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). Students not submitting a thesis must successfully complete eight additional semester hours of graduate course work in courses numbered 600 or above, totaling 32 semester hours. 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. If submitting a thesis, it must be approved by the chairperson of the department/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/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/program. He or she must register for 700, Thesis, for at least one semester and may repeat this registration. Thesis credits are not included in the 24 semester hours required for the 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 contained in this catalog on page vi.
- 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 23 of this catalog.

## II. 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.

## III. 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/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/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/program. At least one member of the committee must be from outside the student's department/program, and may include qualified persons from outside the College. Persons who have an affiliation with the department/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 contained in this catalog on page vi 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/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 23 of this catalog.



#### IV. 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 Council 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 Council 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 begins the doctoral program.

## EXPLANATION OF COURSE DESCRIPTIONS

Graduate courses may be taken by persons other than regular or provisional graduate students under the Faculty of Arts and Sciences only with the consent of the chairperson of the department/program committee concerned.

(\*) Single-starred courses may be taken only with the consent of the instructor.

(\*\*) Double-starred courses may be taken only with the consent of the chairperson of the department or program committee concerned.

Pairs of numbers (501,502) indicate continuous courses. A hyphen between numbers (501-502) indicate that the courses must be taken in the succession stated.

Courses involving laboratory or studio activity are so labeled. All others are classroom courses.

Semester hour credit for each course is indicated by numbers in parentheses.

# GRADUATE PROGRAMS AND COURSE DESCRIPTIONS

## AMERICAN STUDIES PROGRAM

**DIRECTOR** **Kimberley L. Phillips**, Associate Professor of History (Ph.D., Yale University)  
**GRADUATE DIRECTOR** **Arthur L. Knight**, Associate Professor of English and American Studies (Ph.D., University of Chicago)

**PROFESSORS** **David P. Aday** (Sociology) (Ph.D., University of Kansas), **Michael Blakey** (NEH Professor of Anthropology and American Studies) (Ph.D., University of Massachusetts, Amherst) **Richard S. Price**<sup>2</sup> (Duane A. and Virginia S. Dittman Professor of American Studies, Anthropology, and History) (Ph.D., Harvard), **Sally Price**<sup>2</sup> (Duane A. and Virginia S. Dittman Professor of American Studies and Anthropology) (Ph.D., Johns Hopkins), **Robert J. Scholnick**, (English and American Studies) (Ph.D., Brandeis), and **Alan Wallach** (Ralph H. Wark Professor of Art and Art History and American Studies) (Ph.D., Columbia).

**ASSOCIATE PROFESSORS** **Elizabeth Barnes** (English) (Ph.D., UC-Santa Barbara), **Chandos M. Brown** (History and American Studies) (Ph.D., Harvard), **Grey Gundaker**<sup>1</sup> (American Studies and Anthropology) (Ph.D., Yale), **Richard S. Lowry**<sup>1</sup> (American Studies and English) (Ph.D., Yale), **Charles McGovern**, (History and American Studies) (Ph.D., Harvard), **Leisa D. Meyer**, (History and Director of Women's Studies) (Ph.D., University of Wisconsin), and **M. Lynn Weiss**<sup>3</sup> (American Studies and English) (Ph.D. Brandeis).

**ASSISTANT PROFESSOR** **Maureen Fitzgerald** (Religion and American Studies) (Ph.D., University of Wisconsin-Madison).

**ADJUNCT ASSOCIATE PROFESSOR** **Barbara Carson** (American Studies) (M.A., University of Delaware).

**VISITING PROFESSOR** **Heather Huyck** (American Studies) (Ph.D., University of Minnesota)  
**VISITING SCHOLAR** **Karen Wulf** (Ph.D. John Hopkins University).

## 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 far-reaching audiences. Some students may also undertake the M.A. in preparation for entrance into a doctoral program.

The J.D./M.A., a joint program leading to the J.D. in the Marshall-Wythe School of Law and the M.A. in American Studies is designed to encourage the interdisciplinary study of law and other aspects of American society and culture. For some students, the program may foster investigation of American legal history within the broader framework of U.S. cultural and intellectual history. Others may pursue inquiries on broad historical or contemporary themes, exploring the interplay between law and culture in forming institutions, policies, and thought within the United States.

<sup>1</sup> On leave 2004-05

<sup>2</sup> Out of residence spring 2005 and fall 2005

<sup>3</sup> Undergraduate director

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., J.D./M.A. or Ph.D. program. Students seeking 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, 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.

## Degree Requirements for the Master of Arts

(See p. 28-29 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.

## Degree Requirements for the Doctor of Philosophy

(See p. 29 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 2004-2005)*

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 2004-2005)*

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 2004-2005)*

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. (Not offered 2004-2005)*

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.*

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. (Not offered 2004-2005)*

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 2004-2005)*

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.

### 532. The Authority of the Word: Books, Culture and Society in Europe and the United States.

*Spring (3) Staff. (Not offered 2004-2005)*

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.

### 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. (Not offered 2004-2005)*

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 2004-2005)*

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, 2004:

#### Searching for Significance. *Fall (3) Carson.*

Landscapes, structures, and artifacts provide a wealth of evidence for interdisciplinary analysis. Using methods and theories of art historians, archaeologists, anthropologists, historians, psychologists, and others, this introductory seminar examines a broad range of the material world from the past to the present. Do clothes make the man? Why do we sit on chairs and not squat on floors? What does it mean to work a sampler or to give a gift? Class time will be given to lectures, reading discussions and exercises in connoisseurship. 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. Written assignments will focus on learning to look at the material world, evaluating quality in workmanship, and analyzing at least one object in depth.

#### 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.

**American Memory American Places.** *Fall (3) Huyck.*

American Memory/American Places will use historic sites to examine the relationships among the historic past, the locales of that past and our varied memories, looking at diverse sites such as George Washington's Birthplace, Gettysburg, Little Bighorn Battlefield and Manzanar and Eleanor Roosevelt's home. Consider changing popular and scholarly approaches to history, memory and historic sites.

**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.

**Archaeological Material Culture.** *Fall (3) Pittman.*

This class will allow students to explore archaeological artifacts and how they are used to reveal the lifestyles of past peoples. Class discussions will focus on a number of research areas including: consumerism, the impact of technology on material culture, ethnicity, economics, and methods of artifact identification and analysis used currently in Historical Archaeology. The class will meet off-campus where the students will gain practical hands-on experience working with artifacts in the extensive material culture collection maintained in the Department of Archaeological Research Collections and Research Facility located at 303 North Botetourt Street, adjacent to the Historic Area of Williamsburg.

**Early American Literature: Lost in Translation.** *Fall (3) Erben.*

This course examines the multilingual development of early American literature and culture by comparing Spanish, French, Dutch, and German immigrant writings (in translation!) with texts from the Anglo-American tradition (itself a heterogeneous group including African American and Native American authors writing in English). Readings will be grouped around themes such as conquest, captivity, slavery, race, sexuality, gender, and nationhood. Final project: students competent in a foreign language are encouraged to translate a section of a non-English text and research its historical/cultural context; others may edit and introduce an unpublished English document.

**American Performance Cultures.** *Fall (3) Knight.*

An intensive examination of ideas and practices of performance, especially as they intersect with identity categories like race, ethnicity, gender, sexuality, class, and citizenship.

**Topics for Spring, 2005:**

**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.

**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.

**Popular Music in American Life.** *Spring (3) McGovern.*

This graduate seminar traces relationships of musical practices and communities to the social and cultural contexts in which they emerged, flourished or changed. We address broad questions on the history of cultural practices in the United States: how have different social groups created and used popular culture? What roles have culture industries and new technologies played in making cultural practices? How has popular music shaped the making of state, race and nation? Through critical reading and informed extensive listening we will explore formations of American popular music forms, sound and society, from the late 19th century onward to contemporary times. Genres will include blues, jazz, popular song, country, rock and roll, and gospel.

**Nation and Citizenship in America.** *Spring (3) McGovern.*

In order to understand how people in America have claimed for themselves citizenship, this graduate seminar will explore ideas of the American nation and nationality, dimensions of citizen and subject, and formations of race and culture. Using theoretical explorations and research monographs, we will intensively examine the making and contesting of the American nation along with multiple meanings and practices of citizenship for its inhabitants. Areas of examination include critical thought, cultural formations, and everyday life, from Revolutionary times to the contemporary era.

**Crime and Punishment.** *Spring (3) Aday.*

This interdisciplinary seminar draws from American literature, history, public policy, anthropology, and sociology to examine the American experiences of crime and justice. Both crime and justice are understood as social inventions that take shape and change within the dynamics of political, historical, cultural, and social forces.

**581. Collecting and Exhibiting Culture.**

*Spring (3) Price, S. (Not offered 2004-2005)*

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. (Not offered 2004-2005)*

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.

**583. The Material Culture of Early America: Artifacts as Design and as Commodities.***Spring (3) Carson. (Not offered 2004-2005)*

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 2004-2005)*

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. (Not offered 2004-2005)*

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.

**602. American Culture Through the Lenses of the Social Sciences.***Fall (3) Staff. (Not offered 2004-2005)*

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 2004-2005)*

The course will explore major interpretive approaches linking cultural production and social experience by focusing 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 2004-2005)*

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 long-term 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 2004-2005)*

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 and Spring (3) Phillips, Brown.*

'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.

**690. Directed Research***Fall and Spring (3,3) Various Faculty*

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.

**695. Independent Research.***Fall and Spring (3,3) Knight.*

Research for the M.A. thesis.

**700. Thesis.***Fall and Spring (3,3) Knight.*

Directed study for Master's essay.

**790. Directed Research.**

*Fall and Spring (3,3) Various Faculty.*

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.

**795. Independent Research.**

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

Research for the Ph.D. dissertation.

**800. Dissertation.**

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

Directed study for Doctoral dissertation.

## ANTHROPOLOGY DEPARTMENT

- CHAIR** **Tomoko Hamada**, Professor (Ph.D., California, Berkeley)
- GRADUATE DIRECTOR** **Mary M. Voigt**, Chancellor Professor (Ph.D., Pennsylvania)
- PROFESSORS** **Michael L. Blakey**, NEH Professor (Ph.D., Massachusetts), **Kathleen J. Bragdon** (Ph.D., Brown), **Virginia Kerns** (Ph.D., Illinois), **Barbara J. King**<sup>1</sup> (Ph.D., Oklahoma), **Richard Price**<sup>2</sup>, Dittman Professor (Ph.D., Harvard), and **Sally Price**<sup>3</sup>, Dittman Professor (Ph.D., Johns Hopkins).
- ASSOCIATE PROFESSORS** **William H. Fisher** (Ph.D., Cornell), **Grey Gundaker**<sup>4</sup> (Ph.D., Yale), and **Brad L. Weiss** (Ph.D., Chicago).
- ASSISTANT PROFESSORS** **Martin D. Gallivan** (Ph.D., Virginia), and **Audrey J. Horning**<sup>5</sup> (Ph.D., Pennsylvania).
- INSTRUCTOR** **Curtis S. Moyer**<sup>6</sup> (M.A., George Washington).
- PROFESSOR EMERITUS** **Norman F. Barka** (Ph.D., Harvard).
- RESEARCH PROFESSORS** **Joanne Bowen**<sup>7</sup> (Ph.D., Brown), and **Marley R. Brown III**<sup>8</sup> (Ph.D., Brown).
- RESEARCH ASSISTANT PROFESSOR** **Danielle Moretti-Langholtz**<sup>9</sup>, (Ph.D., Oklahoma).
- VISITING PROFESSOR** **Edward C. Harris**<sup>10</sup> (Ph.D., London).
- VISITING ASSISTANT PROFESSORS** **Julie H. Earnstein**, (Ph.D., Boston), and **Jennifer Ann Scott**, Visiting Assistant Professor (Ph.D., Washington).

### General Description

The Department of Anthropology's graduate program offers 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.

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 various courses, including summer field schools/programs. 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.

<sup>1</sup> On leave, 2004-2005.

<sup>2</sup> On leave Spring, 2005

<sup>3</sup> On leave Spring, 2005

<sup>4</sup> On leave, 2004-2005.

<sup>5</sup> On leave Fall, 2004.

<sup>6</sup> Curator of Collections, Department of Anthropology and Director, William and Mary Archaeological Conservation Center.

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

<sup>8</sup> Director, Department of Archaeological Research, The Colonial Williamsburg Foundation

<sup>9</sup> Director, American Indian Resource Center.

<sup>10</sup> Director, Bermuda Maritime Museum.

## 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.

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). Applications and supporting materials for both the M.A. and the M.A./Ph.D. programs must be received by January 15.

All graduate degrees in Anthropology at William and Mary require full-time study. Part-time students will not be accepted.

## Degree Requirements for the Master of Arts with specializations in Historical Archaeology and Historical Anthropology

*(See p. 28-29 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 terminal 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.

Each student must successfully complete 30 semester hours of graduate coursework, including Anthropology 600, 601 and electives. 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.

Each student will write a thesis on a research topic approved by the Director of Graduate Studies and the student's thesis committee. The thesis should be article length and of publishable quality. It should contain a clearly stated problem, relevant data and theoretically informed analysis.

MA students must complete all coursework and the thesis within a maximum period of six calendar years after admission to the degree.

## Degree Requirements for the Doctor of Philosophy with specializations in Historical Archaeology and Historical Anthropology

*(See p. 29 for general College requirements.)*

The doctoral program in Anthropology (MA/PhD program) is designed for students who wish to specialize in Historical Archaeology or Historical Anthropology and who wish to pursue original, advanced research toward a doctorate.

All requirements for the doctoral degree must be completed within a maximum of seven (7) calendar years of the time the student was admitted to the doctoral candidacy (see below).

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 entering the program without previous graduate work in anthropology will normally spend at least three years of full-time graduate study, and one year of dissertation preparation (the "write-up year") at William and Mary. Each student must complete the MA degree (see below) plus 36 semester credits beyond the MA, and at least 6 credits of dissertation work at the 800 level.

Students will pursue their studies in either Historical Archaeology or Historical Anthropology. All students 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.

Prior to admission to candidacy, students 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 their field of study.

During the spring semester of the student's second year in the MA/PhD program students will plan the topics of three position papers which are part of the PhD Qualifying process. These papers will explore the key theoretical concerns, methodological issues, and ethnographic and historical data that are to be 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. In the spring of their third year students must pass a qualifying examination. After passing their qualifying examination, students will revise (as needed) and defend their dissertation proposal before the end of their third year.

Each candidate for the PhD must submit an acceptable dissertation based on original research and constituting a contribution to scholarly knowledge.

Each student will be evaluated at the end of every academic 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.*

A multidisciplinary perspective on how societies procure food. Drawing upon archaeological, historical, and anthropological studies, students will learn about provisioning systems found in foraging, horticultural, agrarian, and industrialized societies. Emphasis will be placed on Great Britain and North America.

### 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.

*Fall or 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.**

*Fall or Spring (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) Gallivan.*

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) Gallivan.*

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) Staff*

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.***Fall or Spring (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.***Fall or Spring (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.***Fall or 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 or Spring (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.***Fall or Spring (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.***Fall or 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) Gallivan.*

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) Staff.*

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

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

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) Bragdon.*

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) Staff*

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.**

*Fall or Spring (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 at historical sites in Colonial Williamsburg and/or the surrounding area. Graduate students will enroll in Anthropology 625.

## APPLIED SCIENCE DEPARTMENT

**CHAIR** **Eric L. Bradley**, (Chair), (Ph.D., University of California, Santa Barbara).

**PROFESSORS** **Michael J. Kelley** (Ph.D., Rensselaer Polytechnic Institute), **Dennis M. Manos** (CSX Professor of Applied Science) (Ph.D., Ohio State University), and **Robert L. Vold** (Ph.D., University of Illinois, Urbana).

**ASSOCIATE PROFESSORS** **Mark K. Hinders** (Ph.D., Boston University), **Brian C. Holloway** (Ph.D., Stanford University), and **Gunter Luepke** (Ph.D., University of Göttingen).

**ASSISTANT PROFESSORS** **Christopher A. Del Negro** (Ph.D., University of California, Los Angeles), and **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), **Margaret S. Saha** (Biology) (Ph.D., University of Virginia), **William H. Starnes Jr.** (Chemistry) (Ph.D., Georgia Institute of Technology), **Eugene R. Tracy** (Physics) (Ph.D., University of Maryland), and **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), **Michael Trosett** (Mathematics) (Ph.D., University of California, Berkeley), **Hugo J. Woerdeman** (Mathematics) (Ph.D., Vrije Universiteit), and **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), and **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).

**RESEARCH SCIENTISTS** **Catherine Chisolm-Brause** (Ph.D., Stanford University), and **Jianjun Wang** (Ph.D., University of Science and Technology Beijing).

**RESEARCH ASSOCIATES** **Benjamin L. French** (Ph.D., University of Michigan), **Marco A. Huertas** (Ph.D., College of William & Mary), **Andrea Lucarelli** (Ph.D., Univerita "La Sapienza," Rome, Italy), **Bori Mazzag** (Ph.D., University of California, Davis), **Jonathan C. Stevens** (B.S. College of William & Mary) and **Diyar Talbayev** (Ph.D., Stony Brook State University of New York).

## General Description

The Department of Applied Science is an interdisciplinary graduate department that offers M.S. and Ph.D. degrees in the physical and natural sciences. The program is offered by the core faculty of Applied Science in cooperation with affiliated faculty from the Departments of Biology, Chemistry, Computer Science, Mathematics, Physics, and the Virginia Institute of Marine Science (VIMS), as well as from the NASA Langley Research Center (LaRC) and the Thomas Jefferson National Accelerator Facility (JLab).

Faculty research interests include nondestructive evaluation, robotics, medical imaging, nanotechnology, surface science, electronic materials, physical and chemical properties of polymers, polymer characterization techniques, novel chemical instrumental techniques, in-situ sensing techniques, laser spectroscopy, solid state nuclear magnetic resonance, neurophysiology, and computational neuroscience and cell biology. Applied Science students perform their thesis and dissertation 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.

## Admission

The Department assumes that students entering the program have had an undergraduate concentration in a physical or natural science, mathematics, or engineering discipline. Information about the Department and applications for admission can be obtained from the Chair of Applied Science. Each applicant must submit 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. 28-29 for general College requirements.)*

The student and his or her advisory committee will plan a coherent degree program, including required coursework, that best suits the student's educational goals. For most students this will include the department's core sequence APSC 603, 604, 607, 608. 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. The Applied Science Faculty must approve thesis and dissertation programs. A student in the Department must maintain a B average in order to remain in good standing.

## Degree Requirements for the 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 by: 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.

## Degree Requirements for the 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 surfaces and interfaces emphasizing structure, energetics, transport, reactivity and measurement as a foundation. Applications may include thin films, microelectronics, nanomaterials preparation, catalysis and others according to class needs and interests.

### 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 sequence, designed for the first year graduate student, acquaints them with the range and scope of research opportunities in Applied Science and the skills and knowledge necessary to function as a professional researcher.

### 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 'fundamentals 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.

**631. Applied Cellular Neuroscience.***Fall (3) Prerequisite: Permission of instructor.*

We examine cellular neurophysiology including topics such as: membrane potentials, ion channels and permeability, electrical signaling and cable properties, synaptic transmission, and neuromodulation. We apply these concepts to motor control, homeostatic regulation, and special senses.

**632. Applied Systems Neuroscience.***Spring (3) Prerequisite: APSC 631 or permission of instructor.*

We explore how behaviors emerge through multiple levels of organization in the nervous system. Topics include: cranial and spinal reflexes, central pattern generator networks, the neural control of breathing, the neural control of appetite, body weight, and obesity, and finally, the neuropharmacology of nicotine addiction.

**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. 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.

#### **751. Mathematical Physiology I.**

*Fall (3) Prerequisite: APSC 651 [Cellular Biophysics and Modeling] or permission of instructor.*

Computational and mathematical aspects of electrophysiology and cellular biophysics emphasizing stochastic and spatial modeling applied to cell signal transduction, the dynamics of intracellular calcium, and the visual neurosciences.

#### **752. Mathematical Physiology II.**

*Spring (3) Prerequisite: APSC 751 or permission of instructor.*

This course is a continuation of APSC 751 Mathematical Physiology I.

#### **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.**

*Spring (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.**

*Fall (3) Prerequisite: Applied Science 723.*

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 DEPARTMENT

**CHAIR Paul D. Heideman**, Associate Professor (Ph.D., Michigan)

**GRADUATE DIRECTOR John P. Swaddle**, Associate Professor (Ph.D., University of Bristol, U.K.)

**PROFESSORS Eric L. Bradley** (Ph.D., California at Santa Barbara), **Norman J. Fashing** (Ph.D., Kansas), **Stanton F. Hoegerman** (Ph.D., North Carolina State), **Margaret Saha** (Ph.D., Virginia), **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., Virginia), **Daniel A. Cristol**, (Ph.D., Indiana at Bloomington) **John D. Griffin** (Ph.D., Ohio State), **Diane C. Shakes** (Ph.D., Johns Hopkins), **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)

**ASSISTANT PROFESSORS Mark H. Forsyth** (Ph.D., Connecticut), and **George W. Gilchrist** (Ph.D., University of Washington).

**EMERITUS PROFESSORS Bruce Grant** (Ph.D., North Carolina State), and **Martin C. Mathes** (Ph.D., Maryland).

**RESEARCH PROFESSORS Mitchell A. Byrd** (Ph.D., Virginia Polytechnic), **Lloyd Guth** (M.D., New York University), and **C. Richard Terman** (Ph.D., Michigan State)

**RESEARCH ASSOCIATE PROFESSORS Donna M. E. Ware** (Ph.D., Vanderbilt), and **Bryan D. Watts** (Ph.D., University of Georgia).

**RESEARCH ASSISTANT PROFESSOR Todd Bierbaum** (Ph.D., Michigan State).

**VISITING ASSISTANT PROFESSORS Amy E. Dunham** (Ph.D., Stony Brook University), and **Beverly Sher** (Ph.D., California Institute of Technology).

### General Description

The Biology graduate program generates a close-knit academic community of productive students dedicated to performing high quality, publishable research. We produce graduates with both specialized training in their chosen sub-disciplines as well as communication and teaching skills to effectively function within a broad-based scientific community. Graduate research opportunities exist in three broad areas: molecular, cellular and developmental biology; physiology, behavior and neuroscience; and evolution, ecology and conservation.

### Admission

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

### Degree Requirements for the Master of Science – Thesis Program

*(See p. 28-29 for general College requirements.)*

Each student must have a thesis 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 9 credits of Biology 700 (Thesis), a M.S. candidate must complete 15 semester hours of courses, of which at least 9 are numbered in the 600s, with a grade average of 'B' or better. Within the 15 semester hours of courses, every student must

successfully complete Biology 580 – Introduction to Graduate Studies – during their first year in the program. Thesis students are strongly encouraged to complete their course requirements before the beginning of their fourth semester.

Each student must pass a Graduate Student Qualifying Examination covering basic and advanced principles of biology. The exam is given in the student's second semester. Details of the examination and other procedures are provided in 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.

## **Degree Requirements for the Master of Arts – Non-Thesis Program**

*(See p. 28-29 for general College requirements.)*

Non-thesis M.A. students must complete 32 semester hours of courses, at least 16 of which must be numbered in the 600s, with a grade average of 'B' or better. As part of the 32 semester hours, M.A. students must successfully complete Biology 580 – Introduction to Graduate Studies – during their first year in the program.

M.A. students may take up to 3 credits of research, as Biology 690 or Biology 680 (Advanced Topics). M.A. students must also pass a Graduate Student Qualifying Examination.

## **General Description**

With the approval of his or her committee, a student registered in the M.S. program may take up to 6 credits in other departments. M.A. students may take up to 12 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 M.S. and M.A. students will be eligible for 4 consecutive semesters of support as long as they remain in good standing. M.A. students are not eligible for summer support. All students receiving an Assistantship may not register for more than 12 course credits.

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 M.S. program. After this date, a change may be made only upon approval of the Graduate Committee. Permission for a M.S. student to change to the M.A. program will be given only under extraordinary circumstances and will require repayment of funds received by the student in support of summer research.

For additional information regarding requirements, consult the Department of Biology Graduate Handbook (available upon request). 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 or equivalent.*

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 or equivalent.*

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 or equivalent 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 or equivalent.*

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) Staff. 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 or equivalents.*

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.

**36. 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.

**38. 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.

**42. 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.

**45. 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.

**46. 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.

**50. Introduction to Graduate Studies.**

*Fall (3) Staff.*

This is a graduate only course designed to expose new students to a range of techniques and skills that will facilitate their involvement in independent research and graduate studies in biology. Students will receive training in critically reviewing the primary literature, developing research questions, research design and data analysis, and oral and written presentations. Students will author both a grant and preliminary research proposal. This course is required of all biology graduate students.

**60. 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 BIO 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.

### 649. Sexual Selection.

*Spring (3) Swaddle. Prerequisites: BIO 204 or BIO 206 (Alternate years).*

An advanced seminar course using the study of sexual selection as a framework to critically examine the primary literature in organismal evolutionary biology and behavioral ecology. Emphasis is placed on student participation in evaluative discussions of published studies and the development of novel ideas for hypothesis testing.

### 650. Microbial Pathogenesis.

*Fall (3) Forsyth. Prerequisites: BIO 440, or permission of instructor (Alternate years).*

Class covers genetic, immunologic and evolutionary aspects of microbial virulence based on readings from the primary literature. Major bacterial and viral disease mechanisms will be examined.

### 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 labeling 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.

### 659. Topics in Evolutionary Genetics.

*Fall (3) Staff.*

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 Symbiosis.***Fall (3) Forsyth. Prerequisites: BIO 440, 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.

### **73. 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.

### **75. 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.

### **76. 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 DEPARTMENT

CHAIR **Gary W. Rice**, Associate Professor (Ph.D., Iowa State)

GRADUATE DIRECTOR **Christopher J. Abelt**, Professor (Ph.D., California, Los Angeles)

PROFESSORS **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), **Robert D. Pike** (Ph.D., Brown), **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), and **Robert J. Hinkle** (Ph.D., Utah).

ASSISTANT PROFESSORS **Elizabeth J. Harbron** (Ph.D., North Carolina, Chapel Hill), **Lisa M. Landino** (Ph.D., Virginia), and **John C. Poutsma**, Assistant Professor (Ph.D., Purdue).

### General Description

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. An industrial internship is possible for each of these tracks. 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.

### Degree Requirements for the Master of Science

(See p. 28-29 for 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.

## **Degree Requirements for the 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.

## **Degree Requirements for the Master of Science/joint Ph.D. program in Applied Science**

*(See p. 28-29 for general College requirements.)*

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.

## Degree Requirements for the Master of Arts

(See p. 28-29 for 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.

## Description of Courses

### 501. Advanced Physical Chemistry.

*Fall (3) DeFotis.*

Quantum chemistry and molecular spectroscopy.

### 502. Advanced Inorganic Chemistry.

*Spring (3) Thompson.*

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.

### 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) Orwoll.*

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.*

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

**CHAIR Xiaodong Zhang**, Professor (Ph.D., Colorado)

**GRADUATE DIRECTOR Evgenia Smirni**, Associate Professor (Ph.D., Vanderbilt)

**PROFESSOR Robert E. Noonan**, (Ph.D., Purdue).

**ASSOCIATE PROFESSORS Nikos Chrisochoides** (Ph.D., Purdue), **Phil Kearns** (Ph.D., Virginia), **Weizhen Mao** (Ph.D., Princeton), **Andreas Stathopoulos** (Ph.D., Vanderbilt), and **Virginia Torczon** (Ph.D., Rice).

**ASSISTANT PROFESSORS David Coppit** (Ph.D., Virginia), **Qun Li** (Ph.D., Dartmouth), **Moses Liskov** (Ph.D. MIT), **Bruce Lowekamp** (Ph.D., Carnegie Mellon), **Dimitrios Nikolopoulos** (Ph.D., Patras), and **Haining Wang** (Ph.D., Michigan).

**INSTRUCTOR Deborah S. Noonan** (M.S., William & Mary).

**PROFESSOR EMERITIS William L. Bynum** (Ph.D., North Carolina), **Stefan Feyock** (Ph.D., Wisconsin), **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 PROFESSOR 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.

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>.

## Admission

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 insufficient background in computer science may be required to enroll in CSci 241 and CSci 303. 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 insufficient background in data structures, algorithms, computer organization, and systems programming may be required to enroll in CSci 241, CSci 303, CSci 304, and CSci 315.

## Degree Requirements for the Master of Science

(See p. 28-29 for general College requirements.)

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 Master of 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 can not be applied to the 24 credits. In either case, students can 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.

A student can not use courses taken in another department, nor CSci courses designated as Computational Operations Research courses (last digit in the course number is an 8), to satisfy degree requirements without prior written approval of the student's advisor and the Graduate Admissions Committee.

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 Master of Science with a Specialization in Computational Operations Research

Students must complete 32 graduate credits, including one of either CSci 698, Simulation and Modeling Project in Computational Operations Research, CSci 708, Research Project in Computational Operations Research, or CSci 710, Research Project. There is no thesis option for this specialization. In addition, students must satisfactorily complete at least seven courses from the following list of courses in the computational operations research area: CSci 608, 618, 628, 638, 648, 658, 668, 678, 688, 698, and 708.

## Degree requirements for the Master of Science with a Specialization in Computational Science

Students must complete 32 graduate credits, including CSci 710, Research Project. Students may apply at most 12 credits in course numbered below 600 and must satisfactorily complete CSci 653, CSci 654, and CSci 674. In addition students must also satisfactorily complete 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. Students must submit a two year plan of study at the beginning of their first semester in the M.S. with a specialization in computational science program, which must be endorsed by their computational science advisory committee and then approved by the Graduate Admissions Committee. There is no thesis option for this specialization.

## Degree Requirements for the Doctor of Philosophy

*(See p. 29 for general College requirements.)*

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; 708, Research Project in Computational Science; 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. A student may not use courses taken in another department nor CSci course designated as Computational Operations Research courses (last digit in the course number is an 8), to satisfy degree requirements without prior written approval of the student's advisor and the Graduate Admissions Committee.

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.

### 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.

**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.

**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.

**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.

### **608 Decision Theory.**

(3) *Pre-requisite: equivalent of Math 351.*

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.

### **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.**

(3) *Pre-requisite: equivalent of Math 323.*

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). Pre-requisite: equivalent of Math 211.*

Co-requisite: equivalent of CSci 241.

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. Nonlinear Programming.**

(3) *Pre-requisites: CSci 628 and the equivalent of Math 212.*

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

### **648. Network Optimization.**

(3) *Prerequisite: 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.

**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.

**658. Discrete Optimization.***Spring (3) Prerequisites: CSci 628 and the equivalent of CSci 303.*

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.

**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.

**668. Reliability.***(3) Pre-requisites: equivalent of Math 401 and CSci 141.*

Introduction to probabilistic models and statistical method 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.

**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.

**678. Statistical Analysis of Simulation Models.**

*(3) Pre-requisites: equivalent of Math 351, Math 401 and CSci 141.*

This course introduces statistical techniques used in the analysis of simulation models. The first half of the course develops techniques for determining appropriate inputs to a simulation model, and the last half develops analysis techniques that are applied to the output of a simulation model.

**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 in Computational Operations Research.**

*(3) May be repeated for different topics.*

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.

**698. Simulation and Modeling Project in Computational Operations Research.**

*Fall (3). Pre-requisites: equivalent of Math 401 and CSci 241.*

Simulation model building in a high-level simulation language (SIMAN) with C++/C interface. Topics include network, discrete-event, and continuous modeling approaches. Interfaces between the three modeling approaches are presented. Familiarity with univariate and multivariate probability distributions is required for input modeling and simulation output analysis. Course culminates in a semester project in SIMAN.

**\*700. M.S. Thesis.**

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

**708. Research Project in Computational Operations Research.**

*Fall and Spring (2,2). Graded P (Pass) or F (Failure). Prerequisite: Permission of Graduate Director.*

Students will select a faculty advisor and committee in their area of specialization within computational operations research, 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 with a specialization in computational operation research. Not open to students who receive credit for either CSci 700 or CSci 710.

**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 either CSci 700 or CSci 708.

**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.

**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.

**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, CSci526 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.

**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: 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.

**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 DEPARTMENT

**CHAIR** **James N. McCord, Jr.**, Associate Professor (Ph.D., Johns Hopkins)

**GRADUATE DIRECTOR** **Carol Sheriff**, University Professor of Teaching Excellence (Ph.D., Yale)

**PROFESSORS** **James L. Axtell**, William R. Kenan, Jr. Professor of Humanities (Ph.D., Cambridge), **Melvin P. Ely** (Ph.D., Princeton), **Dale E. Hoak**, Chancellor Professor (Ph.D., Cambridge), **Ronald Hoffman**<sup>1</sup>, William E. Pullen Professor (Ph.D., Wisconsin), **Rhys Isaac**<sup>2</sup>, Visiting Distinguished Professor (B.A., Oxford), **Richard Price**, Duane A. and Virginia S. Dittman Professor (Ph.D., Harvard), **Abdul-Karim Rafeq**, William and Annie Bickers Professor (Ph.D., University of London), and **Carl Strikwerda**<sup>3</sup> (Ph.D., Michigan).

**ASSOCIATE PROFESSORS** **Ismail H. Abdalla** (Ph.D., Wisconsin), **Gail Bossenga**, (Ph.D., Michigan), **Chandos M. Brown** (Ph.D., Harvard), **Craig N. Canning**, (Ph.D., Stanford), **Philip H. Daileader** (Ph.D., Harvard), **Christopher Grasso**<sup>4</sup> (Ph.D., Yale), **Cindy Hahamovitch** (Ph.D., North Carolina-Chapel Hill), **LuAnn Homza** (Ph.D., Chicago), **Kris E. Lane**, David B. and Carolyn D. Wakefield Term Distinguished Professor (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**<sup>5</sup> (Ph.D., Yale), **Edward E. Pratt**<sup>6</sup> (Ph.D., Virginia), **Ronald B. Schechter** (Ph.D., Harvard), **James P. Whittenburg**<sup>7</sup> (Ph.D., Georgia).

**ASSISTANT PROFESSORS** **Nwando Achebe** (Ph.D., UCLA), **Kveta E. Benès** (Ph.D., Washington-Seattle), **Frederick Corney** (Ph.D., Columbia), **Andrew H. Fisher**, (Ph.D., Arizona State), **Hiroshi Kitamura** (Ph.D., Wisconsin), **Laurie S. Koloski**, (Ph.D., Stanford), **Paul W. Mapp** (Ph.D., Harvard), and **Chitralekha Zutshi**, (Ph.D., Tufts).

**VISITING ASSOCIATE PROFESSORS** **Kevin P. Kelly**<sup>8</sup> (Ph.D., Washington), **Carl Lounsbury** (Ph.D., George Washington), and **Karin Wulf**, Visiting Scholar in History and American Studies (Ph.D., Johns Hopkins).

**VISITING ASSISTANT PROFESSORS** **Judith Richter** (Ph.D., William & Mary), **Brett Rushforth**<sup>9</sup> (Ph.D., California-Davis), **Lise F. Sedrez** (Ph.D., Stanford), **Walter A. Skya** (Ph.D., Chicago), **Camille Wells** (Ph.D., William & Mary), and **Bin Yang** (Ph.D., Northeastern University).

**LECTURERS** **Marley R. Brown III**<sup>10</sup> (Ph.D., Brown), **Cary Carson**<sup>11</sup> (Ph.D., Harvard), **Charles F. Hobson**<sup>12</sup> (Ph.D., Emory), **James Horn**<sup>13</sup> (Ph.D., University of Sussex), **Heather Huyck**<sup>14</sup> (Ph.D., Minnesota), **William M. Kelso**<sup>15</sup> (Ph.D., Emory), **Fredrika Teute**<sup>16</sup> (Ph.D., Johns Hopkins).

<sup>1</sup> Director, Omohundro Institute of Early American History and Culture

<sup>2</sup> Distinguished Professor of American History and Public Policy, National Institute of American History and Democracy

<sup>3</sup> Dean, Faculty of Arts and Sciences

<sup>4</sup> Editor, William & Mary Quarterly, Omohundro Institute of Early American History and Culture

<sup>5</sup> Director, American Studies Program

<sup>6</sup> Dean, Undergraduate Studies

<sup>7</sup> Director, National Institute of American History and Democracy

<sup>8</sup> Research Historian, Research Department, The Colonial Williamsburg Foundation

<sup>9</sup> Visiting NEH Fellow of Omohundro Institute of Early American History and Culture

<sup>10</sup> Director, Archaeological Excavation and Conservations Department, The Colonial Williamsburg Foundation

<sup>11</sup> Vice President of Research, The Colonial Williamsburg Foundation

<sup>12</sup> Editor, John Marshall Papers

<sup>13</sup> Director, John D. Rockefeller, Jr. Library, Colonial Williamsburg Foundation

<sup>14</sup> Regional Chief Historian, National Park Service

<sup>15</sup> Director of Archaeology, Association for the Preservation of Virginia Antiquities

<sup>16</sup> Editor of Publications, Omohundro Institute of Early American History and Culture

## General Description

The History Department offers a doctoral program in Early American and United States History, and a master's program in those fields plus selected areas of British and European history. Students also take courses outside the geographic area of their major field (African, Caribbean, British, East Asian, European, Latin American, Middle Eastern, and South Asian courses are available), and they may elect to pursue thematic study in subjects such as African American, labor, or women's history. Ph.D. students research all sub-fields of American history, including, but are not limited to, Native American history, women's history, diplomatic history, African American history, labor history, social history, cultural history, and political history. A distinguishing characteristic of our program is its apprenticeship and internship opportunities (please see below.)

(See p. 28-29 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 official copies of scores from the Graduate Record Examination. A writing sample is required. A separate application is not necessary for financial aid. Completed applications must be postmarked 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.

## Degree Requirements for the Master of Arts

(See p. 28-29 for general College requirements.)

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 grade 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, historical archaeology, and historical architecture. 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.

## Degree Requirements for the Doctor of Philosophy

(See p. 29 for general College requirements.)

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

*Courses listed in this catalog are not offered every academic year. Please consult the website [www.wm.edu/history](http://www.wm.edu/history) and/or the department office for the current listing of courses offered.*

### **\*\*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.*

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.*

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.*

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.*

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) Staff.*

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) Lane, Staff.*

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) Kitamura.*

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.*

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.*

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.*

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.*

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.*

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.*

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.*

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.*

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

**577. History of Mexico.**

*Spring (3) Staff.*

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.*

Topics change each year. (These courses may be repeated for credit if there is no duplication of topic.) Please consult the website [www.wm.edu/history](http://www.wm.edu/history) and the department office for the current listing of topics offered.

**600 - 687. Readings Courses.**

*Fall and Spring (3) Staff.*

Readings 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.

**605, 606. Early American History. Mapp**

*Fall and Spring.*

**\*\*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.*

**\*615, 616. European History, 1648-1871.***Fall and Spring (3,3) Schechter.***\*619, 620. History of England.***Fall and Spring (3,3) McCord.***\*631. Spanish History, 1469-1939.***Fall or Spring (3) Homza.***\*633, 634. History of Germany.***Fall and Spring (3,3) Benes.***\*637, 638. French History, 1648 to Present.***Fall and Spring (3,3) Schechter.***\*639, 640. Latin American History.***Fall and Spring (3,3) Lane, Sedrez.***\*643, 644. United States Foreign Relations.***Fall and Spring (3,3) Kitamura.***\*648, 649. History of Russia.***Fall and Spring (3,3) Corney.***\*650. Invasion of North America.***Fall or Spring (3) Axtell.***\*651, 652. African History.***Fall and Spring (3,3) Abdalla. Achebe.***\*653. Race Relations in South Africa.***Fall or Spring (3) Abdalla.***\*655, 656. Medieval Europe.***Fall and Spring (3,3) Daileader.***\*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.***\*684. Chinese History, 1644-Present.***Fall (3) Canning, Yang, Staff.***\*685. Korean History.***Fall or Spring (3) Staff.***\*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) Staff.*

*Sec. 2. European History. Fall and Spring, (3,3) Staff.*

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.*

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) Staff.*

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, 1789-1877.**

*Fall (3) Sheriff.*

**\*\*712. Research Seminar in United States History since 1877.**

*Fall (3) Staff.*

**\*\*713. Research Seminar in European History.**

*Fall (3) Staff.*

**\*\*714. Research Seminar in British History.**

*Fall (3) Hoak.*

**\*\*715. Pro-seminar in Early American History to 1789.**

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

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.  
 Nature and Culture in Long 18<sup>th</sup> Century. 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.  
 Readings in Early American History. Whittenburg.  
 +The Backcountry, 18-19th C. Whittenburg.

**\*\*716. Pro-seminar in American History, 1789-1877.**

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

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. Kitamura.  
 American Foreign Relations, 1865-1917. Kitamura.  
 African-American History to 1865. Ely.  
 Southern Society to 1861. Ely.  
 Early Republic. Grasso.  
 Religion and American History to 1865. Grasso.  
 ++The U.S. 1861-1901: The Gilded Age. Nelson  
 ++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) Staff.*

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. Kitamura.  
 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.*

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 open to candidates for advanced degrees.)

**\*\*719. Pro-Seminar in British History.**

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

**721 - 746. Advanced Readings Courses.**

*Fall or Spring (3) Staff.*

Readings 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)*

**\*\*723. United States History Since 1815.**

*Fall and Spring (3,3)*

**\*\*724. United States History Since 1861.**

*Fall and Spring (3,3)*

**\*\*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) Staff.*

(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.*

**\*\*734. Europe 1815-1945.**

*Fall and Spring (3,3) Benes, 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.***\*\*742. East Asia 1850 to Present.***Fall and Spring (3,3) Canning, Staff.***\*\*743. Africa: 1800 to the Present.***Fall and Spring (3,3) Abdalla, Achebe.***\*\*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. (Open only to doctoral candidates.)

**\*\*800. Dissertation.***Fall and Spring (1) Sheriff.*

Research and writing of doctoral dissertation.

## PHYSICS DEPARTMENT

**CHAIR** William E. Cooke, Professor (Ph.D., MIT)

**GRADUATE DIRECTOR** Gina L. Hoatson, Professor (Ph.D., East Anglia)

**PROFESSORS** Carl E. Carlson, Class of 1962 Professor (Ph.D., Columbia), John B. Delos (Ph.D., MIT), John M. Finn (Ph.D., Catholic U.), Keith A. Griffioen (Ph.D., Stanford), 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), Marc T. Sher (Ph.D., Colorado), Anthony Thomas, Governor's Distinguished Professor (Ph.D., Flinders), Eugene R. Tracy, Chancellor Professor (Ph.D., Maryland), George M. Vahala (Ph.D., Iowa), Hans C. von Baeyer, Chancellor Professor (Ph.D., Pennsylvania State), and Robert E. Welsh, Chancellor Professor (Ph.D., Pennsylvania State).

**ASSOCIATE PROFESSORS** David S. Armstrong, Class of 1963 Associate Professor of Physics (Ph.D., British Columbia), Todd D. Averett, Associate Professor (Ph.D., Virginia), Christopher D. Carone, Class of 1963 Distinguished Associate Professor (Ph.D., Harvard), and Shiwei Zhang, Sally Gertrude Smoot Spears Associate Professor of Physics (Ph.D., Cornell).

**ASSISTANT PROFESSORS** Jan L. Chaloupka (Ph.D., Rochester), Joshua Erlich (Ph.D., MIT), Jeffrey K. Nelson (Ph.D., Minnesota), Anne C. Reilly (Ph.D., Michigan), and Marc Vanderhaeghen (Ph.D., Ghent).

**PROFESSOR EMERITUS** Roy L. Champion (Chancellor Professor) (Ph.D., Florida), George W. Crawford (Ph.D., Ohio), Morton Eckhause (Ph.D., Carnegie-Mellon), Herbert O. Funsten (Ph.D., Virginia), Franz L. Gross (Ph.D., Princeton), John L. McKnight (Ph.D., Yale), Edward A. Remler (Ph.D., North Carolina), 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 PROFESSORS** 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) and Malathy Devi Venkataraman (Ph.D., Kerala).

**RESEARCH ENGINEER** John P. Bensei (Ph.D., U. Pennsylvania).

### General Description

The mission of the Physics Department at the College of William and Mary is the creation and dissemination of knowledge of the physical world through teaching, research, and public service.

The Department is committed to excellence in its teaching. At the graduate level, the Department offers a full complement of courses consistent with the requirements of a doctoral program. The department recognizes that faculty research activity is an essential ingredient in sustaining excellence in teaching.

The Department carries out experimental and theoretical research in many subfields, and the results are communicated in refereed journals, in conferences and seminars, and in books. The active participation of graduate and undergraduate students in research is

integral to these efforts and is a major component of their education. Mission is to understand the fundamental origin and the mathematical description of physical phenomena. Graduate students learn to conduct original scientific research in physics. Currently the Department of Physics and federal grants support active research in the following areas:

#### Focus/Specialization of Program

- Atomic, Molecular, and Optical physics – experimental and theoretical: Ultrafast lasers, Rydberg atom spectroscopy and quantum chaos theory.
- Computational Physics
- Condensed Matter Physics – experimental and theoretical: First principles calculation of piezoelectrics (Center for Piezoelectrics by Design), Quantum Monte Carlo simulations, magnetic multilayers, surfaces and interfaces, muon spin rotation, and solid state nuclear magnetic resonance (high field NMR Lab).
- Nuclear and Particle Physics – experimental and theoretical: Electronic and magnetic nuclear form factors, spin of the proton, particle theory, pentaquarks, supersymmetry, and Higgs physics.
- Plasma and Non-Linear Physics – theoretical: Laser instabilities, turbulence simulations.
- And strong links with the interdisciplinary Applied Science Department

Among the many components of public service, departmental members give lectures to general audiences, organize public telescope viewings, offer courses for high school teachers seeking further advanced training, and write books to explain physics to the general public. The Department also serves the wider national and international communities through scientific leadership in various organizations, service on review panels, and on advisory committees.

## Admission

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.

## Degree Requirements for the Master of Science

*(See p. 28-29 for general College requirements.)*

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.

## Degree Requirements for the Doctor of Philosophy

(See p. 29 for general College requirements.)

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) Cooke.*

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) Cooke. 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) Zhang.*

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. Nonlinear Dynamics.***Fall (3) Delos.*

Topics in nonlinear dynamics, varying from year to year.

**695. Research.***Fall and Spring (1-12) Cooke.***702. Advanced Mathematical Physics.***Spring (3) Krakauer. 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, Zhang. 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 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) Erlich. Prerequisite: PHYS622. (Not offered 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 2004-2005.)*

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 2004-2005.)*

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 (1-12) Cooke.*



## PSYCHOLOGY DEPARTMENT

**CHAIR** **W. Larry Ventis**, Professor (Ph.D., Tennessee)

**GRADUATE DIRECTOR** **Lee A. Kirkpatrick**, Associate Professor (Ph.D., Denver)

**PROFESSORS** **John B. Nezelek** (Ph.D., Rochester), **Michael P. Nichols** (Ph.D., Rochester), **Kelly G. Shaver** (Ph.D., Duke), **Glenn D. Shean** (Ph.D., Arizona), and **Neill P. Watson** (Ph.D., Harvard).

**ASSOCIATE PROFESSORS** **Christopher T. Ball** (Ph.D., Flinders Univ. South Australia), **Joseph Galano**, Associate Professor (Ph.D., Bowling Green State), **Pamela S. Hunt**, Associate Professor (Ph.D., SUNY-Binghamton), **Harvey J. Langholtz**, Associate Professor (Ph.D., Oklahoma), **Constance J. Pilkington**, Associate Professor (Ph.D., Georgia).

**ASSISTANT PROFESSORS** **Robert C. Barnet**, Assistant Professor (Ph.D., SUNY-Binghamton), **Joshua A. Burk**, Assistant Professor (Ph.D., New Hampshire), **Adam J. Rubenstein** (Ph.D., Texas-Austin), **Todd M. Thrash**, Assistant Professor (Ph.D., Rochester).

**VISITING ASSISTANT PROFESSORS** **Jennifer E. Daly** (Ph.D., Houston), **M. Christine Porter**, Visiting Assistant Professor (Ph.D., New Hampshire)

**ADJUNCT FACULTY** **Howard J. Bierenbaum** (Ph.D., Rochester), **Sarah W. Bisconer** (Ph.D., Hawaii at Monoa), **Fredrick P. Frieden** (Ph.D., Virginia Commonwealth University), **Douglas M. Gross** (Ph.D., Minnesota), **Howard H. Tiller**, (Ph.D., Tennessee).

### General Description

The general Psychology M.A. program is a research-oriented program designed to prepare students for admission to Ph.D. programs in all areas of psychology. The program often admits good students whose ability, motivation, and experience may not be adequately reflected in their standardized test scores or GPA. Our students are expected to complete the full-time two-year program of course work and research and to continue on to quality Ph.D. programs.

Fall admissions only. Minority applications are encouraged.

### Admission

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 postmarked by February 15th.

*Applicants must have successfully completed courses in Statistics and Experimental Psychology/Research Methods.*

### Degree Requirements for the Master of Arts

*(See p. 28-29 for general College requirements.)*

All students are expected to be in full-time residence for two years and 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.

## 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) Ball.*

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) Thrash.*

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 (v,v) 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 begins 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) Staff.*

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 consid-

ered. 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. 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. (Not offered 2004-05.)**

*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. (Not offered 2004-05.)**

*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 psychoanalytic 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.*



## THE THOMAS JEFFERSON PROGRAM IN PUBLIC POLICY

**PROGRAM DIRECTOR** **Eric R. Jensen**, Professor of Economics (Ph.D., Michigan)

**GRADUATE DIRECTOR** **Elaine S. McBeth**, Associate Director and Adjunct Professor of Economics and Public Policy (M.A., Virginia)

**PROFESSORS** **Berhanu Abegaz** (Economics) (Ph.D., Pennsylvania), **David P. Aday, Jr.** (Sociology) (Ph.D., Kansas), **Samuel H. Baker III** (Economics) (Ph.D., Virginia), **Lynda L. Butler** (Law) (J.D., Virginia), **Donald E. Campbell** (CSX Professor of Economics and Public Policy) (Ph.D., Princeton), **Edward P. Crapol** (Chancellor Professor of History) (Ph.D., Wisconsin), **Neal E. Devins** (Law) (J.D., Vanderbilt), **Davison M. Douglas** (Law) (LL.B. and Ph.D., Yale), **C. Lawrence Evans** (Government) (Ph.D., Rochester), **David H. Feldman** (Economics) (Ph.D., Duke), **David H. Finifter** (Economics) Dean of Research and Graduate Studies (Ph.D., Pittsburgh), **George W. Grayson** (Class of 1938 Professor of Government) (Ph.D., Johns Hopkins), **William J. Hausman** (Economics) (Ph.D., Illinois), **James S. Heller** (Law) (J.D., San Diego), **Charles H. Koch, Jr.** (Dudley W. Woodbridge Professor of Law) (LL.M., Chicago), **Gary A. Kreps** (Sociology) (Ph.D., Ohio State), **David W. Leslie**, (Education) (Ed.D., Pennsylvania State), **Linda A. Malone** (Marshall-Wythe Foundation Professor of Law) (J.D., Duke), **John J. McGlennon**, (Government) (Ph.D., Johns Hopkins), **Alan J. Meese**, (Law) (J.D., Chicago), **James E. Moliterno**, Professor of Law (J.D., Akron), **Carlisle E. Moody, Jr.** (Economics) (Ph.D., Connecticut), **Roy L. Pearson** (Chancellor Professor of Business Administration) (Ph.D., Virginia), **Alfredo M. Pereira** (Economics) (Ph.D., Stanford), **Ronald B. Rapoport** (John Marshall Professor of Government) (Ph.D., Michigan), **Ronald H. Rosenberg** (Law) (J.D., North Carolina - Chapel Hill), **Kathleen F. Slevin** (Sociology) (Ph.D., Georgia), and **Dennis L. Taylor** (A. Marshall Acuff, Jr. Professor of Marine Science) (Ph.D., Wales).

**ASSOCIATE PROFESSORS** **Arnab K. Basu** (Economics) (Ph.D., Johns Hopkins), **Dorothy E. Finnegan** (Education) (Ph.D., Pennsylvania State), **John B. Gilmour** (Government and Associate Director) (Ph.D., California-Berkeley), **Susan S. Grover** (Law) (J.D., Georgetown), **Carl H. Hershner** (Marine Science) (Ph.D., Virginia), **Christopher D. Howard**, (Government) (Ph.D., Massachusetts Institute of Technology), **David A. Jaeger**, (Economics) (Ph.D., Michigan), **Jennifer M. Mellor** (Economics) (Ph.D., Maryland), and **Sarah L. Stafford** (Economics) (Ph.D. Johns Hopkins).

**ASSISTANT PROFESSORS** **Robert L. Hicks** (Economics) (Ph.D., Maryland), **Paul Manna** (Government) (Ph.D., Wisconsin), and **Katherine Rahman** (Government) Director, Washington Program (Ph.D., Virginia),

**ADJUNCT PROFESSOR** **Christopher Byrne** (Public Policy) Head of Law Research and Instructional Service (J.D., Harvard).

**SENIOR RESEARCH FELLOW** **Louis F. Rossiter** (Center for Public Policy Research) (Ph.D. North Carolina - Chapel Hill).

**SENIOR FELLOW IN FOREIGN POLICY** **Robert E. Fritts**, Ambassador (ret.) (B.A., Michigan).

### 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, the Center for Public Policy Research, the Washington Program, 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.

*(See p. 29 for general College requirements.)*

## 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.

## DEGREE REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC POLICY

(See p. 29 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 EPPL676].

## 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. 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, Byrne, 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.

**608. 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.

**609. 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.

**610. 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.

**612. Public Management and Organizational Behavior.***Spring (3) Gilmour, Manna.*

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.

**615. Cross Section Econometrics.***Fall (3) Jensen. 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.

**616. 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, co-integration and principles of modeling.

**620. 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].

### 630. 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.

### 631. 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.

### 632. 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].

### 633. 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].



**640. 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.

**642. 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].

**643. 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.*

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

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. 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 Descriptions

#### **COL 501 – English Conversation & Pronunciation**

*Fall, Spring (0 credit, P/F)*

In this course students will learn more about the rhythm, stress, and intonation patterns of spoken English, improve their ability to communicate with others, and practice distinguishing sounds that are unique to the English language. Recorded transcripts and in-class discussions will allow students opportunities to practice their conversational skills and learn more about American culture.

#### **COL 505 – Oral Presentation for International Students**

*Fall, Spring (0 credit, P/F) King.*

A course for students who have little difficulty communicating in English, but who want to refine their oral communication skills and learn more about cultural norms. Students will participate in various kinds of oral communication activities such as: 1) speeches given for different purposes; 2) critiquing speeches: content organization and delivery; and 3) presenting a paper following specific guidelines set forth by a conference or association. Instructor permission required.

#### **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)*

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 applica-

tions, 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 508 –Effective Professional Communication**

*(Spring (0 credit, P/F)*

A course designed to help prepare students for entry into an academic or corporate environment. It will address cultural norms for communication in different work settings, conference presentations, and provide practice in the skills needed for job interviews, as well as on-the-job interactions and communication expected in a corporate environment.

### **COL 520 - Academic Writing**

*Spring (0 credit, P/F)*

A course for improving writing skills and gaining confidence in the ability to write formal, academic English. Process writing will be emphasized, with special attention given to improving the students' organizing, proofreading and revising skills. Students will learn how to identify their audience, define their purpose, and add cohesion and clarity to their writing. In addition, writing conventions concerning plagiarism and other writing norms will be examined.

### **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. Instructor permission required.

### **COL 525 – Writing for Publication**

*Fall (0 credit, P/F)*

A course for students who have mastered the basics of academic writing, and are preparing articles for publication in the sciences and humanities. Students will examine articles from their field to learn more about field-specific styles. In addition, they will review and revise their own writing, and participate in peer reviews. Participants in this course should currently be involved in doing research. Instructor permission required.

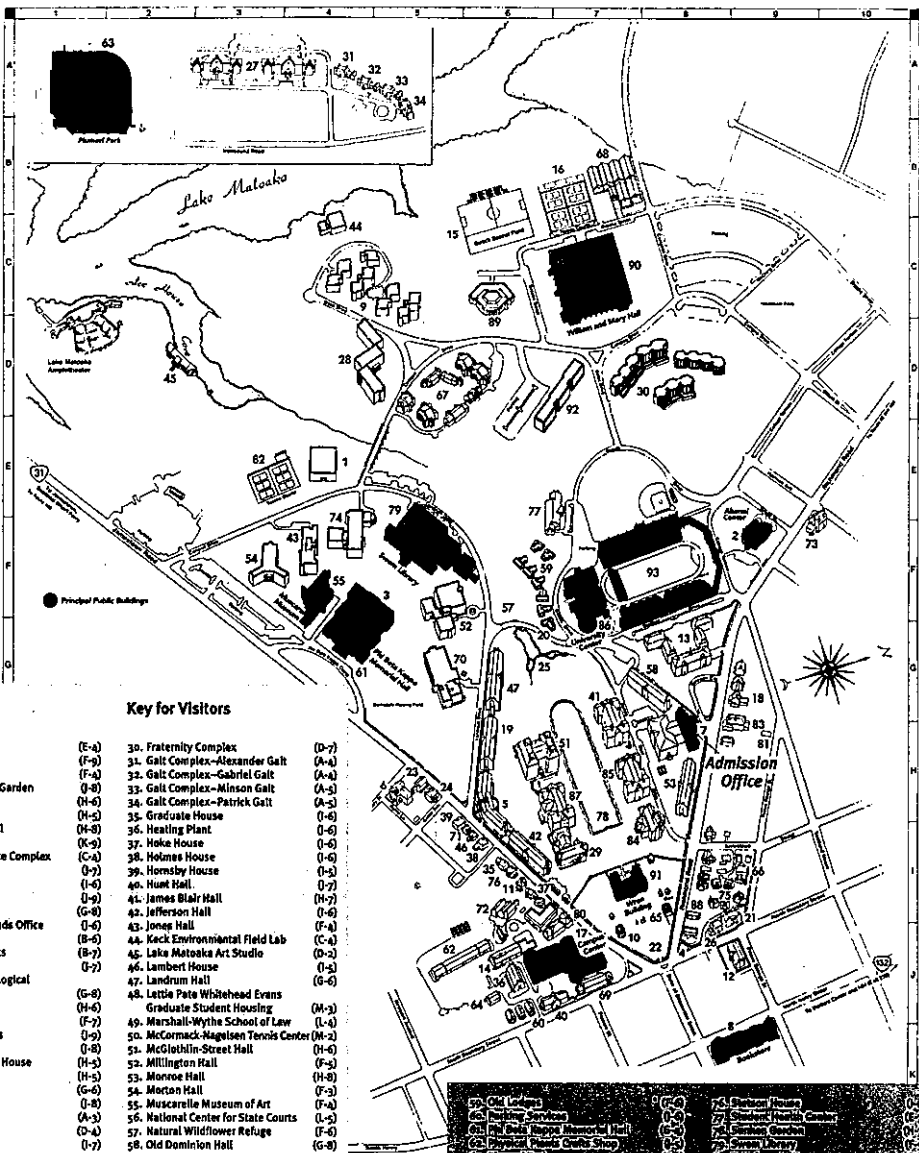
### **COL 530 –Thesis/Dissertation Writing**

*Spring (0 credit, P/F)*

A course for students beginning their theses/dissertations. It examines the general expectations for writing, and analyzes sample writings from specific fields. In collaboration with their academic advisor and in consultation with the instructor, students will organize and write individual chapters, simultaneously reviewing and revising.

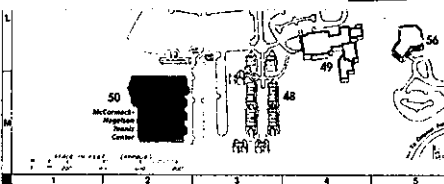
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## Campus

Adair Gymnasium  
 Alumni Center  
 Andrews Hall  
 Baldwin Memorial Garden  
 Barrett Hall  
 Bell Building  
 Blow Memorial Hall  
 Bookstore  
 Botanical Residence Complex  
 Brafferton  
 Bridges House  
 Brown Hall  
 Bryan Complex  
 Building and Grounds Office  
 Busch Soccer Field  
 Busch Tennis Courts  
 Campus Center  
 Center for Archaeological Research  
 Chandler Hall  
 Coffee House  
 College Apartments  
 College Yard  
 Commuter Student House  
 Corner House  
 Crim Dell  
 Davis House  
 Dillard Complex  
 DuPont Hall  
 Ewell Hall



1. Old Dominion	12. Eastern House	23. Galt Complex
2. Old Dominion	13. Eastern House	24. Galt Complex
3. Old Dominion	14. Eastern House	25. Galt Complex
4. Old Dominion	15. Eastern House	26. Galt Complex
5. Old Dominion	16. Eastern House	27. Galt Complex
6. Old Dominion	17. Eastern House	28. Galt Complex
7. Old Dominion	18. Eastern House	29. Galt Complex
8. Old Dominion	19. Eastern House	30. Galt Complex
9. Old Dominion	20. Eastern House	31. Galt Complex
10. Old Dominion	21. Eastern House	32. Galt Complex
11. Old Dominion	22. Eastern House	33. Galt Complex
12. Eastern House	23. Galt Complex	34. Galt Complex
13. Eastern House	24. Galt Complex	35. Graduate House
14. Eastern House	25. Galt Complex	36. Heating Plant
15. Eastern House	26. Galt Complex	37. Hoke House
16. Eastern House	27. Galt Complex	38. Holmes House
17. Eastern House	28. Galt Complex	39. Hornsby House
18. Eastern House	29. Galt Complex	40. Hunt Hall
19. Eastern House	30. Galt Complex	41. James Blair Hall
20. Eastern House	31. Galt Complex	42. Jefferson Hall
21. Eastern House	32. Galt Complex	43. Jones Hall
22. Eastern House	33. Galt Complex	44. Kach Environmental Field Lab
23. Galt Complex	34. Galt Complex	45. Lake Monona Art Studio
24. Galt Complex	35. Graduate House	46. Lambert House
25. Galt Complex	36. Heating Plant	47. Landrum Hall
26. Galt Complex	37. Hoke House	48. Little Pete Whitehead Evans
27. Galt Complex	38. Holmes House	49. Graduate Student Housing
28. Galt Complex	39. Hornsby House	50. McCormack-Nagelsen Tennis Center
29. Galt Complex	40. Hunt Hall	51. McClothin-Street Hall
30. Galt Complex	41. James Blair Hall	52. Millington Hall
31. Galt Complex	42. Jefferson Hall	53. Monroe Hall
32. Galt Complex	43. Jones Hall	54. Morton Hall
33. Galt Complex	44. Kach Environmental Field Lab	55. Muscarelle Museum of Art
34. Galt Complex	45. Lake Monona Art Studio	56. National Center for State Courts
35. Graduate House	46. Lambert House	57. Natural Wildflower Refuge
36. Heating Plant	47. Landrum Hall	58. Old Dominion Hall
37. Hoke House	48. Little Pete Whitehead Evans	
38. Holmes House	49. Graduate Student Housing	
39. Hornsby House	50. McCormack-Nagelsen Tennis Center	
40. Hunt Hall	51. McClothin-Street Hall	
41. James Blair Hall	52. Millington Hall	
42. Jefferson Hall	53. Monroe Hall	
43. Jones Hall	54. Morton Hall	
44. Kach Environmental Field Lab	55. Muscarelle Museum of Art	
45. Lake Monona Art Studio	56. National Center for State Courts	
46. Lambert House	57. Natural Wildflower Refuge	
47. Landrum Hall	58. Old Dominion Hall	