

RICE UNIVERSITY

GENERAL ANNOUNCEMENTS

2006–2007

NOTE: *This catalog represents the most accurate information available at the time of publication. The university reserves the right to correct or otherwise change any such information without notice at its sole discretion. The information contained in this publication is not intended to, and does not, confer any contractual rights on any individual. With respect to course offerings, the departments have attempted to anticipate which courses will be offered and by whom and when such courses will be taught. However, course offerings may be affected by changes in faculty, student demand, and funding. Although efforts have been made to indicate these uncertainties, course offerings are subject to change without notice.*

William Marsh Rice University

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2006-07 General Announcements online: <http://www.rice.edu/catalog/>

Please address all correspondence to the appropriate office or department followed by the university mailing address given above.

Admission, Catalogs, Applications

Office of Admission

109 Lovett Hall; 713-348-7423

Business Matters

Office of the Cashier

110 Allen Center; 713-348-4946

Career Services, Part-time
Employment off Campus

Career Services Center

Rice Memorial Center; 713-348-4055

Credits, Transcripts

Office of the Registrar

116 Allen Center; 713-348-4999

Financial Aid, Scholarships,
Part-time Employment on Campus

Student Financial Services

116 Allen Center; 713-348-4958

Graduate Study

Chair of the appropriate

department (see pages 59-63)

Undergraduate and
Undergraduate Curricula

Office of the Dean of Undergraduates

101 Lovett Hall; 713-348-4996

Rice University is committed to equal opportunity in education and employment. It is the policy of Rice University to attract qualified individuals of diverse backgrounds to its faculty, staff, and student body. Accordingly, Rice University does not discriminate against any individual on the basis of race, color, religion, sex, sexual orientation, national or ethnic origin, age, disability, or veteran status in its admissions, its educational programs, or employment of faculty or staff. In employment, the university seeks to recruit, hire, and advance women, members of minority groups, individuals with disabilities, Vietnam-era veterans, and special disabled veterans.

Rice University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, GA 30033-4097; 404-679-4501) to award bachelor's, master's, and doctoral degrees.

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ACADEMIC CALENDAR 2006–2007

FALL 2006

Tuesday, August 1	Deadline: Tuition due for entering freshmen
Thursday, August 10	Deadline: Tuition due for returning undergraduate students
Sunday, August 20 (through Friday, August 25)	Orientation Week for new students
Tuesday, August 15	Deadline: Tuition due for graduate students
Monday, August 28	First day of classes Credit balance checks available to students
Monday, September 4	Labor Day (holiday—no classes)
Friday, September 8	Deadline: Last day to add courses without a fee Deadline: Last day to add a course without obtaining Deadline: Last day to convert a “Pass/Fail” to an earned letter grade for courses taken in spring 2005 Deadline: Last day to withdraw with a 100% refund of tuition and fees Deadline: Last day to drop to part time with a refund of tuition
Friday, September 15	Deadline: Last day to withdraw with a 70% refund of tuition
Friday, September 22	Deadline: Last day to complete late registration or add courses Deadline: Last day to drop courses without a fee Deadline: Last day to designate a course as “Audit” or vice versa Deadline: Last day anticipated aid for fall shows as a credit on student accounts Deadline: Last day to withdraw with a 60% refund of tuition
Friday, September 29	Deadline: Last day for instructors to submit final grades to clear “Incompletes” for courses taken in spring 2006 Deadline: Last day to withdraw with a 50% refund of tuition
Friday, October 6	Deadline: Last day to withdraw with a 40% refund of tuition
Friday, October 13	Deadline: Mid-semester grades for first-year undergraduate students due Deadline: College course plans due to Dean of Undergraduates Deadline: Last day to withdraw with a 30% refund of tuition
Monday, October 16 (through Tuesday, October 17)	Midterm Recess

Wednesday, October 18	All Wednesday classes canceled; all classes normally held on Monday meet (to equalize holidays by days of the week during the semester)
Friday, October 20	Deadline: Last day to withdraw with a 20% refund of tuition
Friday, October 27	Deadline: Last day to withdraw with a 10% refund of tuition
Tuesday, October 31	Deadline: Last day to file an application for January 2007 conferral of degree with the Office of the Registrar Deadline: Last day to file an application for a May 2007 conferral of degree with the Office of the Registrar
Wednesday, November 1	Deadline: Last day to file the following in the Office of Graduate Studies for January 2007 degree conferral: • Thesis master's candidacy petitions • Certification of nonthesis master's • Form for automatic master's • PhD candidacy petitions
Friday, November 3	Deadline: Last day to drop courses for all graduate students and "returning" undergraduate students with a fee Deadline: Last day to designate a course as "Pass/Fail"
Monday, November 13 (through Friday, November 17)	Spring 2007 registration for currently enrolled undergraduate, graduate, and 5th year students
Wednesday, November 15.....	Deadline: Last day to complete financial aid application for fall 2006
Friday, November 17 at 5:00 PM.....	Deadline: Last day to register for spring 2007 without "failure to register" fee
Thursday, November 23 (through Friday, November 24)	Thanksgiving Recess (holiday—no classes)
Friday, December 1	Deadline: Last day to complete loan applications for fall 2006
Friday, December 8	Last day of classes Deadline: (for fall 2006 matriculants only) Last day to drop courses—students must go to the Office of the Registrar by 5:00 PM Deadline: For a January 2007 conferral of degree, students must submit theses to the Office of Graduate Studies by 12:00 PM
Wednesday, December 13 (through Wednesday, December 20)	FINAL exams for undergraduate courses
Friday, December 29 at 12:00 PM.....	Deadline: All final grades are due

SPRING 2007

Friday, January 5.....	Deadline: Tuition due for all students
Monday, January 8.....	First day of classes Credit balance checks available to students

Friday, January 12	Deadline: Last day to resolve grades of “Other” from fall 2006
Monday, January 15.....	Martin Luther King Jr. Day (holiday—no classes)
Friday, January 19.....	Deadline: Last day to add courses without a fee Deadline: Last day to add a course without obtaining instructor's permission Deadline: Last day for students to convert a “Pass/Fail” to an earned letter grade for courses taken in fall 2006 Deadline: Last day to withdraw with a 100% refund of tuition and fees Deadline: Last day to drop to part time status with refund of tuition
Friday, January 26.....	Deadline: Last day to withdraw with a 70% refund of tuition
Friday, February 2.....	Deadline: Last day to complete late registration or add course(s) Deadline: Last day to drop courses without a fee Deadline: Last day to designate a course as “Audit” or vice versa Deadline: Last day to withdraw with a 60% refund of tuition Deadline: Last day anticipated aid for spring shows as credit on student accounts Deadline: Last day to file the following in the Office of Graduate Studies for a May 2007 conferral of degree: • Thesis master's candidacy petitions • Certification for nonthesis master's • Form for automatic master's • PhD candidacy petitions
Friday, February 9.....	Deadline: Last day for instructors to submit final grades to clear “Incompletes” for courses taken in fall 2005 Deadline: Last day to withdraw with a 50% refund of tuition
Wednesday, February 14.....	Financial aid application materials available to returning students to apply for need-based aid for 2006–07
Friday, February 16.....	Deadline: Last day to withdraw with a 40% refund of tuition
Friday, February 23.....	Deadline: Mid-semester grades for first-year undergraduate students are due Deadline: College course plans are due to the Dean of Undergraduates Deadline: Last day to withdraw with a 30% refund of tuition
Friday, March 2	Deadline: Last day to withdraw with a 20% refund of tuition

Monday, March 5 (through Friday, March 9)	Spring Break (no classes)
Friday, March 16	Deadline: Last day to withdraw with a 10% refund of tuition Deadline: Sophomores must file a Declaration of Major form with the Office of the Registrar
Friday, March 23	Deadline: Last day to drop course(s) for all graduate students and “returning” undergraduate students with a fee Deadline: Last day to designate a course as “Pass/Fail” Deadline: Last day to complete financial aid applications for spring 2007
Monday, April 2	Summer school financial aid application available
Thursday, April 5 (through Friday, April 6)	Spring Recess (no classes)
Monday, April 9 (through Friday, April 13)	Fall 2007 registration begins for currently enrolled undergraduate, graduate, and 5th year students
Friday, April 13	Deadline: Last day to complete loan applications for spring 2007 Priority Deadline: For returning and graduate students to submit financial aid applications for 2007–08 Deadline: Last day to register for fall 2007 without a “failure to register” fee
Tuesday, April 24	All Tuesday classes cancelled; all classes held on Thursday meet (to equalize holidays by days of the week during the semester)
Wednesday, April 25	Last day of classes All Wednesday classes cancelled; all classes held on Friday meet (to equalize holidays by days of the week during the semester) Deadline: For spring 2007 undergraduate matriculants only: Last day to drop courses, by 5:00 PM Deadline: For a May 2007 conferral of degree, students must submit theses to the Office of Graduate Studies by 12:00 PM
Thursday, April 26 (through Wednesday, May 2 at 12:00 PM)	All degree candidates: All scheduled exams and take-home exams must be completed
Monday, April 30 (through Wednesday, May 7)	All nongraduating students: All scheduled exams and take-home exams for undergraduate courses
Monday, April 30	Deadline: For financial aid application for early summer session
Friday, May 4 at 5:00 PM	Deadline: Grades for all degree candidates are due to the Office of the Registrar
Monday, May 7	Deadline: Last day for May 2007 degree candidates to convert a “pass/fail” to an earned letter grade for spring 2007 courses, by 12:00 NOON

Saturday, May 12	Ninety-Fourth Commencement
Tuesday, May 15	Deadline: For financial aid application for general summer session
Wednesday, May 16 at 5:00 PM	Deadline: All grades for nongraduating students are due to the Office of the Registrar
Friday, June 1	Deadline: Last day to resolve grades of “Other” from spring 2007

SUMMER 2007

Early Session (May 15–June 1)

Monday, April 2	Summer term financial aid applications available
Wednesday, April 4	Deadline: For early application discount (by 2:30 PM)
Friday, April 20	Deadline: For application to Early Session courses (by 2:30 PM)
Monday, April 30	Deadline: To submit financial aid applications for Early Summer Session
Tuesday, May 8	Admission status emailed Early Session online registration for Rice students begins
Monday, May 14	Registration: 9:00 AM – 1:00 PM for visiting students Deadline: For final tuition payment
Tuesday, May 15	First day of classes–Early Session
Thursday, May 17	Deadline: For adding courses (by 3:00 PM) Deadline: For Early Session registration online
Monday, May 21	Deadline: For visiting and Class III students to submit official transcripts (must be received by this date) Deadline: For dropping courses without academic penalty (by 3:00 PM) Deadline: For designating “Pass/Fail” option (by 3:00 PM) Deadline: For submitting refund requests (must be received by this date). Please see section on Withdrawal Penalty and Tuition Refund.
Monday, May 28	Memorial Day (holiday–no classes)
Friday, June 1	Last day of classes–Early Session
Tuesday, June 5	Deadline: For completion of all Early Session course work, including final examinations. Exam schedule determined by instructor.
Friday, June 8	Deadline: For submitting grades to the School of Continuing Studies Summer School Office (by 3:00 PM)

SUMMER 2007

General Session (June 4–July 27)

Monday, April 2	Summer term financial aid applications available
Wednesday, April 4	Deadline: For early application discount (by 2:30 PM)

Friday, May 4	Deadline: For application to General Session courses (by 2:30 PM)
Monday, May 14	Deadline: For financial aid application for General Summer Session
Tuesday, May 22	General Session online registration for Rice students begins
Thursday, May 24	Admission status emailed
Monday, May 28	Memorial Day (holiday—no classes)
Friday, June 1	Registration, 9:00 AM – 1:00 PM for visiting students Deadline: For final tuition payment
Monday, June 4	First day of classes—General Session
One week after first class	Deadline: For dropping courses without academic penalty (no refunds after June 19) (by 3:00 PM) Deadline: For designating “Pass/Fail” option (by 3:00 PM)
Monday, June 11	Deadline: For adding courses (by 3:00 PM) Deadline: For General Session registration online
Monday, June 18	Deadline: For visiting and Class III students to submit official transcripts (must be received by this date) Deadline: For submitting refund requests (must be received by this day.) Please see section on Withdrawal Penalty and Tuition Refund.
Wednesday, July 4	Independence Day (holiday—no classes)
Friday, July 27	Last day of classes—General Session
Tuesday, July 31	Deadline: For completion of all General Session course work, including final examinations
Friday, August 3	Deadline: For submitting grades to School of Continuing Studies Summer School Office (by 3:00 PM)
Friday, August 10	Final grades for Early and General Summer terms mailed to visiting students from the Office of the Registrar

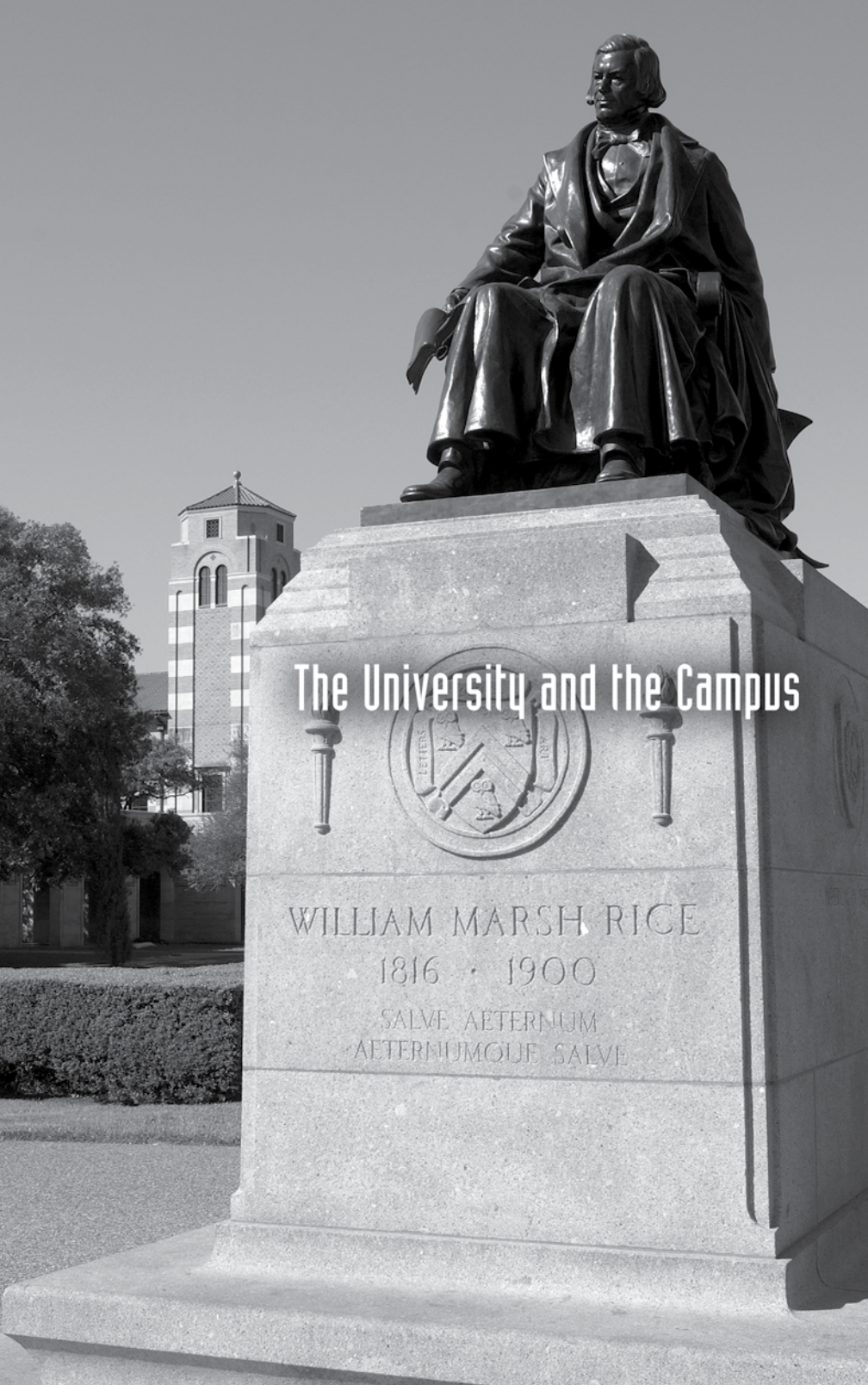
MESSAGE FROM THE PRESIDENT

What makes Rice extraordinary? In less than 100 years, it has achieved a position among America's great research universities. Even in that category, it is distinctive: Rice is a small great university. That is, while smaller than most, Rice is able to compete with the best in the nation, indeed, in the world. Our comparative advantages lie in our relatively small size, our emphasis on undergraduate education, our identification of important but focused areas of strength, the relative ease by which we can foster interdisciplinary study, and our possibilities for teaching and research excellence across the range of human knowledge and endeavor. All this resides in an extraordinarily beautiful, coherent, and tree-lined campus located in the heart of the cultural district of the nation's fourth-largest city and just three miles from its downtown.

General Announcements guides you through Rice University's diverse academic offerings, taught by an enormously talented faculty. It further serves as a guide for the rules and responsibilities that govern both undergraduate and graduate student life in our community.

Rice, said founding president Edgar Odell Lovett, would "set no upper limit on its educational endeavor." We remain intent on that ambition.

David W. Leebron
President
William Marsh Rice University



The University and the Campus

WILLIAM MARSH RICE

1816 · 1900

SALVE AETERNUM
AETERNUMQUE SALVE

THE UNIVERSITY AND CAMPUS

Rice is a private, independent university dedicated to the “advancement of letters, science, and art.” Occupying a distinctive, tree-shaded, nearly 300-acre campus only a few miles from downtown Houston, Rice attracts a diverse group of highly talented students with a range of academic studies that includes humanities, social sciences, natural sciences, engineering, architecture, music, and business management (graduate study only). The school offers students the advantage of forging close relationships with members of the faculty and the option of tailoring graduate and undergraduate studies to specific interests. Students each year are drawn to this coed, nonsectarian university by the creative approaches it historically has taken to higher education.

One of the unique features of Rice is its residential colleges. Before matriculating, each of the university’s 2,886 undergraduates becomes a member of 1 of 9 residential colleges, each of which has its own dining hall, public rooms, and dorm on campus. Because each student is randomly assigned to one of the colleges and maintains membership in the same college throughout the undergraduate years, the colleges are enriched by the diversity of their students’ backgrounds, academic interests, and experiences, talents, and goals. A faculty master is assigned to each college and lives in an adjacent house and helps cultivate a variety of cultural and intellectual interests among the students, as well as support an effective system of self-government. Other faculty or members of the community serve as associates to individual colleges. The experience of college residence is indispensable to conveying the rich flavor of academic life at Rice, allowing students to combine their usual studies with an array of social events, intramural sports, student plays, lecture series, innovative college-designed courses, and active roles in student government.

Graduate students come to Rice for the chance to work closely with eminent professors and researchers who are seeking to extend the horizons of current knowledge. Although most of Rice’s 1,922 graduate students live off campus, taking advantage of the city’s readily available and affordable housing, space also is available in the university-owned Graduate Apartments. Graduate students have a voice in the university community through the Graduate Student Association, which organizes and funds regular social events.

Rice offers students the pleasures and challenges of academic life within the peaceful enclosure of a campus widely acclaimed for its beauty. Campus buildings, including an extensive computer center and the 2.3 million-volume Fondren Library, form graceful groupings under spreading live oaks. Rice boasts the largest open-air stadium in the city.

Rice students also enjoy all the commercial and cultural advantages of a major metropolitan center. The school maintains extensive technological links to the area’s many colleges and universities, the acclaimed Texas Medical Center, and other resources. And both students and faculty enjoy Houston’s panoply of cultural offerings, from opera to blues clubs and from a renowned collection of post-impressionist art to alternative art spaces. Rice and Houston together provide an ideal learning and living environment.

BOARD OF TRUSTEES

TRUSTEES

James W. Crownover, *Chair*
 J. D. Bucky Allshouse
 D. Kent Anderson
 Teveia Rose Barnes
 Alfredo Brener
 Vicki Bretthauer
 Robert T. Brockman
 Albert Y. Chao
 Robert L. Clarke
 Edward A. Dominguez
 Bruce W. Dunlevie
 Lynn Laverty Elsenhans
 Douglas Lee Foshee
 Susanne Morris Glasscock
 Carl E. Isgren
 K. Terry Koonce
 Michael R. Lynch
 Robert R. Maxiield
 Steven L. Miller
 M. Kenneth Oshman
 Marc Shapiro
 L. E. Simmons
 Robert B. Tudor

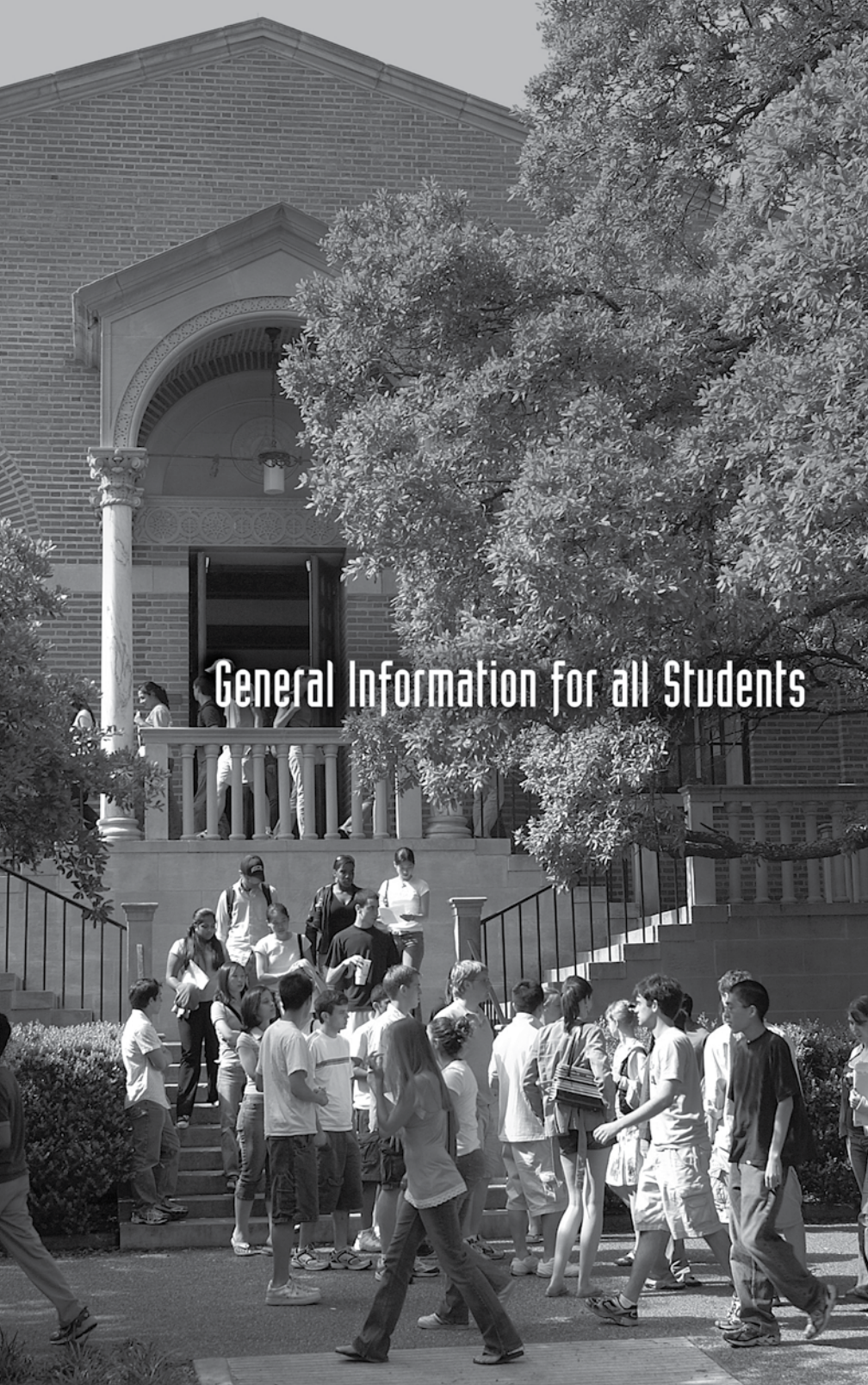
TRUSTEES EMERITI

Josephine E. Abercrombie
 J. Evans Attwell
 James A. Baker, III
 E. William Barnett
 Raymond Brochstein
 Harry J. Chavanne
 Janice G. Doty
 Charles W. Duncan, Jr.
 James A. Elkins, III
 Karen Ostrum George
 Matt F. Gorges
 C. M. Hudspeth
 Lee Hage Jamail
 Edward W. Kelley, Jr.
 Albert N. Kidd
 Cindy J. Lindsay
 Frederick R. Lummis, Jr.
 Burton J. McMurtry
 Robert C. McNair
 Ralph S. O'Connor
 Bob Parks
 W. Bernard Pieper
 Harry M. Reasoner
 Karen Hess Rogers

William N. Sick
 Jack T. Trotter

TRUSTEE ADVISORS

Judy Ley Allen
 Richard A. Chapman
 Stephen C. Cook
 Thomas H. Cruikshank
 J. Thomas Eubank
 William S. Farish, III
 Catherine Coburn Hannah
 Joyce Pounds Hardy-McDonald
 Gerald D. Hines
 William P. Hobby
 T. Robert Jones
 Baine P. Kerr
 William F. Kieschnick
 Neal T. Lacey, Jr.
 Jerry McCleskey
 G. Walter McReynolds
 James R. Meyers
 Pat H. Moore
 S. I. Morris
 Paula Meredith Mosle
 David L. Rooke
 Frank B. Ryan
 Louisa Stude Sarofim
 Gus A. Schill, Jr.
 Stephen J. Shaper
 Stephen B. Smith
 Louis D. Spaw, Jr.
 Selby W. Sullivan
 Helen Saba Worden

A black and white photograph of a school building entrance. The building is made of brick and features a large arched doorway with a decorative pediment. A balcony with a balustrade is visible above the entrance. A large, leafy tree is on the right side of the frame. In the foreground, a large group of students is gathered on the steps and walkway leading to the entrance. The students are dressed in casual clothing like t-shirts and shorts. The text "General Information for all Students" is overlaid in the center of the image.

General Information for all Students

STUDENT RESPONSIBILITY

The university expects all Rice students to exercise personal responsibility over their actions. Their behavior should reflect a respect for the law and for their contractual obligations, a consideration for the rights of others, and shared standards of considerate and ethical behavior.

Students are responsible for knowing and following all information, policies, and procedures listed in this *General Announcements*. Questions should be directed to the appropriate office or administrator.

Rice encourages self-discipline, recognizing that effective student government, including judicial processes, and the integrity of the honor system depend on the willingness of all students to meet community standards of conduct.

The university, however, reserves the right to insist on the withdrawal of any student whose conduct it judges to be clearly detrimental to the best interests of either the student or the university. The appropriate authorities take such action only after careful consideration.

No individual or group may use the name of the university or one of its colleges without prior approval of the university or the college.

THE HONOR SYSTEM

The honor system, one of the oldest and proudest traditions at Rice, is administered by the Honor Council, whose student members are elected each year by the student body. Adopted by a student vote in 1916, the honor system has remained essentially the same since that time but for changes in the procedures and membership of the Honor Council.

Students take all written examinations and complete any specifically designated assignments under the honor system. By committing themselves to the honor system, all students accept responsibility for assuring the integrity of the examinations and assignments conducted under it. The Honor Council is responsible for investigating reported violations and for conducting a hearing when the facts warrant. The assistant dean of Student Judicial Programs, who reviews the results of the investigations and hearings, considers the council's recommendations when issuing penalties.

The Honor Council conducts an ongoing program to acquaint new students and faculty with the honor system. The Honor Code and other related information and resources are located at the homepage of the Honor Council: <http://www.ruf.rice.edu/~honor/>.

THE CODE OF STUDENT CONDUCT

With regard to nonacademic disciplinary matters, the assistant dean of Student Judicial Programs and the University Court—a court of student peers—enforce the Code of Student Conduct that governs the administration of student order and discipline. The Code of Student Conduct applies to all undergraduate students, transfer students, graduate students, and professional students registered at Rice University, as well as to visiting students, Class III students, second degree students, and auditors from the time they arrive on campus for orientation until they have completed their studies or degrees and physically left campus. Organizations also are subject to this code. All enrolled students also are subject to Rice University policies, rules, and regulations. The assistant dean of Student Judicial Programs oversees the judicial system under the auspices of the Office of the Dean of Undergraduates, who has general authority over the student disciplinary system. The Code of Student Conduct and other related information and resources are located at the homepage of the University Court: <http://www.ruf.rice.edu/~ucourt/table.html>.

FACULTY GRADING GUIDELINES

The Committee on Examinations and Standing has drawn up the following guidelines on grading. Additional information is available on pages 29–32.

- The evaluation of the student's performance in a course and a decision on the appropriate grade is the responsibility of the designated instructor or instructors in the course.
- No student should be given an extension of time or opportunities to improve a grade that are not available to all members of the class, except for verified illness or justified absence from campus. No course assignments may be due between the last day of classes and the first day of the final examination period.
- Students in independent study courses are not to be allowed an extension beyond the time when grades are due. Faculty are to submit grades at the end of the semester for such students based on work completed during the semester. The instructor directing the independent study assumes responsibility with the student for ensuring that the work undertaken is appropriate to the span of a semester and for determining the degree credit to be received.
- The basis for grading and the expectations on all written assignments or tests should be clearly explained to the class in advance, preferably in writing at the beginning of the semester. The instructor should explain clearly which assignments or homework are covered by the honor system and which are not. To prevent allegations of plagiarism on written assignments, students should be warned that all direct and indirect quotations from other sources should be properly acknowledged. The instructor should explain the extent to which the student's paper is expected to be independent of the references and clearly distinguishable from them.
- Instructors should be willing to give any student an explanation of his or her grade as consistent with the grading for the rest of the class. For this reason, the committee urges the faculty to preserve all examinations and written material not returned to students, as well as grade records, for at least the following semester so that students may, if they wish, review with their instructor the basis for the grade received.
- Instructors may not change a semester grade after the grade sheet has been submitted to the registrar, except when there is a clerical error in calculating the grade. This is a long-standing university rule of which the faculty are reminded by the registrar at the end of each semester. It is designed, in part, to protect the faculty from student pressure for grade changes. All other grade changes, including retroactive change to *withdrawal* or *incomplete*, must be approved by the Committee on Examinations and Standing on the basis of a written petition from the student and on information from the instructor.
- There is no university requirement that a final examination be given in a course. It is university policy that final examinations that cover more than the material since the last examination, that are the only exam in the course, or that are comprehensive of the entire course may be given only during the final examination period. Such examinations may not, for example, be labeled "tests" and administered during the last week of classes. Final examinations normally are of 3-hour duration. Faculty who, under exceptional circumstances, wish to give longer examinations may do so only if the exam is scheduled as take-home. Under no circumstances may final exams exceed 5 hours.

- First-year students receive mid-semester grades around the 8th week of the fall and spring semesters so that they can, if advisable, enroll in tutoring or drop a class for which they may not be prepared. Faculty who teach first-year students in any of their classes will be asked to submit grades of standing for these students during the 7th week of the semester and should schedule the grading of tests, quizzes, or homework assignments accordingly. These grades are not recorded on the student's transcript nor calculated in the grade point average, but they are important indicators for students and their faculty advisors.
- Departments using teaching associates, adjunct professors, or visiting faculty of any kind should make sure these teachers are familiar with Rice grading procedures. A regular faculty member who is well-versed in the grading guidelines should be assigned to assist such instructors.

The chair of the Committee on Examinations and Standing or the Office of the Dean of Undergraduates will be glad to advise any faculty member faced with exceptional circumstances that may justify special consideration. Students may petition the committee concerning the application of these guidelines. Suspected or possible violations of the honor system should be submitted to the Honor Council

STUDENT HEALTH, COUNSELING SERVICES, AND THE WELLNESS CENTER

STUDENT HEALTH FEE

By paying an annual student health service fee, all students gain access to the Student Health Service, Rice Counseling Center, and the Wellness Center. Detailed information on the care and services each provide is available from these centers.

STUDENT HEALTH SERVICE

Student Health Service, an outpatient primary care clinic, is located in the Rich Health and Wellness Center in the former Brown College Commons. The clinic is staffed by primary care physicians, nurses, and ancillary support staff.

Clinic hours are from 8:00 AM to 5:00 PM, Monday through Friday, during fall and spring semesters. For after-hours and weekend medical care, students may choose among a number of local clinics and hospitals. Students must pay for all medical care outside the clinic's purview, including blood tests, x-rays, and outside physician consultations. Should such medical care be necessary, students are urged to review their insurance coverage and pick the best available option.

Care at the clinic is arranged through appointment at 713-348-4966. In serious emergencies, students should call the Rice University Police Department at 713-348-6000.

The clinic is open full time from the first day of Orientation Week until the day before commencement. It is closed during Thanksgiving and the Christmas break. The clinic also is open for reduced hours during the summer months.

The Student Health Service provides the following:

- Primary care for illness and injury with referrals to specialists when needed
- Maintenance of health records for all students

- Immunizations and other preventive services
- General information for all students
- Contraceptive counseling and routine Pap smears
- Allergy shots (students must provide serum after a specialist allergy workup)
- Physical examinations (e.g., for employment, transfer to another school, or scholarship expeditions)

Confidentiality—The Student Health Service physician–patient relationship is a confidential one. Medical records will be released only on receipt of written authorization from the student or as required by law or when the patient poses a significant risk to herself or himself or another person.

Health Insurance—All Rice students must have health insurance of their choice and must enter details of their health insurance online at <http://studenthealthinsurance.rice.edu> by August 15. Failure to do so will result in automatic billing for insurance. Students may purchase insurance through the university, as described online. Dependent coverage also is available. For questions about the Rice student health insurance plan, students should contact the Rice Counseling Center at rucc@rice.edu. Rice's group coverage for 2006–07 is effective at 12:01 AM on August 15, 2006, and will terminate at 12:01 AM on August 15, 2007.

RICE COUNSELING CENTER

Rice Counseling Center, in 301A Lovett Hall, addresses students' psychological needs with various programs and services. The center is open year-round except for scheduled holidays and occasional all-day staff retreats. Office hours for counseling and consultations are 8:30 AM to noon and 1:00 PM to 5:00 PM, Monday through Friday. Students can make appointments by calling 713-348-4867 or by visiting the center. There are no costs for Counseling Center services.

Typically, most students who use the counseling services bring with them very common concerns: roommate problems, breakup of a relationship, academic and/or interpersonal anxiety, family problems, difficulties adjusting to Rice, or confusion about personal goals, values, and identity. Counselors are equipped to handle a variety of issues, including substance abuse, eating disorders, sexual assault/abuse/date violence, depression, and the coming-out process. Rice Counseling Center offers both individual and group counseling, as well as educational workshops and programs.

When students need prolonged or specialized counseling or treatment, counselors refer them to an outside provider. The students, or their health insurance, must pick up these costs. All students who have paid the Health Service Fee are eligible for initial assessment sessions, consultations, crisis intervention, and educational programming. Individual or group counseling may also be available, if appropriate.

The Rice Counseling Center provides the following services:

- Initial assessment
- Short-term individual and couples counseling
- Group therapy and support groups
- Medication consultations with the center's consulting psychiatrist for students in counseling at the center
- Other consultations (e.g., how to make a referral or how to respond to a friend in distress)
- Educational programming (e.g., various presentations on mental health issues)

- Crisis intervention on a walk-in emergency basis during regular office hours; students may call 713-348-4867 for assistance with emergencies after hours or on weekends

College Assistance Peer Program (CAPP)—Students who have been carefully selected and trained in listening skills and mental-health education serve in this peer education program as supportive listeners and referral sources for other students. They also assist the center with its educational programming.

Students with Disabilities—Because students who have physical limitations may find it difficult to reach the Rice Counseling Center's 3rd floor location in Lovett Hall, staff will arrange to see those students in a more accessible location on campus. Students should call the center to make these arrangements.

Confidentiality—Counseling services are confidential; information about a student is not released without that student's written permission. By state law, confidentiality does not extend to circumstances where (1) there is risk of imminent harm to the student or others; (2) the counselor has reason to believe that a child or an elderly or handicapped person is, or is in danger of, being abused or neglected; (3) a court order is issued to release information; (4) the student is involved in a criminal lawsuit; or (5) the counselor suspects that the student has been the victim of sexual exploitation by a former health provider during the course of treatment with that provider.

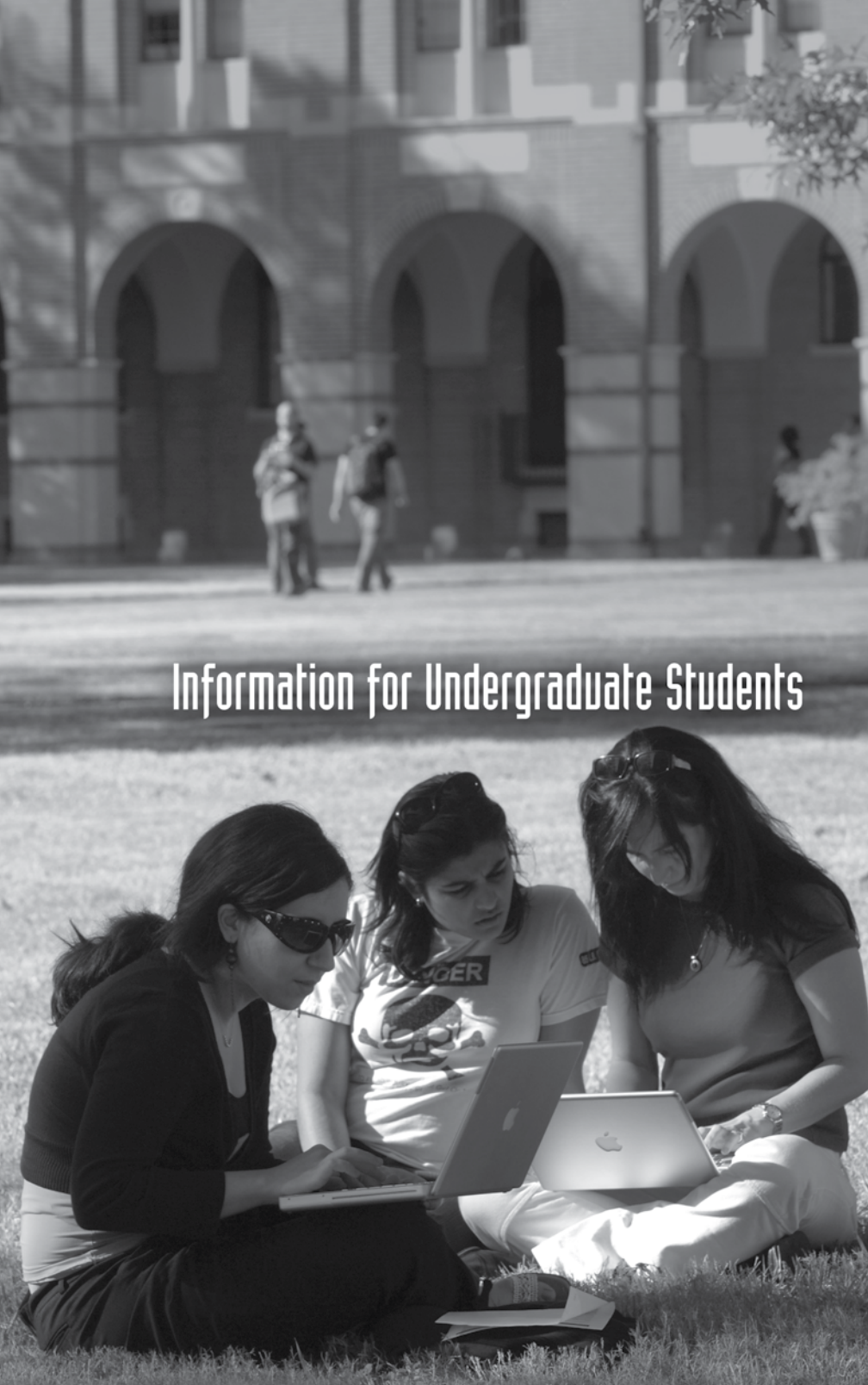
THE WELLNESS CENTER

The Wellness Center is located in the Rich Health and Wellness Center. The center works with Student Health Services and the Rice Counseling Center to encourage and reinforce behaviors in students that promote a higher quality of health and well-being. Key target areas include prevention of substance abuse and misuse, unplanned pregnancies and sexually transmitted diseases, sexual assault and harassment, promotion of good nutrition and a healthy body image, disease prevention, management of time and stress to decrease depression, and improvement in the overall wellness of students. The Wellness Center offers educational material and programs, web-based information, audio-visual and print materials, many free health supplies, and free, confidential consultations and referrals for students. Nutritional counseling, massage therapy, and acupuncture also are available in the center. There are fees for some services. Call 713-348-5194 for an appointment.

DISABILITY SUPPORT SERVICES

Located in the Ley Student Center, Disability Support Services coordinates campus services for individuals with documented disabilities. For academic accommodations, adaptive equipment, or disability-related housing needs, the Disability Support Services Office is the campus resource for all students with disabilities. Information is maintained on scholarships, internships, and other programs specific to students with disabilities. For more information, see the Disability Support Services website at <http://www.dss.rice.edu>. Students can schedule an appointment with the director of Disability Support Services by calling 713-348-5841.

Section 504/ADA Coordinator—The director of affirmative action serves as the Section 504/ADA coordinator at Rice University. Concerns or complaints relative to disability issues should be directed to the Office of Affirmative Action, 224 Herman Brown Hall, 713-348-4930.

A black and white photograph of three young women sitting on a grassy lawn, focused on their laptops. They are positioned in the foreground, with the woman on the left wearing sunglasses and a dark top, the middle woman in a light t-shirt with a graphic, and the woman on the right in a dark top. In the background, a large building with multiple arched doorways is visible, and a few other people are walking in the distance. The scene is brightly lit, suggesting a sunny day.

Information for Undergraduate Students

INTRODUCTION

The undergraduate experience at Rice is one of intense personal interactions. The close sense of community created by individual placement in residential colleges is extended to warm intellectual and personal relationships with members of the Rice faculty. "Behind the hedges," the beautifully designed, spacious campus is small enough to encourage a sense of belonging even as students engage with the lively cultural currents of one of the country's largest cities.

The academic philosophy at Rice is to offer students beginning their college studies both a grounding in the broad fields of general knowledge and the chance to concentrate on very specific academic and research interests. By completing the required distribution courses, all students gain an understanding of the literature, arts, and philosophy essential to any civilization, a broad historical introduction to thought about human society, and a basic familiarity with the scientific principles underlying physics, chemistry, and mathematics. Building on this firm foundation, students then concentrate on studies in their major areas of interest.

Rice University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (SACS), the recognized regional accrediting body in the 11 U.S. Southern states.

Rice grants 2 undergraduate degrees, the Bachelor of Arts (BA) and the Bachelor of Science (BS), in a range of majors. The majority of undergraduates earn the BA degree. The BS degree is offered in some science fields and in various fields of engineering accredited by the Accreditation Board for Engineering and Technology (ABET). Undergraduates may major in any of the numerous fields provided by the various schools of architecture, humanities, music, social sciences, science, and engineering. To accommodate the full range of individual student interests, specific interdepartmental majors also are available, as are selectively approved area majors. In certain departments, students also have the option of overlapping the upper-level course work of their undergraduate degree with those basic requirements necessary to earn a higher degree in the field, considerably reducing the time required to complete their graduate studies. The Shepherd School of Music offers a joint degree in music (BMus/MMus) that may be completed with a 5th year of study.

Through Rice's Education Certification Program, students interested in teaching in secondary schools may complete a program of teacher training, leading to certification in the state of Texas, together with the BA degree. Students interested in satisfying the requirements for admission to medical, dental, or law school should consult with the Office of Academic Advising for completing these programs in conjunction with the various majors.

GRADUATION REQUIREMENTS

DEGREE REQUIREMENTS FOR ALL BACHELOR'S DEGREES

Students are responsible for making certain that their plan of study meets all degree and major requirements. To graduate from Rice University, all students must:

- Be registered at Rice full time for at least 4 full fall and/or spring semesters
- Complete the requirements of at least one major degree program

- Complete at least 120 semester hours (some degree programs require more than 120 hours)
- Complete at least 60 semester hours at Rice University
- Complete at least 48 hours of all *degree* work in upper-level courses (at the 300 level or higher)
- Complete more than half of the upper-level courses in *degree* work at Rice
- Complete more than half of the upper-level courses in their *major* work at Rice (certain departments may specify a higher proportion)
- Complete all Rice courses satisfying *degree* requirements with a cumulative grade point average of at least 1.67 or higher
- Complete all Rice courses that satisfy *major* requirements (as designated by the department) with a cumulative grade point average of at least 2.00 or higher
- Satisfy the English composition requirement (see below)
- Satisfy the Lifetime Physical Activity Program (LPAP) requirement (see below)
- Complete courses to satisfy the distribution requirements (see below)
- Otherwise be a student in good academic and disciplinary standing and not under investigation

To satisfy the English composition requirement, students must pass an English composition examination. Those receiving grades of “not satisfactory” on the exam must complete ENGL 103, *Introduction to Argumentation and Academic Writing*, a one-semester course carrying degree credit.

To satisfy the LPAP requirement, students must complete 2 different noncredit courses in LPAP. Students with disabilities may make special arrangements to satisfy this requirement.

In order to earn a 2nd degree, students must fulfill the requirements outlined on page 25.

DISTRIBUTION REQUIREMENTS

Each student is required to complete at least 12 semester hours of designated distribution courses in each of Groups I, II, and III. The 12 hours in each group must include courses in at least 2 departments in that group. Divisional or interdisciplinary designations, e.g., HUMA or NSCI, count as departments for this purpose. Interdivisional courses approved for distribution credit may count toward the 12 semester hours in any relevant group; however, students may not count any one such course toward the 12 required hours in more than one group and may count no more than one such course toward the 12 required hours in any one group.

Students must complete the distribution requirements in each group by taking courses that are designated as a distribution course at the time of course registration, as published in that semester's *Course Offerings*. Courses taken outside of Rice and transferred in can be used to satisfy distribution requirements, assuming they are on the list of approved and designated distribution courses at the time they were taken. Completed courses taken prior to matriculation are subject to the list of designated distribution courses at the time of matriculation.

The distribution system presupposes that every Rice student should receive a broad education along with training in an academic specialty. This goal is achieved by courses that are broad based, accessible to nonmajors, and representative of the knowledge, intellectual skills, and habits of thought that are most characteristic of a discipline or of inquiry across disciplines.

Group I—These courses have one or more of the following goals: They develop students' critical and aesthetic understanding of texts and the arts; they lead students to the analytical examination of ideas and values; they introduce students to the variety of approaches and methods with which different disciplines approach intellectual problems; and they engage students with works of culture that have intellectual importance by virtue of the ideas they express, their historical influence, their mode of expression, or their critical engagement with established cultural assumptions and traditions.

Group II—Three types of courses fulfill this requirement. The first are introductory courses that address the problems, methodologies, and substance of different disciplines in the social sciences. The second are departmental courses that draw on at least 2 or more disciplines in the social sciences or that cover topics of central importance to a social science discipline. The third are interdisciplinary courses team-taught by faculty from 2 or more disciplines.

Group III—These courses provide explicit exposure to the scientific method or to theorem development, develop analytical thinking skills and emphasize quantitative analysis, and expose students to subject matter in the various disciplines of science and engineering.

BACHELOR OF ARTS

The specific requirements of individual majors leading to the Bachelor of Arts degree vary widely. No department may specify more than 80 semester hours (required courses, prerequisites, and related laboratories included) for the Bachelor of Arts.

In addition to meeting the degree requirements for all bachelor's degrees, to qualify for the Bachelor of Arts, students in all fields except architecture must complete at least 60 hours in course work outside the major, and students in architecture must complete at least 36 hours in course work outside the major.

BACHELOR OF SCIENCE IN THE SCHOOL OF NATURAL SCIENCES

The Bachelor of Science degree is offered in astrophysics, biochemistry and cell biology, chemistry, chemical physics, earth science, ecology and evolutionary biology, and physics. The specific degree requirements vary from field to field and differ from those of the Bachelor of Arts in that there are greater technical requirements. No department may specify more than 80 semester hours (required courses, prerequisites, and related laboratories included) for the Bachelor of Science. To earn a BS degree in one of these fields, students must complete at least 60 hours in course work outside the major.

BACHELOR OF SCIENCE DEGREES IN ENGINEERING:

BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING (BSCHE), CIVIL ENGINEERING (BSCE), COMPUTER SCIENCE (BSCS), ELECTRICAL ENGINEERING (BSEE), MATERIALS SCIENCE (BSMS), MECHANICAL ENGINEERING (BSME), AND BIOENGINEERING (BSB)

The Bachelor of Science degree in a given engineering field is distinct from the Bachelor of Arts degree in that it must meet greater technical requirements. In establishing a departmental major for the degree of bachelor of science in civil engineering, electrical engineering, materials science, and mechanical engineering, the department may specify no more than 92 semester hours (required courses, prerequisites, and related laboratories included). In establishing the departmental major for the BS in chemical engineering, the department may specify no more than 100 semester hours (required courses,

prerequisites, and related laboratories included). The bioengineering department specifies 94 semester hours for the BS degree (required courses, prerequisites, and related laboratories included). To earn a BS degree, students must meet the following minimum semester hour requirements in course work:

- All majors except chemical engineering, mechanical engineering, and computer science—a total of at least 134 hours
- Chemical engineering majors—a total of at least 132 hours, depending on area, up to 137 hours
- Mechanical engineering—132 hours total
- Computer science majors—a total of at least 128 hours

OTHER BACHELOR'S DEGREES

The professional Bachelor of Architecture (BArch) degree requires a 5th year of study and a 1-year preceptorship. The Bachelor of Fine Arts (BFA) degree requires a 5th year of concentrated study and advanced courses in addition to the core course requirements. The Bachelor of Music (BMus) degree requires advanced courses in aural skills in addition to the core music curriculum.

UNDERGRADUATE MAJORS

To receive a bachelor's degree, a student must complete the requirements for at least one major. Rice offers majors in many fields. Within some majors, students have the choice of a particular area of concentration. Students also may choose to fulfill the requirements for more than one major; such majors do not necessarily need to be in related fields. More detailed information on the departmental majors described below may be found in the Undergraduate Degree chart (pages 18–20), in the section “Departments and Interdisciplinary Programs” or by contacting the department. The process for declaring majors appears in the section Declaring Departmental Majors on page 23.

School of Architecture—Students admitted to the university as architecture majors must first complete 4 years of the BA program (architecture major) before applying to the BArch program in their senior year. If admitted, they are assigned a preceptorship with an architectural firm for a one-year period, after which they return to Rice to complete the BArch degree program.

George R. Brown School of Engineering—Rice offers majors in bioengineering, chemical engineering, civil engineering, computational and applied mathematics, computer science, electrical and computer engineering, environmental engineering sciences, mechanical engineering, materials science and engineering, and statistics. These programs lead to either the BA or the BS degree and may qualify students for further graduate study.

School of Humanities—Students may declare majors in art history, classics, English, French studies, German and Slavic studies (includes Russian), Hispanic studies, history, kinesiology, linguistics, philosophy, religious studies, and visual arts. Interdisciplinary majors are available in ancient Mediterranean civilizations, Asian studies, medieval studies, and the study of women and gender, while an interdepartmental major in policy studies combines courses from the School of Humanities and the School of Social Sciences.

Shepherd School of Music—Music students may opt for either a BA or a Bachelor of Music (BMus) degree in performance, composition, music history, and music theory. Students who pass a special qualifying examination may elect an honors program that leads to the simultaneous awarding of the BMus and Master of Music (MMus) degrees after 5 years of study.

Wiess School of Natural Sciences—All natural sciences departments, including biochemistry and cell biology, chemistry, earth science, ecology and evolutionary

biology, mathematics, and physics and astronomy offer programs leading to the BA degree. BS degrees are offered in some departments. Majors include astronomy, biochemistry, biology, biophysics, chemical physics, chemistry, earth science, mathematics, and physics. Students also may elect double majors combining one of the programs in natural sciences with another science, a humanities discipline, or an engineering field.

School of Social Sciences—Rice offers majors in anthropology, economics, mathematical economic analysis, political science, psychology, and sociology. Both the interdepartmental policy studies major and the cognitive sciences majors include science, engineering, and humanities courses, while the managerial studies major incorporates course work in the schools of engineering and management.

UNDERGRADUATE DEGREE CHART

School Department	Undergraduate Degrees Offered	Additional Options or Areas of Concentration (within majors)
SCHOOL OF ARCHITECTURE		
Architecture	BA, BArch	BA majors in architecture and in architectural studies
GEORGE R. BROWN SCHOOL OF ENGINEERING		
Bioengineering	BSB	Areas of concentration in cellular and molecular engineering, biomedical instrumentation and imaging, and biomaterials and biomechanics
Chemical and Biomolecular Engineering	BA, BSChE	Focus areas in bioengineering, environmental science and engineering, materials science and engineering, and computational engineering
Civil and Environmental Engineering	BA, BSCE	BA degree in civil engineering and environmental engineering sciences BSCE with focus areas in environmental engineering, hydrology and water resources, structural engineering and mechanics, and urban infrastructure and management
Computational and Applied Mathematics	BA	Numerical analysis, operations research, optimization, differential equations, and scientific computation
Computer Science	BA, BSCS	Areas of concentration in architecture, artificial intelligence, computational science, foundations, human-computer interaction, and software systems
Electrical and Computer Engineering	BA, BSEE	Areas of concentration in computer engineering; systems: control, communications, and signal processing electronic circuits and devices; and quantum electronics and photonics
Mechanical Engineering and Materials Science	BA, BSME, BSMS	Areas of concentration in biomechanics, computational mechanics, fluid mechanics and thermal science, solid mechanics and materials, and system dynamics and control

Statistics	BA	Theoretical and applied training orientations; engineering, scientific, and business applications of probability and statistics; joint work in related departments

SCHOOL OF HUMANITIES

Art History	BA	History of art
Classical Studies	BA	Classics, Greek, Latin
Education	No undergraduate degree offered	Leads to secondary teaching certificate in conjunction with BA in major field. See Education Certification
English	BA	American and British literature and culture 1300–present, cultural studies, and film studies
French Studies	BA	
German and Slavic Studies	BA	German and German cultural studies and Slavic studies (for existing majors)
Hispanic Studies	BA	Spanish and Latin American literature and Spanish linguistics
History	BA	
Kinesiology	BA	Areas of concentration in exercise science, sports medicine, and sports management
Linguistics	BA	Areas of concentration in language, cognitive science, second language acquisition, and language, culture, and society
Philosophy	BA	
Religious Studies	BA	Areas of concentration in specific religious traditions and/or methodology
Visual and Dramatic Arts	BA	Studio and theatre arts

JESSE H. JONES GRADUATE SCHOOL OF MANAGEMENT

Management	No undergraduate degree offered	Four accounting courses open to all undergraduate students

SHEPHERD SCHOOL OF MUSIC

Music	BA, BMus	BA in music; BMus in composition, music history, music theory, and performance; joint BMus/MMus with fifth year of study

WIESS SCHOOL OF NATURAL SCIENCE

Biochemistry and Cell Biology	BA, BS	
Chemistry	BA, BS	Chemical physics major offered jointly with the Department of Physics and Astronomy and resulting in a BS degree
Earth Science	BA, BS	Major tracks in geology, geophysics, geochemistry, and environmental earth science.
Ecology and Evolutionary Biology	BA, BS	Part of an integrated biosciences curriculum

Mathematics	BA	300-level courses oriented toward problem solving and applications and 400-level courses and above oriented toward theory and proofs; preparation for graduate studies or high school teaching or other areas; ample opportunity for double-majoring, especially with CAAM, COMP, ELEC, PHYS, or STAT; abundance of courses in analysis, topology, geometry, algebra, etc.
Physics and Astronomy	BA, BS	Majors in physics with specific options in applied physics, biophysics, computational physics, astrophysics, and astronomy; interdepartmental major in chemical physics

SCHOOL OF SOCIAL SCIENCES

Anthropology	BA	Areas of concentration in archaeology and social/cultural anthropology
Economics	BA	Majors in economics and in mathematical economic analysis, concentration in business economics
Political Science	BA	Areas of concentration in American, comparative, and international relations
Psychology	BA	A blend of basic and applied psychology
Sociology	BA	Theory, methods, and major substantive areas of the field, including major social institutions and social processes

INTERDEPARTMENTAL MAJORS

Area Majors	BA	Requires approval of two or more departments, the Office of Academic Advising, and the Committee on Undergraduate Curriculum (see page 24)
Ancient Mediterranean Civilizations	BA	Anthropology, classical studies, Greek, Latin, history, history of art, linguistics, philosophy, and religious studies
Asian Studies	BA	Anthropology, Chinese, Hindi, history, history of art, humanities, Japanese, Korean, Tibetan, linguistics, medieval studies, religious studies, Sanskrit, sociology, study of women, gender, sexuality, and tibetan
Cognitive Sciences	BA	Computer science, linguistics, neuroscience, philosophy, and psychology
Education Certification	No undergraduate degree offered	Leads to secondary teaching certificate in conjunction with BA in major field
Environmental Sciences	BA	Core science classes and interdepartmental environmental electives in social sciences, economics, humanities, architecture, natural sciences, and engineering
Managerial Studies	BA	Accounting, economics, political science, and statistics
Medieval Studies	BA	History of art, classics, English, French, German, history, humanities, linguistics, Spanish, music, philosophy, political science, and religious studies

Policy Studies	BA	Environmental policy, government policy and management, healthcare policy and management, international affairs, law and justice, business policy and management, and urban and social change
Study of Women, Gender, and Sexuality	BA	Anthropology, art history, English, French studies, German, Spanish, history, humanities, economics, linguistics, music, psychology, philosophy, religious studies, and sociology

TEACHER CERTIFICATION

Students in the teacher certification program earn Texas state teacher certification at the secondary level. Subjects include art, English, French, German, health science, history, Latin, life science, mathematics, physical education, physical science, Russian, science, social studies, and Spanish. For more information on teacher certification programs at the undergraduate and graduate levels, see Education Certification in the Departments and the Interdisciplinary Programs and Courses of Instruction sections.

STUDY ABROAD, EXCHANGE, AND WORK ABROAD PROGRAMS

Rice University provides students the opportunity to embark on a cultural learning experience by offering a variety of destinations and program options worldwide. Students can choose to study abroad with one of more than 500 affiliated programs. Some affiliates specialize in intensive language instruction, some in field research opportunities, and others in facilitating direct enrollment at universities around the world. More than 12 direct exchange programs with internationally renowned universities allow Rice students to act as ambassadors abroad while providing the opportunity for a student from the host institution to study at Rice. Work programs allow students to travel to another country and work during or after their time at Rice. Experiences range from casual jobs to professional internships.

Each year, more than 250 undergraduates from across the disciplines study abroad and then apply the transfer credit toward their degrees. The study abroad advisors, in cooperation with the faculty advisors in each department, assist students in identifying the best programs for their individual interests and academic needs. To assure proper enrollment, transfer of credits and financial aid, students planning to study abroad must make their arrangements through the Office of International Opportunities. This includes arranging prior approval for transfer credit through the relevant academic department(s) and the registrar.

Detailed information on affiliated programs, including application forms, is available from the Office of International Opportunities (first floor, Ley Student Center) or online at <http://abroad.rice.edu>.

ACADEMIC REGULATIONS

All undergraduate students are subject to the academic regulations of the university. Students are responsible for making certain they meet all departmental and university requirements and academic deadlines. The Committee on Examinations and Standing administers the rules described below. Under unusual or mitigating circumstances, students may submit a written petition requesting special consideration to the committee. Students should address all correspondence to the committee in care of the Office of the Dean of Undergraduates.

REGISTRATION

Currently enrolled students register in April for the fall semester and in November for the spring semester. Student registration is prioritized based on the hours earned and in progress. Entering students complete their registration during Orientation Week before classes begin in August. Undergraduate students are required to obtain a Registration/Add/Drop PIN in order to register for classes. To receive this PIN, students must meet with their divisional or major advisor to discuss their courses for the upcoming semester. The 1st Registration/Add/Drop PIN for each semester is valid from the registration period through the end of the 2nd week of classes. The 2nd Registration/Add/Drop PIN for each semester is valid from the beginning of the 3rd week of classes through the drop deadline. Registration/Add/Drop PIN validity dates can be found in the Academic Calendar.

To be properly registered, new students must complete, sign, and return a matriculation card. New students may not register or attend classes until they return a properly completed health data form and meet immunization and TB screening requirements. Immunizations required for admission are diphtheria/tetanus, measles, rubella, and mumps, with immunizations against hepatitis B and chicken pox recommended. The Mantoux tuberculin skin test also is required. A late fee of \$30 is charged for failure to submit a fully completed health data form by the required date. Each year, the Office of the Registrar publishes the specific deadlines for the semesters of that year.

Unless students elect a special payment plan, they must pay all tuition and fees for the fall semester by the end of the 2nd week in August and for the spring semester by the end of the 1st week in January. Any student not registered as of the last day to add classes or any student who is in arrears or becomes in arrears after the last day to add classes will be withdrawn from the university by default. Withdrawn students may not be allowed to receive credit for the withdrawn semester.

Appeals to this policy must be addressed to the dean of undergraduates. If readmitted, students must petition the Committee on Examinations and Standing to add classes late and must pay a late registration fee of \$115. Additionally, students who are readmitted after being withdrawn for nonpayment will be assessed a \$300 readmission fee.

Drop/Add—During the first 2 weeks of the semester, students may add or drop courses without penalty. After the 2nd week of the semester, the following conditions apply for adds and drops:

Undergraduate students in their first semester at Rice:

- Must obtain instructor's permission and have a valid Registration/Add/Drop PIN to add a course in the 3rd or 4th week of classes (a \$10 fee will be assessed)
- May not add courses after the 4th week of classes, except with the approval of the Committee on Examinations and Standing (a \$50 fee will be assessed)
- May drop courses up to the last day of classes with a valid Registration/Add/Drop PIN (a \$10 fee will be assessed for courses dropped between week 4 and week 14*)

All other students:

- Must obtain instructor's permission and have a valid Registration/Add/Drop PIN to add a course in the 3rd or 4th week of classes (a \$10 fee will be assessed)

- May not add courses after the 4th week of classes, except with the approval of the Committee on Examinations and Standing (a \$50 fee will be assessed)
- May drop courses after the 4th week up to the end of the 10th week of classes with a valid Registration/Add/Drop PIN required (a \$10 fee will be assessed for courses dropped between week 4 and week 10*)
- May not drop courses after the end of the 10th week of classes, except with the approval of the Committee on Examinations and Standing (a \$50 fee will be assessed)

For courses with start and end dates not coinciding with the normal Rice semester calendar, otherwise known as part of term courses, the registrar will consult with the instructor and set:

- The add deadline approximately one-third of the way into the course
- The drop deadline approximately two-thirds of the way into the course
- The add/drop deadline for these part of term courses will be posted on the registrar's website.

Students may not drop courses where the Honor Council has ruled a loss of credit.

**Note:* Weeks are defined as academic instruction; thus, midterm recess is not included in this calculation.

Course Load—Students at Rice normally enroll for 15 to 17 semester hours each semester. For most students, this allows them to complete the requirements for graduation in 8 semesters. Students must secure permission in writing from the Office of the Dean of Undergraduates before registering for courses, if they want to:

- Register for or add to more than 20 credits
- Register for or drop below 12 credits
- Register concurrently at another university

No student may receive credit for more than 20 credits in a semester, including courses taken elsewhere, without this prior written approval.

Students also should be aware that the registrar's office must report a student's part-time status to various groups, such as loan agencies, scholarship foundations, insurance companies, etc. It is in the student's best interest to determine if he or she will be affected in any way by part-time status.

REPEATED COURSES

Students may repeat courses previously taken, but the record of the first attempt (and grade) remains on the transcript, and both grades are included in term and cumulative grade point average calculations. In most cases, if students repeat courses previously passed, credit is awarded only once. For example, a student took HIST 117 and received a grade of B. The student repeated HIST 117 and received a grade of A. Both grades—the A and B—appear on the transcript and are included in his/her GPA; however, he/she only receives 3 credits toward his/her degree. On the transcript, a repeated course is indicated by one of the following values:

I—Included in GPA and earned hours

A—Included in GPA, but excluded from earned hours

E—Excluded from both GPA and earned hours

Some Rice University courses may be repeated for credit. They are specifically noted in the *Course Offerings* each semester. If a course may be repeated for

credit, each grade appears on the permanent record and is included in the grade point average.

If students repeat courses for which they have received either advanced placement or transfer credit, credit will not be counted. Nor can credit be received twice for students transferring courses that repeat previous enrollment at Rice.

Students may not receive credit twice for cross-listed, equivalent, or graduate/undergraduate equivalency courses taken at the same time. If the course is not repeatable, students may not receive credit for cross-listed, equivalent, or graduate/undergraduate equivalency courses taken in different semesters.

DECLARING DEPARTMENTAL MAJORS

Students declare their major using a Declaration of Major form. The department chair or designee must sign the form acknowledging the declaration. The department will counsel the student about the requirements that must be met to complete the major and the likelihood the student will be able to meet them. If the department believes a student is not well prepared for success in its major, it may express its reservations on the form. No department or program, however, may refuse to admit an undergraduate as a major, with the exception of the School of Architecture and the Shepherd School of Music or in the case of limitations of resources. In such cases, departments must publish criteria they will use to limit the number of majors together with their major requirements.

Students must declare a major during the spring of their sophomore year. They will not be permitted to register for the fall semester of their junior year without having declared a major. The major declaration deadline is listed in the Academic Calendar each year.

Students are free to declare a major at any time before this deadline and always are free to change their major by completing the appropriate form. However, such a change may entail one or more additional semesters at the university. Area majors are an exception to this rule and must be declared by the fourth semester before graduation (see Area Majors below).

Once a student declares a major, the title of the major is noted on the student's transcript, and a faculty advisor in the major department is assigned. Students and their advisors should regularly review progress toward their degrees. Introductory courses taken before formal designation of a major may be counted in fulfilling the major requirements.

For information on the specific requirements for any major, students should consult the departmental listings and seek the advice of the faculty member who is the designated major advisor. It is the responsibility of the student to meet regularly with their advisors to review progress toward their degrees.

AREA MAJORS

Should the traditional departmental majors or programs not meet their exact needs, students may develop an area major closer to their particular interests and career goals. Area majors differ from double majors in that the latter must conform to the requirements of both departments while the former is a single major: It may combine courses from 2 or more departments, but it maintains its own specific major requirements. Area majors are limited by the available academic resources and must be distinct from other majors offered at Rice. Students who elect to declare an area major may not use it to form a double major, and they must still meet all the other university graduation requirements.

Students are usually the ones to initiate an area major, working it out in conjunction with the Office of Academic Advising and with faculty advisors from each of the departments involved. After designing a comprehensive and substantial course of study and deciding on an appropriate title, all parties sign off on the plan. The chairs of the involved departments and the Committee on the Undergraduate Curriculum determines final approval. At that point, the Office of Academic Advising officially certifies the approved plan to the registrar and goes on to oversee the major on behalf of the faculty advisors. Any change in the proposed requirements needs the approval of both the faculty advisors and the Committee on the Undergraduate Curriculum.

Students may not propose an area major if they are within 3 semesters of graduation unless the Committee on Examinations and Standing rules that exceptional circumstances warrant this action. Under no circumstances may students declare an area major in their final semester before graduation.

SECOND 4-YEAR BACHELOR'S DEGREE

Currently enrolled undergraduates, Rice graduates with a bachelor's degree, and graduates from other universities with a bachelor's degree have the option of earning a *second* 4-year bachelor's degree at Rice in a different discipline. This degree must be a different bachelor's degree from the one already held; for example, the holder of a BA degree may pursue course work leading to the BS or BMus degree. Rice students should note that they can apply courses they completed at Rice as Class III students to the 2nd degree only with the approval of the major department for that degree. (Class III students are students who already have college degrees and are taking courses for credit outside of a Rice degree program.)

Students Already Enrolled at Rice—To earn a second 4-year bachelor's degree, also known as a *dual degree*, currently enrolled undergraduates who have not yet completed their first bachelor's degree must:

- Be accepted for the second major by the major department
- Fulfill all requirements for the second degree
- Complete at least 30 additional semester hours at Rice beyond the hours required for their first degree (these hours are applied to the second degree)

Students seeking admission to this program should complete an application for a second degree with the Office of the Registrar. The application should include a written statement identifying both proposed majors and specifying an approved course program for each. It also should contain an outline from the chair or undergraduate advisor of each department involved, indicating that the proposed course program satisfies all major degree requirements.

Students with a Bachelor's Degree from Rice—Rice graduates who wish to earn a different 4-year bachelor's degree must:

- Be accepted for the major by the major department
- Fulfill all requirements for the second degree
- Complete at least 30 additional semester hours at Rice beyond their first bachelor's degree (these hours are applied to the second degree)
- Attend Rice full time for at least 2 semesters during the fall and/or spring terms beyond their first bachelor's degree

The entire undergraduate record for these students continues cumulatively. Those seeking admission to this program should complete an application for a

second degree with the Office of the Registrar. The application should include a written statement specifying the proposed major and course program for the second degree, a supporting letter from the chair of the major department, and an explanation of the student's reasons for seeking a second degree.

Students with a Bachelor's Degree from Another School—Other graduates who wish to earn a 4-year bachelor's degree in a different major from Rice must:

- Fulfill all requirements for the second degree
- Complete at least 60 semester hours at Rice (these hours are applied to their Rice degree)
- Attend Rice full time for at least 4 fall and/or spring semesters

Interested students should apply for admission through the Office of Admission. See page 43 for details on application requirements for Second Degree Students.

Financial Aid and Housing—Students seeking information about financial aid available to participants in the second degree program should contact the Office of Student Financial Services. Students admitted to the second degree program may request assignment to a college, but they will have lower priority for on-campus housing than students enrolled for a first 4-year bachelor's program. This means that housing probably will probably not be available.

HONORS PROGRAMS

To enroll in the 2-semester **Rice Undergraduate Scholars Program**, students register for HONS 470–471 *Proposal Development and Research*. This program is for juniors and seniors in all disciplines who are considering graduate study and an academic career after graduation. Students enroll in the program plan and execute independent research under the supervision of a sponsoring faculty member (they may apply for funding to cover expenses related to their projects). They meet once a week to discuss each other's work and to hear a range of presentations on life in academia. Students may apply in the spring of each year. For more information, contact the program's faculty co-director.

Individual departments may offer undergraduates the option of honors program enrollment. These programs enable students to receive advanced training or to deepen their understanding of a given discipline through an intensive program of independent supervised research. Customary procedure is for students to submit a proposed project to their department's Undergraduate Committee, which helps them rework it, as needed, into a substantial but feasible proposal. Once accepted, students are assigned a faculty advisor to guide their research. The project concludes in an honors thesis, which the advisor and two readers evaluate, and an oral examination. Departments also use honors programs to formally recognize students who have shown outstanding work through their individual projects. Acceptance into a departmental honors program is at the discretion of the faculty. For specific requirements and procedures, students should contact the individual departments.

TRANSFER CREDIT

Courses taken at another college or university that are appropriate to the Rice curriculum may be approved for transfer credit toward a Rice undergraduate degree. This includes credit for summer school courses not taken at Rice, though no more than 14 semester hours of transfer credit taken in summer schools other than Rice may be applied to any Rice degree. Students must have taken the course at a U.S. academic institution accredited by a regional

accrediting agency or with a study abroad program approved by the Department of International Opportunities and must have earned a grade of C- or the equivalent or better. Students may not transfer courses taken pass/fail or on a similar basis at other institutions. Grades earned for transfer credit are not entered on the Rice transcript, and transferred courses have no effect on a student's Rice grade point average. Individual departments may place additional restrictions on particular courses and/or institutions. Similarly, various majors and degree programs may limit the amount of transfer credit that students may apply to them. All transferable credits from quarter-system schools will be converted to semester hours. In accordance with university guidelines and based on the external transcript, the Office of the Registrar will determine appropriate transferable credit hours and whether the credits are upper-level or lower-level.

For transfer work completed prior to matriculation, the Office of the Registrar, in conjunction with the academic departments, determines whether courses are appropriate for transfer to Rice as Rice equivalent courses or as TRAN, general elective hours. TRAN will be indicated as either upper- or lower-level and will count toward the total hours needed for graduation and for required upper-level credit if the TRAN credit is designated by the Office of the Registrar as upper-level. If courses transferred to Rice as TRAN credit are subsequently granted Rice equivalent course credit by the Office of the Registrar and academic department, the TRAN credit is reduced by the number of credit hours of the Rice equivalent course. The Rice equivalent course is then listed on the student's transcript and satisfies the university and major requirements the Rice course satisfies.

Continuing students who plan to transfer courses are strongly advised to seek prior approval. Without such approval, students cannot be certain transfer will be accepted at Rice. To receive Rice equivalent credit, students are required to complete the appropriate form and secure approval from the designated transfer credit advisor in the department offering the Rice equivalent course. Without prior approval, students can expect transferable courses to be granted TRAN credit. Transfer credit will be evaluated only after the Office of the Registrar receives an official transcript from the other college or university. For credits obtained while studying abroad, the Office of the Registrar also must receive the necessary approval paperwork from Rice International Programs before transfer credit may be granted. Students may appeal to Rice International Programs to have credit granted from nonapproved study abroad programs. Such appeals generally should be justified by curricular needs of the student. In addition, credit from non-U.S. degree granting universities not part of a study abroad program must be approved by Rice International Programs.

Students with much transfer credit should be aware of the general graduation requirements (pages 14-17): students must complete at least 60 semester hours at Rice, complete more than half of their upper-level degree work and complete more than half of their upper-level major work at Rice (students also should check their specific departmental major requirements).

EXCUSED ABSENCES

Students are expected to be in attendance at all of the classes for which they are registered during the entire course of the academic semester for which they are enrolled. The university understands, however, that students participating in university-sponsored extracurricular activities may, on rare occasions, need to miss a class session during the semester. As a matter of course, students should inform their instructors in advance of absences resulting from participation

in university-sponsored activities, and faculty normally will give a reasonable opportunity to make up work missed on such occasions.

No nonacademic university-sponsored event at which student attendance is required may be scheduled or rescheduled for any date after the day following the last day of classes. Exceptions may be granted by a quorum of the Committee on Examinations and Standing only for events where scheduling is not under the control of the university. On the class days falling during the last calendar week of classes, an individual student may participate in only one university-sponsored event, which may be scheduled or rescheduled, so long as no more than one night would be spent outside of Houston for travel. For events during the last week of classes, the reading period, and the final examination period, a quorum of the Committee on Examinations and Standing must be satisfied that each student is in satisfactory academic standing to participate in an event. If a quorum of the Committee on Examinations and Standing cannot meet in a timely fashion, then the executive committee of the Faculty Senate will handle exception requests.

Absences for activities other than university-sponsored events may be negotiated on an informal basis between the student and the faculty member. Alternatively, absences may be formally excused on a case-by-case basis if a petition explaining the nature of the event, accompanied by suitable documentation, is submitted to the Committee on Examinations and Standing at least two weeks before the event.

FINAL EXAMINATIONS

The decision to give a final exam as a required part of the course rests with the instructor. All tests and examinations are conducted under the honor system. No examinations or other course assignments may be due between the last day of classes and the first day of the final examination period.

Examinations are considered final examinations when they:

- Cover more than the material learned since the last exam, or
- Are the only exam in the course, or
- Require comprehensive knowledge of the entire course

Such exams may be given only during the final examination period.

All class periods will be assigned a final examination time by the Office of the Registrar. Instructors may choose to use that time for a scheduled final. If they choose this option, the registrar will assign a room, and the final exam will be administered in that room at the designated time. Instructors may choose instead to give a take-home exam or no exam at all. Some instructors assign end-of-term projects or papers rather than final examinations. With regard to due dates, final papers or projects will be treated the same as take-home exams.

Take home exams should be available to the students as soon as possible after the end of classes, but must be available no later than the end of the next business day after classes have ended. Take home exams may be no longer than 5 hours in length. The due date of take-home exams may be no earlier than the end of the examination time assigned to that class by the registrar. Instructors may specify due dates later than this time but not later than the end of the last day of the examination period.

No student should be given an extension of time or opportunity to improve a grade that is not available to all members of the class, except for verified illness or justified absence from campus. However, students cannot be required to take more than two scheduled exams in two consecutive calendar days.

Students also cannot be required to complete more than two take-home and/or scheduled final exams on the same calendar day (unless this is the last day of the examination period). In both instances, if the student wishes to make alternative arrangements and is unable to work out such arrangements with the instructor(s) involved, the instructor of the third and any subsequent exams will be required to allow the student to reschedule that exam.

GRADES (See also Faculty Grading Guidelines on pages 9–10.)

The Pass/Fail Option—Undergraduates may register for courses on a pass/fail basis. Students:

- May not take more than 1 course as pass/fail per semester for each full year of residence (students studying in off-campus programs through Rice are considered to be in residence for the purpose of this rule)
- May not take more than 4 courses total as pass/fail (even if they are in a 5-year degree program)
- May not take more than a total of 14 semester hours total as pass/fail
- May register for only 1 course as pass/fail in a semester
- May not take as pass/fail those courses specifically required for the major or courses falling within the major department or major area. If students take such courses pass/fail, the registrar will replace the P with the grade earned during the final degree audit
- Must file the proper form for a course to be taken pass/fail no later than the posted deadline, usually the end of the 10th week of the semester

Students may convert a pass/fail course to a graded course by filing the proper form with the Office of the Registrar. The deadline is by the end of the 2th week of the following semester.

Students should be aware that while a grade of P does not affect their grade point average, a grade of F is counted as a failure and is included in their GPA. Students who take a course during the Rice summer session as pass/fail also should be aware that this counts toward their allowable total of 4 courses.

Grade Symbols—Instructors are required to report a grade for all students (except auditors) whose names appear on the class list. They grade their students using the following conventional symbols: **A+**, **A**, **A-**, **B+**, **B**, **B-**, **C+**, **C**, **C-**, **D+**, **D**, **D-**, **F**. Students successfully completing a course pass/fail receive a **P**, and failure to complete the course successfully is indicated by an **F**. A **P** does not affect the grade point average. Completion of the English composition requirement is denoted by a grade of **E**.

Satisfactory/unsatisfactory courses are those that do not use traditional grading procedures. Such courses or labs are designated by the instructor and are, in most cases, graduate level courses. Students successfully completing a course satisfactory/fail receive an **S**; failure to complete the course successfully is indicated by an **F**. While an **S** does not affect the grade point average, an **F** does.

Grade Designations—Under certain circumstances, special designations accompany the student's grade. These designations do not affect the grade point average. The special designations include the following:

INC (“Incomplete”)—Instructors report this designation to the registrar when a student fails to complete a course because of verified illness or other circumstances beyond the student's control that occur during the semester. Students must complete the work, and instructors must submit a revised grade,

by the end of the 5th week of the next semester, or an earlier date as defined by the instructor. Students with an “incomplete” must be certain that tests, papers, and other materials affecting their grade or essential to completing a course requirement are delivered *by hand* to the appropriate professor or office with ample time for the instructor to grade the documents and submit the final grade to the Office of the Registrar by the deadline. Loss or lateness because of mail service is not an acceptable excuse for failing to meet academic deadlines. A student who receives 2 or more “incompletes” in a semester may not enroll in the next semester for more than 14 semester hours. Students also should be aware that they may be placed on probation or suspension when the “incomplete” is changed to a grade, either by an instructor or by default.

OT (“Other”)—Instructors report this designation to the Office of the Registrar when a student fails to appear for the final examination after completing all the other work for the course. Students must resolve the matter, and instructors must submit a revised grade, by the end of the 1st week of the spring semester or by the end of the 4th week after Commencement, whichever is applicable. A designation of “Other” also is used if an accusation has been made to the Honor Council. Students should be aware that they may be placed on probation or suspension when the “Other” is changed to a grade, either by an instructor or by default.

W (“Official Withdrawal from University”)—Students who officially withdraw from the university during the last 5 weeks of the semester will receive a final grade of “W” for each course in which they were enrolled at the time of withdrawal. In addition, the professors of those students who withdraw during that time will submit a grade based on the student’s academic achievement at the time of withdrawal to the Office of the Registrar.

Students who officially withdraw from the university before the last 5 weeks of the semester will not receive the grade of “W” for any courses in which they were enrolled for that semester. These courses will not be included on the official transcript.

W (“Late Drop with Approval”)—A student who receives approval from the Committee on Examinations and Standing to drop a course after the designated drop deadline will receive a grade of “W” for that course. When requests for late drops are denied by the committee, the registrar records the submitted grade.

If a student drops a class before the designated drop deadline for the semester, the course will not be included on his/her official transcript. Students in their 1st semester at Rice may drop a class up until the last day of classes, and the course will not be included on the student’s official transcript.

NG (“No Grade”)—This designation indicates that the instructor failed to report grades for the enrolled students in their class(es). Instructors are responsible for resolving this situation as quickly as possible.

NC (“No Credit”)—This designation signals that no credit was granted for the course. It is only used for people auditing the course.

Grade Points—To compute grade point average, letter grades are assigned numeric values as follows:

GRADE	GRADE POINTS	GRADE	GRADE POINTS
A+	4.33	C	2.00
A	4.00	C-	1.67
A-	3.67	D+	1.33

B+	3.33	D	1.00
B	3.00	D-	0.67
B-	2.67	F	0.00
C+	2.33		

Grade Point Average Calculation—For each course, the credit hours attempted and the points for the grade earned are multiplied. The points for each course are added together, and the sum is divided by the total credit hours attempted. Grade point averages are noted each semester on the student's official transcripts.

President's Honor Roll—This honor roll, published each semester, recognizes outstanding students. To be eligible, students must have earned grades in a total of 12 or more semester hours without receiving a grade of F. (Pass/Fail courses may not be counted.) Approximately the top 30 percent of undergraduates receive recognition each semester. While undergraduates enrolled in a 4-year bachelor's degree program always are eligible for the President's Honor Roll, students enrolled in 5-year bachelor's or master's programs are eligible only during their 1st 8 semesters.

ACADEMIC DISCIPLINE AND OTHER DISCIPLINARY MATTERS

Academic Probation—Students are placed on academic probation at the end of any semester if:

- Their grade point average for that semester is less than 1.67, or
- Their cumulative grade point average is less than 1.67 (this requirement is waived if the grade point average for that semester is at least 2.00)

The period of probation extends to the end of the next semester in which the student is enrolled. Students on probation (academic or other disciplinary matters) may not be candidates for, or hold, any elected or appointed office, nor are they allowed to enroll in more than 17 semester hours.

Academic Suspension—Students are suspended from the university at the end of any semester if:

- They earn grades that will place them on academic probation a 3rd time, or
- They have a grade point average for the semester that is less than 1.00 (exceptions are made for students completing their 1st semester at Rice)

Students readmitted after a period of academic suspension will be suspended again, in any succeeding semester, if:

- Their cumulative grade point average is less than 1.67, or
- Their semester grade point average is less than 2.00

The 1st suspension period is normally 1 semester; the 2nd suspension period is at least 2 semesters. Students are not readmitted after a 3rd suspension.

Students who are going to be suspended for academic performance are notified by the registrar after all final grades have been received and posted to their record. Suspension is lifted the 1st day of class of the semester when the student returns to the university. When students serve the nominal term of suspension but do not intend to return to Rice, suspension is lifted after permission from the Committee on Examinations and Standing is granted.

Students facing a 1st or 2nd academic suspension who verify with the registrar and their department that they will complete their degree requirements in 1 semester if allowed to return, may have their suspension reduced to probation. Students may invoke this ruling only once for a given academic degree plan.

Students who graduate at the end of a semester under academic circumstances that would normally place them on probation or suspension will not have the terms “academic probation” or “suspension” placed on their transcript for that semester.

Disciplinary Probation and Suspension—The assistant dean of student judicial programs may place students on probation or suspension for an honor system violation or for other disciplinary or code of conduct reasons. Students who are on disciplinary suspension, under investigation for disciplinary violations, or who have disciplinary proceedings pending against them (including for an honor system or code of conduct violation) may not receive their degree even if they have met all academic requirements for graduation. Students who are suspended must leave the university within 48 hours of being informed of the dean’s decision, though in cases of unusual hardship, the college master and assistant dean of student judicial programs may extend the deadline up to 1 week. Any tuition refund will be prorated from the official date of suspension, which is determined by the registrar. While on disciplinary suspension or probation, students may not run for, or hold, any elective or appointed office in any official Rice organization, nor may they serve as Orientation Week advisors once they return to the university following a suspension. Participation in student activities on and off campus and use of Rice facilities, including the student center, the colleges, the playing fields, the gym, and the computer labs, are limited to *enrolled* students.

Readmission after Suspension—Students seeking readmission after academic suspension should address a letter of petition to the Committee on Examinations and Standing, in care of the Office of the Dean of Undergraduates, which must be received by July 1 for readmission in the fall semester and December 1 for readmission in the spring semester. The petition must include 2 supporting letters from persons for whom the student has worked during the suspension period as a student or an employee. The petition also must include an academic program approved by the Office of Academic Advising. If the problems causing the previous difficulty appear to be resolved, the student generally is readmitted. Students returning from academic suspension must maintain regular contact with the Office of Academic Advising throughout the semester. In some instances, the committee may postpone approval of readmission or rule that suspension is permanent.

Students seeking readmission after leaving the university because of **disciplinary actions (including honor system or code of conduct actions) or other nonacademic action** should submit a petition in writing for review by the assistant dean of Student Judicial Programs.

Rice Summer School—Although it may do so at its discretion, the Office of the Registrar does not normally place on probation or suspension students who perform poorly in the Rice Summer School. Students should be aware, however, that Rice Summer School grades are included in their grade point averages.

WITHDRAWALS AND LEAVES

Voluntary Withdrawal and Readmission—Students may withdraw voluntarily from the university at any time during the semester up until the last day of classes. Students wishing to withdraw should inform their college master in person and give written notification to the Office of the Dean of Undergraduates, who notifies other offices of the university as necessary. Students who fail to give notice of withdrawal should expect to receive failing grades.

If they are in good academic standing at the time of their withdrawal, students may be considered for readmission after they submit a written application to

the Office of the Dean of Undergraduates. That application must include an academic program approved by the Office of Academic Advising. If students withdraw within 5 weeks of the last day of classes, they must submit the written application to the dean of undergraduates who, at his discretion, will submit it to the Committee on Examinations and Standing. The petition should include 2 supporting letters and must also include an academic plan approved by the Office of Academic Advising. If students withdraw within 5 weeks of the last day of classes, the Committee on Examinations and Standing takes into account their grades (which reflects their performance up to the day of withdrawal) when ruling on their readmission. Students whose grades would have led to suspension had they not withdrawn are treated, for purposes of readmission, as if they had been suspended. If students voluntarily withdraw for major medical or psychological/psychiatric reasons, however, they must meet the readmission conditions for a medical or involuntary withdrawal.

Involuntary Withdrawal—The university may insist on a student's involuntary withdrawal if, in the judgment of the dean of undergraduates, the student:

- Poses a threat to the lives or safety of him/herself or other members of the Rice community
- Has a medical or a psychological condition that is likely to be exacerbated by the academic and/or living environment and the student's ability to address it effectively
- Has a medical condition or demonstrates behavior that seriously interferes with the education of other members of the Rice community

Students should submit written petitions for readmission after medical or involuntary withdrawal to the Office of the Dean of Undergraduates. This petition must include documentation of treatment provided and students must have an interview with the director of the Rice Counseling Center or Student Health Services or their designees. The petition also must include an academic plan approved by the Office of Academic Advising.

Students who withdraw for psychological reasons within the last 5 weeks of the fall semester will not be able to petition for readmission for the spring semester immediately following the semester from which they withdrew. They can appeal no later than June 1 to be considered for readmission for the upcoming fall semester.

Unauthorized Withdrawal—Students who leave the university without first obtaining permission to withdraw are considered to have resigned. Although students who resign are not normally considered for readmission, they may submit a petition to the Committee on Examinations and Standing, in care of the Office of the Dean of Undergraduates, for readmission

Leave of Absence—Students may request a leave of absence from the university by applying in writing to the Office of the Dean of Undergraduates at any time before the 1st day of classes in the semester for which they are requesting leave. A leave of absence taken after the 1st day of classes is considered a voluntary withdrawal.

To gain readmission following an approved leave of absence of not more than 4 semesters, students must notify the Office of the Dean of Undergraduates at least 1 month before the beginning of the semester that they intend to end their leave. The student also must include an academic plan approved by the Office of Academic Advising. After a leave of more than 4 semesters, they must apply in writing to the Committee on Examinations and Standing.

Approval of a leave of absence always is contingent on the student's satisfactory completion of course work in the semester preceding the leave. Students performing poorly may have their approved leave converted to suspension.

Military Leave of Absence—Students who require a leave of absence because of being called to active military duty should contact the Office of the Dean of Undergraduates.

APPLICABLE ACADEMIC GRADUATION REQUIREMENTS

Students enrolled in 4- (or 5-) year bachelor's programs may decide whether to follow the graduation requirements in effect when they first registered at Rice or those in effect when they graduate. If they graduate more than 7 (or 8) years after their initial registration, students must graduate under the regulations in effect at the time of their last readmission or those in effect when they graduate. Also, departments may review courses completed in a major more than 7 (or 8) years before the student's anticipated graduation. If the department concludes that a course no longer satisfies the requirements of the major, it is not credited toward the major program, although it remains on the student's record.

Departmental major requirements may vary from year to year during the period between a student's matriculation and graduation. The department may, at its discretion, make any of these variations available to a student for completion of the major requirements. If a new degree program or major is created during the student's time at Rice, the new program will be available to a student as if the program appeared in the *General Announcements* at the time of matriculation.

NAME CHANGES

To comply with a number of government agencies' reporting requirements, the university must record the name of each student who is a U.S. citizen as the student's name appears on his or her Social Security card. Students who need to change their names on Rice University records and who are U.S. citizens must notify the Office of the Registrar and present a Social Security card, marriage license, divorce decree or court order, and picture identification when submitting the form. After the change is implemented, the name on the Rice University transcript will read as printed on the supporting document(s).

CHANGE IN REGISTRATION

The academic calendar lists deadlines for dropping or adding a class or section. This schedule is binding for all students. Adding or dropping a course, including transferring from one section to another or changing credit status in a course must be accomplished through completion of the appropriate forms and submission to the Office of the Registrar. Changing a course to/from audit must be done within the first 4 weeks of the semester. Students can request exceptions to these deadlines by petitioning the Committee on Examinations and Standing.

TRANSCRIPT POLICIES

Official transcripts are issued only at the request of the student. Official transcript requests should be made at least 5 working days before the desired date of issue. A \$5 fee per transcript must be received before a transcript is issued.

Transcripts that have been presented for admission or evaluation of credit become a part of the student's permanent record and are not reissued. Transcripts from other institutions, if needed, must be sent to Rice University directly from the original issuing institution.

STUDENT RECORDS

Rice University assures the confidentiality of student educational records in accordance with state and federal laws, including the Family Educational Rights and Privacy Act. Student academic records are maintained primarily in the Office of the Registrar and in the academic department of the student's major as well as in various other offices around campus. All students have the right to review their records to determine their content and accuracy, to consent to disclosures of personally identifiable information as defined by law, and to file complaints with the Department of Education.

RELEASE OF STUDENT INFORMATION FROM EDUCATIONAL RECORDS

The disclosure or publication of student information is governed by policies of Rice University and the Family Educational Rights and Privacy Act.

A student's consent is required for the disclosure or publication of any information that is a) personally identifiable and b) a part of the educational record. However, certain exceptions to this general rule, both in types of information that can be disclosed and in access to that information, are allowed by the regulations of the Family Educational Rights and Privacy Act. Rice may allow access to personally identifiable information without a student's prior consent to its faculty or staff who legitimately require this information to perform their instructional, supervisory, advisory, or administrative duties.

In accordance with the law, a student's prior consent is not required for disclosure of portions of the educational record defined by the institution as directory information. The following directory information may be released by the university:

1. Name, local and permanent address, telephone and mobile number(s), campus email address(es), and instant messenger address(es)
2. Date, place of birth, and gender
3. Classification and major and minor fields of study
4. Participation in officially recognized activities and sports
5. Weight and height of members of athletic teams
6. Dates of attendance, degrees and awards received
7. The most recent previous educational agency or institution attended by the student
8. Photographic image

The information above, designated by the university as directory information, may be released or published by the university without a student's prior written consent unless exception is made in writing by the student or the parents of a dependent student. Students who prefer to avoid access to or release of directory information must notify the registrar in writing before the end of the 2nd week of fall classes, and the university will withhold access to, or release of, directory information until further written instruction is received.

Students have a right to challenge the accuracy of their educational records and may file written requests to amend these records. The Office of the Registrar should be contacted for further information regarding the procedure to follow for questions or problems. Students have a right to file a complaint with the U.S. Department of Education concerning alleged failures by Rice University to comply with the requirements of FERPA. For more information regarding FERPA, please visit the U.S. Department of Education's website.

For complete information regarding Rice's policy on student education records, please contact:

Rice University Registrar

Rice University
Office of the Registrar—MS 57
6100 Main Street
Houston, TX 77005-1892
Email: registrar@rice.edu

VETERANS INFORMATION

At Rice University, the Office of Veterans Affairs is managed through the Office of the Registrar. This office assists all veterans and their dependents who wish to receive Veterans Administration (VA) educational benefits. The office also provides personal counseling, fee deferments, tutorial assistance, and work-study jobs.

Veterans who are planning to attend the university should contact the Office of Veterans Affairs at least 2 months before the date of entry. Such time is required to expedite the processing of paperwork for educational allowances from the VA.

For certification of benefits, the student must be enrolled according to the following schedule:

Full Time	12 credits	1/2 Time	6 credits
3/4 Time	9 credits	Less than 1/2 Time....	5 credits

For rate of monthly payment of educational allowances for veterans and dependents, please contact the Office of Veterans Affairs.

For additional informational regarding other veterans educational programs, contact the Office of the Registrar at 713-348-4999 or registrar@rice.edu.

APPLICATION FOR GRADUATION

All students must complete and submit in a timely manner an Application for Graduation Form available in the Office of the Registrar. This form is required for all students who plan to complete their degree requirements at the end of the fall or spring semester.

SUMMER SCHOOL FOR COLLEGE STUDENTS

Rice Summer School for College Students, administered by the Susanne M. Glasscock School of Continuing Studies, offers courses for credit to Rice students, visiting undergraduates, graduate students, and Class III students (see pages 75–760). Two summer sessions are offered: in May and in June–July. See Academic Calendar, pages vii–xii. Taking 6 to 8 semester hours in 1 session is considered a full load. Interested students should complete the application form found on the summer school website at <http://scs.rice.edu/summercredit/>. Admission is automatic for any Rice undergraduate or graduate student in good standing. Visiting students in good standing should send official transcripts, including spring semester grades and a completed Dean of Students Recommendation form (mailed directly from their universities and colleges to the School of Continuing Studies) as well as the completed application. Acceptance in the Rice Summer School carries no implications for regular admission to Rice.

All applicants, including Rice students, should submit their applications to the Rice Summer School Office with the application fee and a tuition deposit. The remaining tuition is due in full at registration before the beginning of classes. Auditors of summer school courses, who are considered visiting students, must pay full tuition and fees. Limited financial aid in the form of private educational loans is available for Rice students only.

It is essential that students apply by the deadlines listed on the summer school website. Courses that do not generate enrollments sufficient to cover their costs may be canceled. Students may apply after the deadline (but before the start of classes) by paying a late fee.

For more information, including tuition and registration information, students should contact the Rice Summer School Office at 713-348-4803, via email at scsummer@rice.edu, or online at <http://scs.rice.edu/summercredit/>.

ADMISSION OF NEW STUDENTS

Dating back to the founding of Rice University, our first president, Edgar Odell Lovett, mandated that we aspire to be a world-class university of the highest standing. Dr. Lovett challenged us “to assign no upper limit to our educational endeavor.” He envisioned students and faculty as a community of scholars, their minds exercised by spirited discourse (John Boles, *A University So Conceived: A Brief History of Rice*, pp 22–23, rev. ed. 1997). Therefore, as an integral part of the university’s mission, we seek a broadly diverse student body where educational diversity increases the intellectual vitality of education, scholarship, service, and communal life at Rice. We seek students, both undergraduate and graduate, of keen intellect and diverse backgrounds who not only show potential for success at Rice, but also who will contribute to the educational environment of those around them. Rice determines which group of applicants, considered individually and collectively, will take fullest advantage of what we have to offer, contribute most to the educational process at Rice, and be most successful in their chosen fields and in society in general. Our evaluation process employs many different means to identify these qualities in applicants. History shows that no single gauge can adequately predict a student’s preparedness for a successful career at Rice. For example, we are cautious in the use of standardized test scores to assess student preparedness and potential. An applicant is considered in competition with all other applicants. In making a decision to admit or award financial aid, we are careful not to ascribe too much value to any single metric, such as rank in class, grade point average, the SAT/ACT, or Graduate Record Exam.

We use a broader perspective that includes such qualitative factors as the overall strength and competitive ranking of a student’s prior institution, the rigor of his or her particular course of study, letters of recommendation, essays, responses to application questions, and (where required) auditions and portfolios. Taken together with a student’s academic record and test scores, these additional factors provide a sound basis to begin assessing the applicant’s potential on all levels.

Beyond indicators of academic competence, we look for other qualities among applicants, such as creativity, motivation, artistic talent, and leadership potential. We believe that students who possess these attributes in combination with strong academic potential will contribute to, and benefit from, a more vibrant, diverse educational atmosphere. Through their contributions and interactions with others, students will enrich the educational experience of all faculty and students. These qualities are not revealed in numerical measurements, but are manifest in the breadth of interests and the balance of activities in their lives.

Rice University strives to create on its campus a rich learning environment in which all students will meet individuals whose interests, talents, life experiences, beliefs, and world views differ significantly from their own. We believe that

an educated person is one who is at home in many different environments, at ease among people from many different cultures, and willing to test his or her views against those of others. Moreover, we recognize that in this or any university, learning about the world we live in is not by any means limited to the structured interaction between faculty and students in the classroom, but also occurs through informal dialogue between students outside the classroom.

To encourage our students' fullest possible exposure to the widest possible set of experiences, Rice seeks through its admissions policies to bring bright and promising students to the university from a range of socioeconomic, cultural, geographic, and other backgrounds. We consider an applicant's race or ethnicity as a factor in the admission process and believe that racial and ethnic diversity is an important element of overall educational diversity. Though race or ethnicity is never the defining factor in an application or admissions decision, we do seek to enroll students from underrepresented groups in sufficient and meaningful numbers as to prevent their isolation and allow their diverse voices to be heard. We also seek students whose parents did not attend college as well as students from families with a well-established history of college-level education. Rice places a premium on recruitment of students, regardless of their races or ethnicities, who have distinguished themselves through initiatives that build bridges between different cultural, racial, and ethnic groups. In so doing, we endeavor to craft a residential community that fosters creative, intercultural interactions among students, a place where prejudices of all sorts are confronted squarely and dispelled.

In assessing how well an applicant can contribute to enlivening the learning environment at Rice, we also try to determine the relative challenges that he or she may have faced. For economically disadvantaged students, this may mean achieving a high level of scholastic distinction while holding down a job in high school. For a first generation college student, it might mean achieving high standards for academic success within an environment relatively indifferent to intellectual attainment. Or it might mean overcoming a disability to excel in sports, music, or forensics. For students who do not have particular disadvantages, we also look at whether they chose a more challenging road than the normal path through high school. This might mean an especially strenuous course of study, a prolonged, in-depth engagement in a school project, or a particularly creative and wide-ranging set of extracurricular activities.

Rice does not view offers of admission as entitlements based on grades and test scores. Our admission process combines an examination of academic ability with a flexible assessment of an applicant's talents, experiences, and potential, including potential diversity contributions; it precludes any quick formula for admitting a given applicant or for giving preference to one particular set of qualifications without reference to the class as a whole. Rice is a highly selective institution and receives many more applications from viable candidates than it has available spaces. An inevitable consequence of Rice's approach is that some highly accomplished students will not be admitted. However, by selecting a wide range of matriculants of all types, the admissions process seeks to enrich the learning environment at Rice and thus improve the quality of a Rice education for all students.

Due to the nature of the Rice education, Rice enrolls undergraduate degree candidates on a full-time basis only. **First-year applicants, architecture applicants, and international students may apply for the fall semester only.** Other applicants may apply to enter either the fall or spring semester.

Applicants are selected on a competitive basis in 6 academic divisions: architecture, engineering, humanities, music, natural sciences, and social

sciences. Candidates should give careful consideration to the category under which they wish to be considered. However, once enrolled, most students are able to move freely among most divisions after consultation with their advisors. Music students must pursue the music program for at least the 1st year before changing divisions. The schools of music and architecture maintain limited enrollments; all majors are subject to faculty approval.

Those offered admission are expected to complete the remainder of their high school courses with the same superior performance that led to their admission.

FIRST-YEAR APPLICANTS

There are 4 areas of focus generally used in evaluation of first-year candidates for admission: scholastic record as reflected by the courses chosen and the quality of academic performance, recommendations from high school, the application presentation of personal information and essays, and standardized testing (the new SAT or the ACT with the writing test and 2 SAT Subject Tests).

The High School Record—Students must complete at least 16 college preparatory units as follows:

English	4	Laboratory science (e.g., biology, chemistry, physics)	2
Social studies	2	A foreign language	2
Mathematics	3	Additional credits in any of the categories above	3

The natural science and engineering divisions require trigonometry (precalculus) or other advanced mathematics courses and both chemistry and physics. Students may substitute a 2nd year of chemistry or biology for physics.

Students admitted with academic deficiencies will be asked to complete the required work by taking high school or college-level courses during the summer before enrollment at Rice.

Note: Because of the admission competition to enter Rice, successful applicants generally have taken 20 or more college preparatory courses, many at the college level. Therefore, only those students who have more than 20 college preparatory courses may have the registrar consider for Rice credit their college courses taken in high school.

Transfer of Coursework Taken During High School—College-level courses taken during high school years may be considered for credit at Rice University on receipt of the following documentation:

1. An official transcript of all college courses sent directly from the college(s) attended. College-level courses that appear on the high school transcript will not generally yield credits at Rice.
2. From each college attended, official verification that all courses were taken on the college campus, were taken together with students at that college, were taught by regular members of the college faculty, and were a part of the normal curriculum of the college. This type of documentation is normally obtained from the registrar's office of each college.
3. Official notification by letter from the high school principal or guidance counselor that the credit earned was not used to meet high school diploma requirements.

Recommendations—Candidates must submit evaluations from their guidance counselor and 1 teacher. The necessary forms are included in the application.

The Application—The application provides the committee with important information on the student's background and gives the applicant an opportunity to provide statements on his or her interests, experiences, and goals. Both the

Rice application and the Common Application are accepted. *The application fee is \$50.* Students for whom this fee creates a hardship may apply for a waiver. Freshman applicants should provide proof of a fee waiver for the SAT I or ACT test or eligibility for the school lunch program. In any case, a letter from the student's high school counselor is required. Financial stress created by application fees to other institutions is not considered a valid reason to grant a fee waiver.

Standardized Testing—The new SAT or the ACT with the writing test and 2 SAT Subject Tests are required for admission. All applicants must submit two SAT Subject Tests in fields related to the candidate's proposed division of study.

These exams are administered by the College Board and the American College Testing Program. Bulletins and test registration forms are available from high school counseling offices. The applicant is responsible for arranging to take the tests, and official score reports must be submitted before the student can be considered for admission. The College Board code for Rice is 6609. The ACT code is 4152.

Personal Interview—Although a personal interview is *not a requirement*, we *recommend* an interview for first-year applicants as an excellent opportunity to discuss the applicant's interests, needs, and questions. On-campus interviews are conducted by the admission staff and a select group of Rice senior students. Off-campus interviews are conducted throughout the United States and abroad by Rice alumni. The Committee on Admissions makes no distinction between on-campus and off-campus interviews. Please consult the university website or the application packet, or call the admission office for details.

Music Audition—Candidates to the Shepherd School of Music must arrange for an audition with a member of the music faculty.

Architecture Portfolio and Interview—Architecture applicants must submit a portfolio. An on-campus interview with a faculty member from the School of Architecture is strongly recommended.

DECISION PLANS

Early Decision Plan—Early Decision is a binding decision plan designed for students who have selected Rice as their 1st choice. Students may initiate applications to other colleges under nonbinding plans but must withdraw those applications if admitted to Rice.

Early Decision applicants must complete the required standardized testing on or by the November testing dates in their senior year. All other materials should be postmarked by November 1. Admission notices will be mailed by December 15. The committee will admit, defer, or deny Early Decision applicants. Deferred applicants are considered with the Regular Decision pool, and 7th-semester grades and additional standardized test scores then will be considered.

It is important to note that, if admitted under Early Decision, a candidate must withdraw all other college applications, may not submit any additional applications after accepting the offer, and must accept Rice's offer of admission by submitting a \$100 nonrefundable deposit by January 2. An additional \$50 housing deposit is required of those desiring on-campus accommodations.

Those accepted under Early Decision may receive an estimate of need-based financial aid by registering for and completing College Scholarship Service (CSS) PROFILE by November 15. Register for the CSS PROFILE by visiting their website at www.collegeboard.com. Students will complete the PROFILE online. The PROFILE number for Rice is 6609. Note that **official** financial aid offers

may be made only after the Office of Student Financial Services has received the following documents:

- CSS PROFILE, priority date March 1
- Free Application for Federal Student Aid (FAFSA), priority date March 1
- Student and parent 2005 income tax and W-2 forms, priority date March 1

Interim Decision Plan—First-year applicants who complete their standardized testing on or before the December testing dates and who postmark all other materials by December 1 may be considered under the Interim Decision Plan. Decisions are mailed by February 10. The committee will admit, defer, or deny Interim Decision applicants. Deferred applicants are considered with the Regular Decision pool, and 7th-semester grades and additional standardized test scores then will be considered.

Interim Decision applicants who are offered admission must pay a \$100 registration deposit by May 1 to reserve a place in the incoming class. After May 1, deposits are not refundable. Those who desire a room on campus must pay an additional \$50 deposit.

Regular Decision Plan—Students who apply Regular Decision must postmark their materials by January 10 to receive notification by April 1. Candidates who miss the deadline must do so in full knowledge that they are in a less competitive position. Regular Decision applicants must complete their standardized tests by January.

Regular Decision applicants who are offered admission should submit a \$100 registration deposit by May 1 to reserve their places in the incoming class. After May 1, deposits are not refundable. Those who desire a room on campus must pay an additional \$50 deposit.

ACCELERATED STUDENTS

Rice University will accept applications from students who are completing high school in less than 4 years. It is important to note that these students will compete with other candidates who will be completing 4 years of high school. Therefore, it is the candidate's responsibility to demonstrate that he or she has exhausted *all* college preparatory course work at his or her school. Further, because of the residential focus and commitment to student self-governance at Rice, candidates must also demonstrate the maturity and personal development that would allow them to participate fully and responsibly in campus life. Because of the unique circumstances surrounding the accelerated student, it is strongly recommended that these candidates have an on-campus interview before the application deadline.

HOME-SCHOOLED APPLICANTS

The Committee on Admission and Financial Aid recognizes that each home-schooled applicant is in a unique educational program. To ensure that our evaluation process is fully informed, each home-schooled applicant is encouraged to provide clear, detailed documentation of his or her curriculum of study, assessment tools, and learning experiences. Rice requires 2 academic letters of recommendation from all applicants, and at least 1 of these letters must come from someone who is not related to the applicant.

BACHELOR OF FINE ARTS

Students with a bachelor's degree in art from Rice or an equivalent degree from another university may apply to enter the BFA program, which consists of a 5th year of intensive study in the creative arts. In exceptional cases, students with a

BA in a major other than art may be admitted. BFA students are considered on a space-available basis. The following items should be *received* by November 1 for spring term enrollment or May 1 for fall term enrollment.

Required application materials include:

- A \$50 application fee
- Official transcripts of all undergraduate and graduate work
- Official final high school transcript
- Two letters of recommendation from professors at the most recent college attended
- Dean of students recommendation from the most recent college attended
- SAT, SAT I, or ACT scores
- The complete application for bachelor of fine arts degree candidates
- Portfolio of artwork

Bachelor of Fine Arts Portfolio—Applicants to the Bachelor of Fine Arts program must submit a portfolio to the Department of Visual Arts for faculty review before admission is finalized.

The portfolio of artwork must include 15 slides of original paintings, drawings, sculpture, and prints and/or film/video. Submission is limited to a binder or folder no larger than 9" x 12" x .5", and photographic transparencies (slides) must be placed in a standard-view sleeve, 20-slide capacity. Slides of artwork should be properly labeled (at the top of the individual slide) with name, title, medium, dimensions, and date(s), and submitted in clear plastic. Do not submit anything you wish returned.

All BFA students attending Rice are full-time students; most classes are held Monday through Friday. Financial aid and campus housing are not available for BFA students.

TRANSFER STUDENTS

Students with superior records from 2-year or 4-year colleges or universities may apply as transfer candidates. Applicants for transfer admission must file the following with the Office of Admission:

- The written application
- Official transcripts of all high school and college work completed to date as well as courses in progress
- Two faculty recommendations
- A recommendation from the dean of students
- SAT, SAT I, or ACT scores
- A \$50 application fee

Applications with the appropriate documents must be postmarked by March 15 for fall term admission and October 15 for spring term admission. Notification of the admission decision is mailed by May 15 and December 15, respectively. The criteria used in evaluating transfer applications are similar to those applied to applicants for the first-year class, except that special emphasis is given to performance at the college level. Because of the highly competitive nature of transfer admission, it is recommended that applicants have a minimum 3.20 (4.00 scale) grade point average on all college work. The SAT, SAT I, or ACT must be taken by March 15 for fall application and October 15 for spring application. The SAT Subject Tests are not required.

Students for whom the \$50 application fee creates a hardship may apply for a waiver. Transfer applicants must send a copy of the Student Aid Report that they receive after completing the Free Application for Federal Student Aid (FAFSA) along with a request for a fee waiver to the Office of Admission. Financial stress created by application fees to other institutions is not considered a valid reason to grant a fee waiver.

Transfer students must be registered in residence at Rice for at least 4 full semesters during the fall or spring terms and must complete no fewer than 60 semester hours before earning a Rice degree.

ADVANCED PLACEMENT/INTERNATIONAL BACCALAUREATE/ INTERNATIONAL CERTIFICATE PROGRAMS

Advanced Placement—Students who score a 4 or 5 on the applicable Advanced Placement College Board examinations taken before matriculation at Rice are given university credit for the corresponding Rice course(s).

International Baccalaureate—Students who complete the International Baccalaureate diploma and receive a score of 6 or 7 on a higher-level IB exam will receive course credit for the corresponding Rice course(s).

International Certificate Programs—Students who have completed various international certificate programs may receive course credit for corresponding Rice courses; however, each student's documentation will be reviewed individually and on a case-by-case basis. The General Certificate of Education A-Level (United Kingdom), the Abitur (Germany), and the Baccalaureate (France) are eligible for review.

OTHER STUDENTS

Please note that financial assistance is not available for visiting, Class III, second degree, dual enrollment, or auditing students.

Visiting Students—Students who wish to spend a semester or a year at Rice taking courses for credit to be applied toward their undergraduate degree at another school may apply for admission as visiting students through the Office of Admission. The student's application should be accompanied by the \$50 application fee, an official high school transcript, an official transcript of college work to date, an SAT, SAT I, or ACT score, and recommendations from the dean of students and a faculty member who has taught the student within the past academic year. Visiting student applications should be postmarked by March 15 for the fall semester and October 15 for the spring semester.

Visiting students are assigned membership to one of the residential colleges during their stay and are charged the same fees as other undergraduates. In a few classes where enrollment is limited because of space or other considerations, candidates for Rice degrees have priority over visiting students for registration.

Visiting students may apply to transfer to Rice only after having left Rice for at least 1 semester.

Class III Students—Students with Class III standing at Rice have an undergraduate or graduate degree from an accredited college or university and are taking courses at Rice for credit but not in a specific degree program. Students interested in this program should contact the Office of Graduate Studies.

Second-Degree Students—An individual who has a bachelor's degree from another institution and desires another degree in a different area of focus may apply as a second-degree student on a space-available basis. Students may only

pursue a second degree that is different from their first degree. The application, a \$50 application fee, official transcripts of all undergraduate and graduate work, a final high school transcript, two faculty letters of recommendation and a recommendation from the dean of students from the most recent college attended, and standardized test scores (the SAT, SAT I, or ACT) are required to complete an application file. The deadline for fall semester admission is March 15, and the deadline for spring is October 15.

Second degree applicants with a prior bachelor's degree from Rice should apply to the registrar. The application should include a written statement specifying the proposed major and course program for the 2nd degree, a supporting letter from the chair of the major department, and an explanation of the student's reasons for seeking a second degree.

Dual Enrollment Students—Accelerated high school juniors and seniors who have taken all the courses in a given discipline available to them in high school may request admission to Rice for the purpose of taking courses as dual enrollment students. This enrollment is restricted to a maximum of 2 courses per semester per student. The written application, application fee of \$50, high school transcript, a teacher and a counselor recommendation from the applicant's high school, and an SAT, SAT I, or ACT score should be sent to the Office of Admission by June 1 for the fall semester or by December 1 for the spring semester. Home-schooled students must demonstrate that they have exhausted all other community resources before applying for dual enrollment at Rice.

Tuition for new students is \$1,105 per semester hour plus a \$120 registration fee, the total not to exceed \$13,250. Tuition for returning dual enrollment students would be the rate (plus increases) at which they first took dual enrollment courses at Rice. These charges are for the 2006–2007 school year and are subject to change in subsequent years. Financial assistance is not available for this program.

Auditors—Any interested person, including currently enrolled students, may audit 1 or more courses at Rice by securing permission of the instructor and by registering as an auditor with the registrar. The university grants no academic credit for such work. The audited course will appear on the student's transcript with the designation AUD. Currently enrolled students may audit courses without charge. Rice alumni are charged a fee of \$300 per course per semester. All others are charged \$595 per course per semester for the privilege of auditing. Request to audit a class or to change from audit to credit or vice versa must be done by the end of the 4th week of the semester.

TUITION, FEES, AND EXPENSES

Charges for tuition, fees, and room and board are billed to students each semester. Students may pay the charges in full by the due date or in installments over the course of the semester. The fall semester due date is August 1 for first-year and mid-August for all others, and the spring semester due date is the 1st week of January. The following costs apply to undergraduates in the 2006–2007 school year:

Tuition	Annual	Semester	Hour ²
Entering 1st-year and transfer students	\$26,500	\$13,250	\$1,105
Students matriculating in 2005–2006	24,600	12,300	1,026
Students matriculating in 2004–2005	23,030	11,515	960
Students matriculating in 2003–2004 ¹	21,000	10,500	875
Students matriculating in 2002–2003 ¹	20,000	10,000	834

¹ Tuition indexed for 5 years from year of matriculation

² By special permission only

Required Fees	Fall	Spring	Annual
Student activities ³	\$ 43.15	\$ 43.15	\$ 86.30
Health services	194.00	194.00	388.00
Total fees	\$237.15	\$237.15	\$474.30

³ 5th-year students in professional degree programs and students working toward a 2nd bachelor's degree pay a reduced student activities fee of \$6.85 per semester, which covers the Student Association, Student Organizations Activity, University Court, and Honor Council portions of the activity fee.

Orientation Week Fees	Fall
O-Week Room and Board–Freshman	\$240.00
O-Week Activity Fee–Freshman	195.00

Room and Board	Annual	Semester
Room	\$6,200	\$3,100
Board	3,390	1,695
Telecommunication	144	72
Off-Campus Board–Plan–'06	1,360	680
Off-Campus Board–Plan–'05	1,000	500

Any undergraduate who matriculated prior to fall 2003 and withdraws or takes an approved leave of absence and then gains readmission to the university pays the tuition applicable at their matriculation, plus annual Consumer Price Index increases for a period not to exceed 5 years. After 5 years, students pay the tuition applicable to the entering class. Indexing does not apply to classes entering after spring 2003.

REFUND OF TUITION AND FEES

Students who withdraw during the first 2 weeks of the semester are not charged tuition or fees for that semester. Students who withdraw during the 3rd week must pay 30 percent of the semester's tuition, receiving a 70 percent refund. The amount of the refund drops by 10 percent at the beginning of each successive week that passes before withdrawal until the 9th week, after which no refund is made. Federal regulations require a refund calculation for all students receiving Title IV funds. The length of time during which a refund must be calculated is up to 60 percent of the payment period (semester). If a student withdraws on or before the 60 percent point in time, a portion of the Title IV funds awarded to a student (Pell Grant, Federal SEOG, Federal Perkins Loan, Federal Subsidized and Unsubsidized loans, Federal PLUS Loans, the Texas LEAP Grant) must be returned, according to the provisions of the Higher Education Act as amended. The calculation of the return of these funds may result in the student owing a balance to the university and/or the Department of Education.

For students withdrawing after the 2nd week of classes in a semester, fees or special charges (see page 46) are not refunded. Similarly, students withdrawing or taking leaves of absence in the spring semester do not receive a partial refund of fees paid for the full year. Students withdrawing at any time forfeit the \$100 enrollment deposit they paid as incoming students.

Students who receive approval to enroll with a course load of fewer than 12 hours and do so within the first 2 weeks of the semester will be charged at the per hour rate plus a part-time registration fee. There are no refunds for part-time enrollment after the first 2 weeks of the semester.

Students unable to resolve with the cashier's office any request for special consideration in connection with waivers, refunds, or adjusted payments on

tuition, fees, and other charges should forward their appeals to the dean of undergraduates. Exceptions are granted by the dean of undergraduates only under extraordinary circumstances.

LIVING EXPENSES

Residence fees cover dining hall costs and residence maintenance. They are established each year as needs dictate. For 2006–07, the annual room and board charge for residence in a residential college is \$9,590. This charge includes the room and all the meals eaten during the year.

Housing—About 71 percent of Rice undergraduates live in the on-campus residential colleges. Information about the residential colleges and room application forms accompany the notice of admission sent to each new undergraduate. Room reservations cannot be made before notification of admission. Further information on housing in the residential colleges is available from the Office of the Dean of Undergraduates, and information on off-campus housing is available from by the Office of Academic Advising.

When they receive their residential college room assignments for the academic year to follow, students must sign a housing agreement. To reserve their space, current students must sign a housing agreement by the date established in their respective colleges but no later than April 15. New students must make a \$50 deposit before May 1. These nonrefundable deposits are applied to the following semester's room and board charges.

Board—Meals are served cafeteria-style and are all-you-care-to-eat. The colleges provide 3 meals per day Monday through Friday, breakfast and lunch on Saturday, and lunch and dinner on Sunday. Meals are not served during the Thanksgiving holiday, at the midyear break, over the fall and spring midterm recesses, and during spring holidays. More information is available from the residential dining website (<http://food.rice.edu>).

Payments and Refunds—Students may pay their residence fee in installments. The exact amounts and due dates appear in the Residential Housing Agreement. Students moving out of the college for any reason receive a refund (or a credit) of the reduced balance of room and board charges but must still pay a termination processing fee. Possible exceptions such as academic suspension, Rice-sponsored study abroad, and family emergencies are treated on a case-by-case basis.

SPECIAL CHARGES

The following charges are separate from the regular fees. For charges because of late registration or course changes made after the deadlines, see Registration (pages 21–24).

Preceptorship per semester	\$220
Internship per semester	220
Study abroad fee per semester	250
Late payment penalty	140
Undergraduate application fee.	50
Part-time registration fee.	120
Orientation Week room and board (coordinators)	175
Late registration fee	115
Failure to register fee	65
Deferred payment plan late fee	35
College withdrawal: suspension	100
College withdrawal: breaking of lease	700

Diploma fee: sheepskin	110
Diploma fee: parchment	35
Diploma fee: facsimile	15
Diploma mailing fee: domestic	28
Diploma mailing fee: air mail	35
Transcript fee	5
Replacement ID	10
Readmission fee after withdrawal for nonpayment	300

HEALTH INSURANCE

All Rice students must have health insurance. Students may purchase insurance for the 2006–07 school year through the university program developed for Rice students at a yearly premium of \$2,150. Coverage is effective from 12:01 AM, August 15, 2006, until 12:01 AM, August 15, 2007. Dependent coverage also is available. A description of the policy, application form, and waiver form can be found on the Web at <http://studenthealthinsurance.rice.edu>. Students should submit either the application or waiver by August 15 each year.

EDUCATION CERTIFICATION PROGRAM FEES

Students enrolling in the student teaching apprenticeship or internship plans must pay a \$220 registration fee for each semester. An additional \$25 fee (paid to the School of Continuing Studies) is due for each summer school session.

DELINQUENT ACCOUNTS

Students in arrears on their financial obligation to Rice as of the last day to add courses for any semester may be withdrawn. The university will not issue certificates of attendance, diplomas, or transcripts at any time for a student whose account is in arrears.

Students who have not made satisfactory arrangements with the cashier for payment of current charges or who have moved on campus without a proper room contract may be withdrawn from the university.

TRANSCRIPTS

Transcripts are issued on written request to the Office of the Registrar. The registrar does not issue transcripts without the consent of the individual. The charge of \$5 for each copy is payable in advance. Those requesting transcripts by mail should include payment with the request.

FINANCIAL AID

The financial aid programs at Rice provide assistance to meet demonstrated need for university attendance for all admitted students. Through grants, endowments, low-interest loans, campus work opportunities, or a combination of these programs, Rice makes every effort to provide students and families assistance to meet their educational expenses. The financial aid program receives funding from many sources. Rice uses contributions from alumni and friends to establish and maintain scholarships and loan funds. Federal and state grant, work, and loan programs also provide funds. Awards are based primarily on financial need and a computed Expected Family Contribution (EFC), although there also are attractive loan opportunities for students and families who demonstrate no need.

The university determines need for first-time students by having them complete the College Scholarship Service (CSS) PROFILE. Students register for CSS PROFILE by visiting its website at www.collegeboard.com. Students will complete the PROFILE online. The PROFILE number for Rice is 6609. First-time students

also complete the Free Application for Federal Student Aid (FAFSA) and submit copies of student and parent income tax and W-2 forms. The FAFSA school code for Rice is 003604.

The university determines need for continuing students by having them complete the FAFSA and the PROFILE; continuing students also submit student and parent income tax and W-2 forms.

“Need” is the amount required to meet the difference between each student’s basic educational expenses and his or her family’s resources. Parents are expected to contribute according to their financial means, taking into account income, assets, home equity, number of dependents, and other relevant factors. Students are expected to contribute as well from their own assets and earnings, including appropriate borrowing against future earnings.

The brochure *Financing Your Education* explains the assistance programs in detail. Copies are available from the Office of Admission.

NEED-BASED APPLICATION PROCESS

Rice University is a need-blind school. Applicants are admitted to the university regardless of their family’s ability to pay for college. Rice will meet 100% of demonstrated financial need as determined by university calculations.

Rice considers applicants for all appropriate assistance administered by the university, including grants, scholarships, loans, and work. Students receive notification of an offer after their financial aid files are complete. Student Financial Services provides financial assistance only for coursework sponsored through Rice University.

To apply for financial assistance, first-time students (including Early Decision students) must submit the following:

- CSS PROFILE, priority date March 1
- Free Application for Federal Student Aid (FAFSA), priority date March 1
- Student and parent income tax and W-2 forms, priority date March 1

Continuing students must submit the following:

- FAFSA, priority date April 15
- CSS PROFILE, priority date April 15
- Student and parent income tax and W-2 forms, priority date April 15

DECISION

Financial aid offers are made annually. Award amounts are specified in the financial aid offer letter. Because financial circumstances change from year to year, Rice conducts an annual review of need and offers aid accordingly. For this reason, continuing students must complete CSS PROFILE and file the FAFSA every year that they seek assistance.

The university, from time to time, may adjust its methods of computing financial need or its policies regarding the types of financial assistance that it offers so as to meet the financial needs of the largest possible number of students. Therefore, the amount and type of financial aid may change from year to year, even when the student’s financial situation appears to remain relatively stable.

TYPES OF FINANCIAL AID AND ASSISTANCE

Need-Based Scholarships/Grants—Various need-based scholarships and grants are awarded to assist students with demonstrated need.

Merit Scholarships—Merit Scholarships are offered through the Office of Admissions to incoming students. Merit scholarships may only be used for coursework sponsored by Rice University. Should a student with a merit award graduate early, unexpended merit funds will not be granted to the student.

Student Loan Funds—To assist students and parents with educational financing, the Office of Student Financial Services participates in the following programs:

- **Stafford Student Loans**—These are low-interest loans made to students attending school on at least a half-time basis. Subsidized Stafford loans require need-based financial aid eligibility, but unsubsidized Stafford loans are available to all students.
- **Parent Loans for Undergraduate Students (PLUS loan)**—The PLUS loan is a low-interest loan to parents or legal guardians of dependent undergraduate students. Eligibility is not based on demonstrated financial need.
- **Federal Perkins Loan Program**—These are low-interest loans made to students attending school on at least a half-time basis and who demonstrate high need.
- **Private Education Loans**—These nonfederal loans are available to students attending school on at least a half-time basis. Eligibility is not based on financial need. These are credit-based loans and may require a co-signer.

A few endowments for student loans have been established at Rice primarily as memorial tributes. These funds exist separately from the normal financial aid program. Rice uses them to make small emergency loans to students experiencing unexpected financial problems or showing additional need beyond regular eligibility.

All requests for these loans must be submitted to the Office of Student Financial Services.

Student Employment Programs—Opportunities for employment are available to students, either on or off campus, during the academic year. Students are eligible to work under the Federal Work-Study Program or the Rice University Work Program. Students interested in employment should access the Student Financial Services webpage at <http://www.ruf.rice.edu/~fina/>.

Deferred Payment Plan—Rice offers a deferred payment plan to enable families to finance students' educational costs. This plan divides each semester's charge over 4 installments. Applications and details are available to eligible students each semester at the time of billing. Students arrange for deferred payment through the Cashier's Office.

Summer Aid—Students who have not exceeded 10 semesters at Rice are eligible to apply for summer aid. The only aid available during the summer session are private educational loans.

FINANCIAL AID ELIGIBILITY

Undergraduate students are eligible to apply for need-based Rice sponsored and federal/state/private aid during the first 8 semesters at Rice; for transfer students the number of semesters is prorated based on the number of hours transferred. If a student is enrolled beyond 8 semesters, the student may apply for federal/state/private aid for an additional 2 semesters. (Architecture students may apply for Rice sponsored aid for 2 semesters following their preceptorship to complete the architecture degree.) If a student attends part time during a semester or withdraws during a term, the semester is counted toward the number of semesters aid is available.

LOAN COUNSELING

Students who are recipients of federal student loans will be required to complete online loan entrance counseling before funds will be credited to student accounts. Students also will be required to complete online exit counseling at the completion of a program of study at Rice. Failure to complete online loan exit counseling will result in a transcript hold.

SATISFACTORY ACADEMIC PROGRESS

The Higher Education Act of 1965, as amended by Congress, mandates that institutions of higher education require minimum standards of “satisfactory academic progress” for students to be eligible to receive financial aid.

To remain in good standing, an undergraduate student must meet the following qualitative and quantitative standards:

Qualitative—A student must earn a minimum term GPA of 1.67 for each term enrolled at Rice University.

Quantitative—By the end of each academic year, a student must have earned a minimum of 24 credits. If a student was enrolled for only 1 term, the student must have earned a minimum of 12 credits.

If a student fails to meet either standard, the next term the student is enrolled the student will be granted aid on a probationary status. During a term in which a student is on financial aid probation, the student must complete a minimum of 12 credits and must earn a term GPA of 1.67 to be considered in good standing and to be eligible to receive aid for the next term enrolled. If a student on financial aid probation does not complete these requirements, then the student’s financial aid eligibility is terminated.

Appeal—A student whose aid eligibility has been terminated after 1 semester of financial aid probation may submit an appeal in writing to Student Financial Services for a 2nd term of financial aid probation. If during that 2nd probation term the student fails to complete 12 credits and earn a term GPA of 1.67, the student’s aid eligibility is terminated, and the student may not appeal for another probationary aid term. In order to regain aid eligibility, the student must complete 12 credits in 1 term with a 1.67 term GPA (or 2.0 GPA at a school without weighted grades) using resources other than aid offered through Rice University to pay affiliated charges.

Financial Aid After Suspension—Students who have been suspended by the university for academic reasons need to be aware that if they are readmitted by the Committee on Examinations and Standing they may not be eligible for financial aid based on their prior academic performance. Students who are petitioning for readmission are advised to contact Student Financial Services to determine their aid eligibility.

RETURN OF TITLE IV FUNDS

Students who receive federal funds as part of their aid packages and do not complete the academic term may be subject to returning a portion of those funds. Contact Student Financial Services for information about “Return of Title IV Funds” policies and procedures.

HONOR SOCIETIES

Honor societies at Rice include the following:

Phi Lambda Upsilon—national honorary chemical society promoting high scholarship and original investigation in all branches of pure and applied chemistry (Rice chapter: 1926)

Phi Beta Kappa—founded in 1776 at the College of William and Mary to recognize intellectual achievement and the love of learning among students in the liberal arts and sciences (Rice chapter: March 1, 1929)

Pi Delta Phi—organized to interest French students in competing for high standing in scholarship (Theta chapter at Rice: May 1930)

Society of Sigma Xi—for the promotion of research in science (Beta of Texas chapter at Rice: March 23, 1938)

Tau Beta Pi Association—organized to interest engineering students in competing for high standing in scholarship (Gamma of Texas chapter at Rice: December 18, 1940)

Delta Phi Alpha—to promote an interest in the German language and literature (Gamma Xi chapter at Rice: April 1949)

Sigma Delta Pi—to promote an interest in the Spanish language and literature (Rice chapter: May 14, 1953)

Tau Sigma Delta—national honor society in architecture and applied arts (Tau chapter at Rice: May 7, 1961)

Eta Kappa Nu—founded in 1904 at the University of Illinois for electrical engineering students to stimulate and reward scholarship as well as assist and encourage its members to grow professionally throughout their lives (Rice chapter: January 1981)

Omicron Delta Epsilon—to promote study in economics (Rice chapter: 1981)

Psi Chi—founded in 1929 at Yale University to encourage, stimulate, and maintain excellence in scholarship and to advance the science of psychology (Rice chapter: April 23, 1990)

Chi Epsilon—the Civil Engineering Honor Society. It serves to recognize students of high scholarship, character, practicality, and sociability. Students are inducted into the society once or twice annually and are selected from the pool of upper division level civil engineering students. (Rice chapter: 1995)

UNDERGRADUATE STUDENT LIFE

RESIDENTIAL COLLEGES

All undergraduate students at Rice, whether they live on campus or not, are members of 1 of 9 residential colleges. All colleges are coeducational.

Each college has faculty masters who live in a house next to the college. Reporting to the dean of undergraduates, the masters have overall responsibility for all aspects of student life in the college, especially for encouraging broad cultural and intellectual interests and for promoting self-discipline and effective self-government within the college. Upon agreement, the students and masters invite other members of the Rice faculty to become resident and nonresident associates of the college. Faculty associates act as advisors to the students and participate in the various activities of the college. Colleges also have nonfaculty university associates and community associates drawn from various professions in the Houston area.

Each college exists as a self-governing group of students. The elected officers and representatives are responsible to the masters and to the college membership for:

- Directing the college's cultural, social, and athletic activities
- Expenditure of college funds
- Maintaining order in the college

While uniformity among the colleges has never been sought and each college has developed its own particular interests and character, all seek to foster fellowship among their members and a mature sense of honor, responsibility, and sound judgment.

College Assignment—Each undergraduate, upon acceptance by the university, is designated a member of one of the colleges. Two students entering Rice for the first time may request assignment to the same college, but they may not designate which college. New students also may request membership in the same college as a close relative. Except for these cases, students have no individual choice of college.

Room and Board—College buildings include a dining hall and public rooms, which are available to both resident and nonresident members, and living quarters for approximately 225 students from all classes and all academic disciplines.

At present, Rice has room in its on-campus residential colleges for about 71 percent of its undergraduate students. Although most of the students who want to live in the colleges can be accommodated, demand usually exceeds the available number of rooms. The university makes every effort to provide housing in the colleges for all incoming first-year students who wish to live on campus, but space cannot be guaranteed. Continuing students draw for rooms according to the priority system established in each college. No student is required to live on campus; however, those members of the colleges who live off campus are encouraged to eat in their colleges and to participate in college activities.

The College Food Service provides à la carte meals, with the exception of prepaid dinners. Its other services include:

- Assistance with special diets prescribed by a physician
- Sack lunches for students who must miss a meal due to a job conflict
- Sick trays for students when requested by the Student Health Service
- Alternate menu entrées, whenever possible, to accommodate students' religious practices

For more information on room and board, see page 45.

College Courses—One of the colleges' important activities is their sponsorship of courses and workshops open to all students. By expanding course offerings outside the traditional departments, college courses promote the academic involvement of the colleges while introducing students to interdisciplinary topics of particular interest.

Students propose college courses during the semester before they are offered. Once approved by the masters and faculty associates of the college and by the dean of undergraduates and the provost, these college courses are offered for academic credit on the same basis as departmental courses. The registrar provides a list of college courses each semester during preliminary registration.

STUDENT GOVERNMENT

All undergraduates are members of the Rice Student Association, which is governed through the Student Senate. The senate includes the president, 2 vice presidents, the secretary, the treasurer, the 9 college presidents, and 9 college senators.

Alleged violations of university or college rules are handled in accordance with the Code of Student Conduct. In most cases, original jurisdiction belongs to student courts. Students may appeal verdicts to the college masters or the assistant dean for student judicial programs, as appropriate, with a final appeal to the dean of undergraduates. The student-staffed Honor Council conducts

hearings and trials for alleged offenses against the honor system (see page 8). Rice retains ultimate authority in all matters of discipline and over all actions that affect its educational function or the safety and well-being of members of the university community.

Award Presentations—The Rice Student Association presents 2 coveted awards annually, one to a student and one to a faculty or staff member. The Rice Service Award, a memorial to Hugh Scott Cameron, first dean of students at Rice, is awarded to currently enrolled or former members of the association who have rendered distinguished service to the student body. The Mentor Recognition Award recognizes extraordinary service to the student body by a current member of the faculty or staff. A committee of faculty and students appointed by the association makes the selections.

OFFICE OF STUDENT ACTIVITIES

The Office of Student Activities, located in the Rice Memorial Center cloisters, oversees the activities of various campuswide student organizations. It also handles student requests for facilities and party permits, and it coordinates leadership development programs, including the annual leadership retreat and symposium.

Principal student organizations include the following:

- Rice Student Association, the student governing body
- Rice Program Council, which sponsors various events of current interest to the student body as well as social functions
- KTRU, the student-run radio station, operating 24 hours, 7 days a week, on 91.7 FM
- Student publications (e.g., *Rice Thresher*, the student newspaper; *Campanile*, the yearbook; *The Rice Undergraduate: The Annual Academic Review*, a collection of peer-reviewed student papers; and *University Blue*, a literary and visual arts publication)

A large number of student organizations address special student interests, such as the Black Student Association, the Hispanic Association for Cultural Education at Rice, the Chinese Student Association, Rice Young Democrats, and Rice Republicans. There also are numerous clubs for such sports as sailing, rugby, lacrosse, volleyball, and soccer. Other special-interest groups include a premed society, forensic society, juggling club, and vegetarian club.

Many organizations are associated with special academic and professional disciplines, such as foreign language clubs, honor societies, and student affiliates of the American Chemical Society, the American Society of Civil Engineers, and the American Society of Mechanical Engineers.

The Rice Players, an extracurricular theater group of Rice students, faculty, and staff, present at least 4 productions each year and welcome participation by anyone interested in any aspect of theater production or management.

Rice students also maintain affiliations with a number of religious organizations. These include, but are not limited to, the Baptist Student Union, Canterbury Association, Catholic Student Association, Christian Science Organization, Hillel Society, Lutheran Student Association, Intervarsity Christian Fellowship, and the Wesley Foundation. Many of these clubs are assisted by local clergy who form the Joint Campus Ministry.

The Office of Student Organizations on the second floor of the Ley Student Center houses mailboxes for all student organizations. There is a student organization work space in the basement of the Rice Memorial Center that has office space, storage, and computers for student organization use.

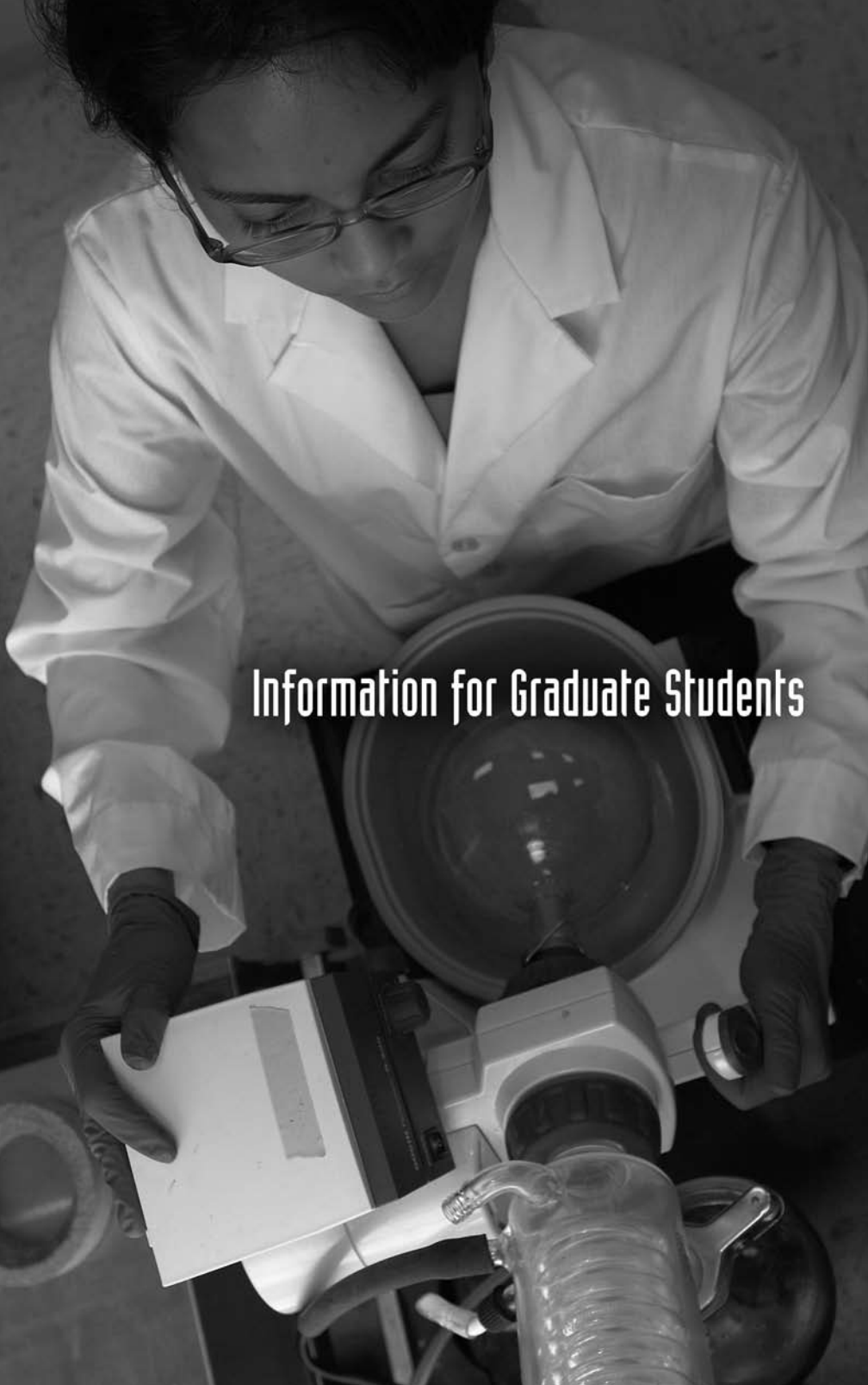
COMMUNITY INVOLVEMENT CENTER/RICE STUDENT VOLUNTEER PROGRAM

Housed in the cloisters of the Rice Memorial Center, the Community Involvement Center works to develop a culture of service within the university by functioning as an advocate for community service, social responsibility, and an increased awareness of social and community issues. The center acts as a clearinghouse for resources and referrals involving local, national, and international community agencies and service opportunities. By making educational programs and information available, the center fosters a lifelong commitment to service among students, faculty, and staff. It also organizes alternative semester break service trips, volunteer fairs, beach cleanups, and other activities. The 10 student service organizations supported by the Community Involvement Center include Rice Habitat for Humanity, youth mentoring and tutoring programs, tutoring in English as a second language, Best Buddies, and the Rice Student Volunteer Program.

By heightening student awareness of community needs and generally raising social consciousness, the Rice Student Volunteer Program (RSVP) has organized volunteer projects for Rice students, faculty, and staff since 1985. The largest event of each semester is Outreach Day, a Saturday when approximately 500 students volunteer with more than 30 nonprofit agencies throughout the Houston area, learning how to take thoughtful action to build a stronger, more just community. With an office in the cloisters of the Rice Memorial Center, RSVP invites each student's involvement as an officer, a college representative, a committee member, a project organizer, or an interested participant in any RSVP event.

INTERCOLLEGIATE SPEECH AND DEBATE

Consistently ranked in the top 10 nationally, the George R. Brown Forensic Society sponsors competition in the categories of Individual Events, Lincoln-Douglas, and Parliamentary Debate. The society provides students with the chance to hone their public speaking skills and to qualify for competition both at the American Forensic Association National Individual Events Tournament and at the National Parliamentary Debate Championships. Recognizing the importance of developing strong communication skills, the society has an open admissions policy, inviting students with little or no previous experience as well as those with extensive high school backgrounds to become members of one of the most successful teams at Rice. For more information on speech and debate, please go to <http://www.ruf.rice.edu/~forensic/eventinfo/>.



Information for Graduate Students

INTRODUCTION

Since Rice opened in 1912, the university has recognized the importance of graduate study and research as a principal means of advancing knowledge. The first doctor of philosophy degree was awarded in 1918 in mathematics. Since that time, the graduate area has expanded to encompass the schools of architecture, engineering, humanities, management, music, natural sciences, and social sciences, as well as interdepartmental areas. The graduate program has steadily increased over time; Rice now enrolls approximately 1,900 graduate students and offers advanced degrees in 29 fields of study.

Graduate programs lead to either research or professional degrees. Research programs generally require the completion of a publishable thesis that represents an original and significant contribution to the particular field of study. Research degrees include the doctor of philosophy (PhD), doctor of architecture (DArch), master of arts (MA), and master of science (MS).

Professional programs provide advanced course work in several disciplines but do not generally include independent research. These programs lead to degrees in most of the major schools, including many engineering disciplines. (See the Graduate Degree Chart and the Interdepartmental and Cooperative Programs Chart on pages 59–63 for a complete listing of degrees offered.)

All degrees conferred by the university are awarded solely in recognition of educational attainments and not as warranty of future employment or admission to other programs of higher education.

For additional information on graduate programs and requirements, please go to <http://rgs.rice.edu>.

ADMISSION TO GRADUATE STUDY

Graduate study is open to a limited number of extremely well-qualified students with a substantial background in their proposed field of study (this usually, though not always, means an undergraduate major in the field). Each department determines whether applicants have enough preparation to enter a given program, emphasizing the quality of their preparation rather than the particular academic program they completed or the credits they earned.

Admittance to a Rice University graduate-degree program, with the exception of those in the School of Music, requires a baccalaureate degree or its equivalent as determined by the Office of Graduate Studies. For the Shepard School of Music, the equivalent to the baccalaureate degree will be determined by its graduate committee.

Applicants for admission to graduate study should either contact the appropriate department for application forms and relevant information about the program or visit the department's website for online application information. The Graduate Studies website, <http://rgs.rice.edu>, also has links to the graduate departments' websites. The Graduate Degree and Department Information Chart (pages 59–62) lists department chairs with department phone/fax numbers and email addresses. Applicants should send all application materials, including transcripts and test scores, to the admitting department.

Application Process—An application for graduate study should include the completed application form, the application fee, transcript(s), recommendations, and writing samples, if required. Some departments require scores on the aptitude portion of the Graduate Record Examination (GRE) or the Graduate Management Admission Test (GMAT) and an appropriate advanced test. The ETS school code for Rice is 6609; in addition, applicants should send their test scores directly to the admitting department. See individual departmental listings for specific requirement information.

To make sure scores are available when admission decisions normally are made, applicants should take the GRE by the December before the fall for which they are applying. The application deadline for the fall semester is February 1. Some departments, however, may specify an earlier deadline, and departments may occasionally consider late applications.

Admission depends on students' previous academic records, available test scores, and letters of reference from scholars under whom they have studied. Writing samples, portfolios, or statements of purpose also may be required. In general, applicants should have at least a 3.00 (B) grade point average in undergraduate work. Applicants whose native language is not English must take the TOEFL test and should score at least 90 on the iBT TOEFL, at least 600 on the paper-based TOEFL, or at least 250 on the computer-based TOEFL. For those students who choose to take the IELTS in lieu of TOEFL, the minimum score is 7. The TOEFL school code for Rice is 6609. The TOEFL and IELTS may be waived for an international student who has received a degree from a university in which English is the official language of communication. Departments must send a justification letter for waiving the TOEFL test requirement to the Office of International Students and Scholars.

GRADUATE DEGREES

RESEARCH DEGREES

Research degrees are offered in 6 of the 7 schools at Rice (the School of Management offers professional degrees only), with some degrees combining studies in more than 1 school. For general information on advanced degree work at Rice, see Requirements for Graduate Study (pages 64–68). Specific requirements for advanced research degrees in each field of study appear in the appropriate departmental pages (pages 78–270). Students seeking additional material should contact the appropriate department (see Graduate Degree and Department Information Chart on pages 59–63).

PhD Programs—The PhD degree is awarded for original studies in the departments listed in the Graduate Degree and Interdepartmental and Cooperative Programs Charts (page 63); in architecture, the equivalent degree is the DArch. Candidates receive a PhD degree after successfully completing at least 90 semester hours of advanced study and concluding an original investigation that is formalized in an approved thesis. As final evidence of preparation for this degree, the candidate must pass a public oral examination. (See also Candidacy, Oral Examinations, and the Thesis Regulations on pages 65–67.) The residency requirement for the doctorate is 4 semesters of full-time study at the university.

Master's Programs—The MA degree is available in the departments listed in the Graduate Degree and Interdepartmental and Cooperative Programs Charts (page 63), including certain scientific fields of study. The MS degree is offered in the engineering and science fields also listed in the chart. Candidates may undertake the MArch, MArch in Urban Design, and MMus degrees as research degrees by adopting the thesis option. Candidates receive a master's degree after completing at least 30 semester hours of study (including thesis hours), 24 hours of which must be taken at Rice. Master's programs require original work reported in a thesis and a public oral examination. Most students take 3 or 4 semesters to complete a master's degree (some programs may require more time). Students receiving a master's degree must be enrolled in a graduate program at Rice University for at least 1 semester of full-time study.

Students also may pursue a nonthesis degree in certain departments. This degree would be based on alternative departmental requirements and would include, but not be limited to, the following:

- 30 semester hours of study
- 24 semester hours must be at Rice University
- Minimum residency is one semester of full-time graduate study
- At least 15 hours of course work must be at or above the 500 level
- All courses must be in the relevant field

In certain departments, students may receive a master's degree (called an *Automatic Master's*) when they achieve candidacy for the doctoral degree. Students seeking a master's degree in this manner must submit a petition for the degree, signed by their department chair, to the Office of Graduate Studies by February 1 of the year in which the degree is to be awarded. (See also Candidacy, Oral Examinations, and the Thesis on page 65.)

PROFESSIONAL DEGREES

Rice University offers advanced degree programs to prepare students for positions in a number of professional fields. The professional degrees offered appear in the Graduate Degree and Interdepartmental and Cooperative Programs Charts (pages 59–63). In some departments, the professional degree also prepares the student for a doctoral-level program. All professional degrees are master's degrees with one exception: candidates earn the DMA after concluding a program of advanced music study.

Requirements for professional degrees include the successful completion of 30 semester hours or more of upper-level courses (at the 300 level or higher) with at least 24 hours taken at Rice. Minimum residency for all master's degrees is 1 semester of full-time study. Specific information and requirements for individual degrees appear in the Graduate Degree Chart (pages 59–63). Program information and application materials also are available from the departments (see Graduate Degree and Department Information Chart on pages 59–63). For general information on advanced degree work at Rice, see Requirements for Graduate Study (pages 64–67).

Rice undergraduate students who wish to enter a professional master's degree program should apply for admission through the normal procedures and in accordance with the normal timetables for application to such programs. While the GRE requirement may be waived in these cases, the authority for the waiver rests with the department. Departments may consider counting courses taken by the students while an undergraduate as credit toward the degree. The courses must be chosen from those that normally satisfy requirements toward the professional master's degree. No course can be used, however, simultaneously to satisfy an undergraduate and a graduate degree requirement. The department has authority to accept or reject a particular course for graduate credit. When an offer of admission is made, the department's offer letter should indicate that graduate financial aid and tuition waivers are not available to professional master's students. In addition, the department also must include in the offer letter a list of those courses taken by the student as an undergraduate that the department will accept for graduate course credit.

Admission into a professional program is granted separately from admission into a research or thesis program. Students who wish to change from a thesis program to a professional degree program must petition their department in writing. Upon recommendation of the department and approval by the dean's office, the request is sent to the Office of Graduate Studies for consideration and final approval. If approved, students who received tuition waivers while enrolled in the thesis program will be expected to repay the tuition before their professional degrees are awarded. Professional degree programs terminate when the degree is awarded. Students who wish to continue graduate study after completing a professional program must reapply for admission into a research program.

GRADUATE DEGREE AND DEPARTMENT INFORMATION CHART

School Department and Department Chair	Graduate Degree Offered and Contact Information	Additional Options or Areas of Concentration (within majors)
SCHOOL OF ARCHITECTURE		
Lars Lerup (Dean) John J. Casbarian (Associate Dean)	MARCH, MARCH in Urban Design, DArch 713-348-4044 fax: 713-348-5277 arch@rice.edu 713-348-5152 www.arch.rice.edu/flash/	Architecture design, urbanism, theory, and practice
SUSANNE M. GLASSCOCK SCHOOL OF CONTINUING STUDIES		
Mary McIntire (Dean) John W. Freeman (MLS Director)	Master of Liberal Studies 713-348-4767 fax: 713-348-5213 mls@rice.edu www.mls.rice.edu	Humanities, science, and social sciences
GEORGE R. BROWN SCHOOL OF ENGINEERING		
Bioengineering Rebecca Richards-Kortum	MBE, MS, PhD 713-348-5869 fax: 713-348-5877 bioeng@rice.edu www.bioe.rice.edu	Biomedical imaging and diagnostics, cellular and biomolecular engineering, computational and theoretical bioengineering, drug delivery and biomaterials, supramolecular biophysics and bioengineering, tissue engineering and biomechanics, and metabolic engineering.
Chemical and Biomolecular Engineering Kyriacos Zygourakis	MChE, MS, PhD 713-348-4902 fax: 713-348-5478 chbe@rice.edu www.ruf.rice.edu/~che/	Catalysis and nanotechnology, thermodynamics and phase equilibria, interfacial phenomena, colloids, microemulsions, rheology and fluid mechanics, biosystems engineering, biocatalysis and metabolic engineering, cell population heterogeneity and biological pattern formation, cellular and tissue engineering, energy and sustainability, gas hydrates, enhanced oil recovery, reservoir characterization, and pollution control
Civil and Environmental Engineering Pedro Alvarez	MCE, MEE, MES MS, PhD 713-348-2353 fax: 713-348-5268 ceve@rice.edu www.ceve.rice.edu	Civil engineering: structural dynamics and control, structures and mechanics, reinforced and prestressed concrete, geotechnical engineering, computer-aided engineering, probability and random vibrations, reliability of systems, and solid mechanics Environmental science: environmental biology, chemistry, toxicology, geology, and planning; surface and groundwater hydrology; water and wastewater treatment; and urban and regional air quality. Environmental engineering: hydrology and water resources engineering; water and wastewater treatment, design, and operation; and numerical modeling
Computational and Applied Mathematics Dan Sorenson	MCAM, MCSE, MA, PhD 713-348-4805 fax: 713-348-5318 caam@rice.edu www.caam.rice.edu/	Numerical analysis, operations research, and differential equations; additional program in computational science and engineering (see Interdepartmental and Cooperative Programs)
Computer Science Keith Cooper	MCS, MS, PhD 713-348-4834 fax: 713-348-5930 comp@rice.edu www.cs.rice.edu/	Algorithms and complexity, artificial intelligence and robotics, bioinformatics, compilers, distributed and parallel computation, graphics and visualization, operating systems, and programming languages

Electrical and Computer Engineering Behnaam Aazhang	MEE, MS, PhD 713-348-4020 fax: 713-348-5686 elec@rice.edu www.ece.rice.edu	Communication and signal processing, computer architecture and networking, electro-optics, and device physics
Mechanical Engineering and Materials Science Enrique V. Barrera	MME, MMS, MS, PhD 713-348-4906 mems@rice.edu www.mems.rice.edu/	Mechanical engineering: mechanics, computational mechanics, stochastic mechanics, fluid dynamics, heat transfer, dynamics and control, robotics, biomedical systems, and aerospace sciences. Materials science: nanotechnology, metals physics, statistical mechanics, metallic solid thermodynamics, materials chemistry, aspects of composites, coatings and thin films, and interface science
Statistics Katherine B. Ensor	MStat, MA, PhD 713-348-6032 fax: 713-348-5476 stat@rice.edu www.stat.rice.edu/	Applied probability, Bayesian methods, bioinformatics, biomathematics, biostatistics, data analysis, data mining, density estimation, epidemiology, environmental statistics, financial statistics, image processing, model building, nonparametric function estimation, quality control, risk management, spatial temporal statistics, statistical computing, statistical genetics, statistical visualization, stochastic processes, and time series analysis

SCHOOL OF HUMANITIES

Education:	713-348-4826 www.education.rice.edu	Secondary education (See Education Certification below)
English Helena Michie	MA, PhD 713-348-4840 fax: 713-348-5991 englgrad@rice.edu www.english.rice.edu	British and American literature and literary theory
French Studies Jean-Joseph Goux	MA, PhD 713-348-4851 fax: 713-348-5951 fren@rice.edu www.ruf.rice.edu/~fren/	French literature, language, and culture
Hispanic Studies Maarten Van Delden	MA 713-348-5451 fax: 713-348-4863 span@rice.edu www.hispanicstudies.rice.edu	Spanish and Latin American literature and Spanish linguistics
History Martin J. Wiener	MA, PhD 713-348-4948 fax: 713-348-5207 hist@rice.edu www.history.rice.edu/	U.S., European, and other history
Linguistics Masayoshi Shibatani	MA, PhD 713-348-6010 fax: 713-348-4718 ling@ruf.rice.edu www.linguistics.rice.edu/	Anthropological, applied, cognitive, field, functional or discourse, and English, German, or Romance linguistics; second language acquisition; language typology and universals, sociolinguistic, phonetics, phonology, and speech technology
Philosophy Steven Crowell	MA, PhD 713-348-4994 philos@rice.edu www.philosophy.rice.edu	Specialization in medical ethics, value theory, and history of philosophy

Religious Studies	PhD	Religion and contemporary cultures; scriptural interpretation; ethics and philosophy of religion; mysticism, psychology, and religious practices
Jeffrey Kripal	713-348-5201 fax: 713-348-5486 reli@rice.edu www.reli.rice.edu/	

JESSE H. JONES GRADUATE SCHOOL OF MANAGEMENT

William H. Glick (Dean)	MBA	MBA is a general management degree; however, students may have informal concentrations in the following areas: accounting, entrepreneurship, finance, general management, international business, information technology, marketing, operations management, organizational behavior and human resource management, healthcare management, and strategic management and planning; joint nonthesis degree option with all engineering disciplines
George Kanatas (Associate Dean)	MBA/Master of Engineering MBA/MD (with Baylor College of Medicine)	
Jeff Fleming (Associate Dean)	MBA for Executives MBA for Professionals 713-348-5260 ricemba@rice.edu www.jonesgsm.rice.edu/ Office of Executive Development 713-348-5396 oed@rice.edu	

SHEPHERD SCHOOL OF MUSIC

Robert Yekovich (Dean)	BMus/MMus, MMus, DMA 713-348-4854 fax: 713-348-5317 musi@rice.edu www.ruf.rice.edu/~musi	Composition, choral, and instrumental conducting, historical musicology, performance, and music theory Composition and selected areas of performance

WIESS SCHOOL OF NATURAL SCIENCES

Biochemistry and Cell Biology	MA, PhD	Biochemistry, biophysics, developmental biology, cell biology, genetics, molecular biology, neurobiology, structure and function of nucleic acids and proteins, regulatory processes, biochemistry of lipids, enzymology, NMR and crystallography, cellular regulation, oxygen and electron transport, molecular genetics of plants, animals, fungi, bacteria, and bacteriophage
George Bennett	713-348-4015 fax: 713-348-5154 bioc@rice.edu biochem.rice.edu	
Chemistry	MA, PhD	Organic chemistry, inorganic chemistry, physical chemistry, nanotechnology, biological chemistry, theoretical and computational chemistry, materials chemistry, bio-organic chemistry, and bio-inorganic chemistry
Kenton H. Whitmire	713-348-5650 fax: 713-348-5155 chem@rice.edu www.chem.rice.edu	
Earth Science	MA, PhD	Marine geology and geophysics; sedimentology, stratigraphy, paleoceanography, paleoclimatology, and evolution of continental margins and carbonate platforms; tectonics, neotectonics, tectonophysics, geodynamics, mantle processes, planetology, and space geodesy; remote sensing, potential fields, reflection and lithospheric seismology, global seismology, wave propagation and inverse theory; kinetics of fluid-solid interactions, low T aqueous geochemistry, petrology, and high T geochemistry, hydrogeology, sediment deformation, carbon cycling, and terrestrial-biosphere interactions
Alan Levander	713-348-4880 fax: 713-348-5214 geol@rice.edu www.earthscience.rice.edu/	

Ecology and Evolutionary Biology Joan Strassmann	MA, MS, PhD 713-348-4919 fax: 713-348-5232 eeb@rice.edu www.eeb.rice.edu	Ecology, plant and insect communities, populations, diversity, mutualisms, invasive species, evolution, quantitative genetics, mate choice, speciation, molecular evolution, adaptive evolution, behavioral ecology, sociobiology, genomics, and microbial evolution
Mathematics Michael Wolf	MA, PhD 713-348-4829 fax: 713-348-5231 math@rice.edu www.math.rice.edu	Differential and algebraic geometry, ergodic theory, partial differential equations, probability and combinatorics, real analysis, complex variables, geometric and algebraic topology, mathematical physics
Physics and Astronomy F. Barry Dunning	MST, MS, PhD 713-348-4938 fax: 713-348-4150 physics@rice.edu www.physics.rice.edu/	Atomic and molecular physics, biophysics, particle physics, condensed matter physics, surface physics, space physics, astronomy, astrophysics, and theoretical physics

SCHOOL OF SOCIAL SCIENCES

Anthropology James D. Faubion	MA, PhD 713-348-4847 fax: 713-348-5455 anth@rice.edu www.ruf.rice.edu/~anth/	Archaeology, anthropological linguistics, social/cultural anthropology, theory, history, and global change
Economics Hervé Moulin	MA, PhD 713-348-2289 econ@rice.edu www.ruf.rice.edu/~econ/	Econometrics, economic theory, industrial organization and regulation, international trade and finance, labor, macroeconomics/monetary theory, and public finance and development
Political Science Rick K. Wilson	MA, PhD 713-348-4842 poli@rice.edu www.ruf.rice.edu/~poli/	American government, comparative government, and international relations
Psychology Stephan J. Motowidlo	MA, PhD 713-348-4856 fax: 713-348-5221 psyc@rice.edu www.ruf.rice.edu/~psyc/	Cognitive-experimental psychology and industrial-organizational/social psychology, with tracks in engineering psychology, human-computer interaction, and neuropsychology

EDUCATION CERTIFICATION

Meredith Skura	713-348-4826 Fax: 713-348-5459 educ@rice.edu www.education.rice.edu/	Secondary education

INTERDEPARTMENTAL AND COOPERATIVE PROGRAMS

Opportunities for graduate study are available in a number of interdisciplinary areas. The advanced degree programs listed in the Interdepartmental and Cooperative Programs Chart (below) are administered by the participating Rice departments. They represent fields of study in rapidly developing areas of science and engineering or those areas subject to multiple investigations and interests. Rice also has established ties with other Houston universities and the Texas Medical Center to enable graduate students to receive training in computational biology research, to earn separate degrees simultaneously, or to focus their doctoral study on the specialized field of medical ethics.

INTERDEPARTMENTAL AND COOPERATIVE PROGRAMS CHART

Program	Degrees Offered	Departments/Areas of Concentration
INTERDEPARTMENTAL PROGRAMS		
Applied Physics	Master's, PhD	Departments of physics and astronomy, chemistry, electrical and computer engineering, mechanical engineering and materials sciences, bioengineering, computational and applied mathematics, chemical and biomolecular engineering, and civil and environmental engineering; sciences that underlie important new and emerging technologies. Contact: Rice Quantum Institute, 713-348-6356 or ycreed@rice.edu
Computational Science and Engineering	MS, PhD	Modern computational techniques and use of powerful, new computers in research, development, and design involving the following departments: computational and applied mathematics, biochemistry and cell biology, earth sciences, computer science, chemical and biomolecular engineering, electrical and computer engineering, civil and environmental engineering, and statistics. Contact: 713-348-4657 or caam@caam.rice.edu
Education Certification	MAT	Secondary teaching certification in conjunction with BA in major field
Environmental Analysis and Decision Making	MS	Departments of computational and applied mathematics, statistics, civil and environmental engineering, chemistry, earth science, ecology and evolutionary biology, mechanical engineering and materials science, chemical and biomolecular engineering, sociology, electrical and computer engineering, management, and natural sciences. Contact Professional Master's Program: 713-348-3188 or profms@rice.edu
Master of Liberal Studies	MLS	Susanne M. Glasscock School of Continuing Studies/ Humanities, Sciences, and Social Sciences. Contact: 713-348-4767 or mls@rice.edu
Materials Science and Engineering	MS, PhD	Departments of chemistry, electrical and computer engineering, mechanical engineering and materials science, chemical and biomolecular engineering, and physics and astronomy. Contact: 713-348-4906 or mems@rice.edu
Nanoscale Physics	MS	Departments of physics and astronomy, electrical and computer engineering, chemistry, management, and natural sciences. Contact Professional Master's Program: 713-348-3188 or profms@rice.edu
Study of Women, Gender, and Sexuality	Graduate Certificate	Departments in anthropology, English, French, history, linguistics, philosophy, psychology, and religious studies
Subsurface Geoscience	MS	Departments in earth science, chemistry, statistics, management, sociology, and natural sciences. Contact Professional Master's Program: 713-348-3188 or profms@rice.edu
COOPERATIVE PROGRAMS		
Joint Program in Computational Biology	Training opportunities for PhD students	Research in a lab setting, seminars, and workshops and access to advanced resources of W.M. Keck Center for Computational Biology (fellowships available); with Baylor College of Medicine and the University of Houston. Contact: 713-348-4752 or bioc@rice.edu
Joint Programs with Medical Colleges	MD/PhD, MD/MA, MD/MS	Combined MD and advanced research degree for research careers in medicine; with Baylor College of Medicine. Contact: 713-348-5869 or bioeng@rice.edu

ACADEMIC REGULATIONS

FINAL EXAMINATION IN GRADUATE COURSES

Graduate courses, especially those with significant undergraduate student enrollment, should follow the guidelines for undergraduate courses (pages 28–29) regarding scheduling of projects, papers, and finals during the last weeks of classes, reading periods, and final exam periods. However, instructors have the discretion to modify those guidelines as appropriate for their specific courses. Such modifications and the final schedule must be made clear at the beginning of the semester.

REQUIREMENTS FOR GRADUATE STUDY

Graduate students must meet the following minimums, deadlines, and course or grade requirements to graduate in good standing from the university. Some departments may have stricter policies and/or requirements.

Residency—Master's students must complete at least 1 semester enrolled in full-time study in a graduate program at Rice University. PhD students must be enrolled at least 4 semesters in full-time study at Rice University.

Full-time Study—Semester course load for full-time students is 9 hours or more as required by specific departments. Graduate programs at Rice generally require full-time study. Students wishing to enroll for less than full time or wishing to drop below full time during the semester must receive written permission from their academic department, and that written approval must be forwarded to the Office of Graduate Studies.

Part-time Study—Admission of part-time students requires departmental permission, and students must register for at least 3 hours in a semester. All time-to-degree requirements apply to part-time students.

Time to Degree—PhD students are required to complete their program, including thesis defense, within 10 years of initial enrollment in the degree program. All masters students are required to complete their program, including thesis defense, within 5 years of initial enrollment. In both cases, students have a limit of 6 additional months from the date of defense to submit their theses to the Office of Graduate Studies. These time boundaries include any period in which the student was not enrolled or enrolled part time, for whatever reason.

Time to Candidacy—PhD students must be approved for candidacy before the beginning of the 9th semester of their residency at Rice. Masters students must be approved for candidacy before the beginning of the 5th semester of their residency at Rice.

Time to Defense—PhD students must defend their theses before the end of the 16th semester of their residency at Rice. Masters students must defend their theses before the end of the 8th semester of their residency at Rice.

Time to Thesis Submission—After candidates successfully pass the oral examination in defense of the thesis, they must submit 2 signed copies of the thesis to the Office of Graduate Studies no later than 6 months from the date of the examination.

Credit for Previous Degrees—For students who enter a doctoral program with a master's degree, completed at Rice or elsewhere, departments should determine the amount of previous work, if any, that will be counted from the master's degree at issue toward the doctoral degree. Any such credit of 1 semester or more toward doctoral requirements will result in an equal

reduction of the time allowed for (1) the achievement of candidacy, (2) the defense of the PhD thesis, and (3) the total time to the doctoral degree. The maximum credit allowed for students with master's degrees from Rice will be 6 semesters, and the maximum credit allowed for students with master's degrees from outside Rice will be 2 semesters.

Minimum Hours—Students must register for at least 3 hours in a semester.

Course Registration—Students may register for courses of study and drop or add courses only with the approval of their advisor or the department chair.

Deadlines—Students must observe all deadlines listed in the Academic Calendar (pages viii–xiv).

Grades—To graduate, students must achieve at least a B- (2.67) grade point average in courses counted toward the graduate degree. Some programs and departments have more stringent standards. To compute grade point averages, the credits attempted in semester hours for each course and the points for the grade earned (from A+ = 4.33 to F = 0.00) are multiplied, then the products (1 for each course) are added together, and the sum is divided by the total credits attempted. See also Probationary Status (page 69).

Pass/Fail—All students, except Class III students, may take course(s) Pass/Fail outside their department. They must file a course as Pass/Fail no later than the end of the 10th week of classes; however, they may later convert a Pass/Fail to a graded course by filing the appropriate paperwork with the registrar. Students should be aware that while a grade of P does not affect their Grade Point Average, a grade of F does.

Satisfactory/Unsatisfactory—Some departments may assign a grade of S or U. Students should be aware that while a grade of S or U does not affect their Grade Point Average, no credit will be awarded if a grade of U is received. Courses with a grade of S will count towards total credits earned. Class III students cannot take courses on a satisfactory/unsatisfactory grading basis.

Departmental Duties—In most research degree programs, students must undertake a limited amount of teaching or perform other services as part of their training. Assigned duties should not entail more than 10 hours per week, averaged over the semester, or extend over more than 8 semesters.

Research and Scholarly Activities—Research and other scholarly activities of all students must be compliant with Rice University policies. It is recommended that students familiarize themselves with these policies before embarking on research or other scholarly activities. Particularly pertinent to students are policy 324–00 (Research Misconduct), policy 326–98 (Human Health and Safety in the Performance of Research), policy 333 (Patent and Software Policies), and policy 334 (Copyright Policy).

Employment—Students receiving a stipend may accept employment only with the approval of their home academic department. Students working for more than 20 hours per week are not normally eligible for full-time status.

Continuous Enrollment—Students must maintain continuous program involvement and enrollment unless granted an official leave of absence. See Leaves or Withdrawals (page 68) for more information.

CANDIDACY, ORAL EXAMINATIONS, AND THE THESIS

Approval of Candidacy—Candidacy marks a midpoint in the course of graduate education. Achieving candidacy for the PhD implies that a graduate student has: (a) completed required course work, (b) passed required exams to demonstrate his/her comprehensive grasp of the subject area, (c) demonstrated

the ability for clear oral and written communication, and (d) shown the ability to carry on scholarly work in his/her subject area. Requirements for achieving candidacy for the thesis master's degree are determined at the departmental level. Students enrolled in research degree programs submit their petitions for candidacy for a master's or doctoral degree through the department chair to the vice provost for research and graduate studies. In the petition sent to the vice provost, the department chair identifies the student's thesis director, recommends a thesis committee, certifies that the applicant has fulfilled the departmental requirements, and provides a course transcript as evidence that work completed within the department is of high quality.

Students must file their applications for approval of PhD and MA/MS candidacy in the Office of Graduate Studies on or before November 1 for midyear conferral and on or before February 1 for May commencement. Students may take the final oral examination in defense of their thesis only after the vice provost for research and graduate studies approves their candidacy. PhD students must be approved for candidacy before the beginning of the ninth semester of their residency at Rice. Master's students must be approved for candidacy before the beginning of the fifth semester of their residency at Rice.

Thesis Committee—The thesis committee administers the oral examination for the student's thesis defense and has final approval/disapproval authority and responsibility for the written thesis.

A thesis committee is composed of at least three members. Two, including the committee chair, must be members of the student's department faculty; in doctoral thesis committees 1 member must have his or her primary appointment in another department within the university. At least 3 members of the committee must meet 1 of the following requirements:

- Tenured or tenure-track members of the Rice faculty
- Research faculty holding the rank of faculty fellow, senior faculty fellow, or distinguished faculty fellow
- Faculty who have been certified as thesis committee members by the vice provost for research and graduate studies

The committee chair need not be the thesis director. The chair, however, must be either a tenured or tenure-track member of the major department or a research faculty member of the major department. Additional members of the committee, who may or may not meet the above criteria, may be selected with the approval of the department chair. These would be in addition to the three required members.

Candidates are responsible for keeping the members of their committee informed about the nature and progress of their research. They also must establish a schedule for thesis completion and review. The members of the committee, in turn, should review the thesis in a timely manner, approving a preliminary form of the thesis before scheduling the oral examination.

Oral Examination in Defense of Thesis—The public oral defense of a thesis is intended to be an examination of a completed body of work and should be scheduled only when the dissertation is essentially completed. The defense should be scheduled by the student after consultation with the thesis advisor, who agrees that the thesis is completed and ready to be defended. All members of the thesis committee must be present for the oral defense. A candidate must be enrolled in the semester in which his or her oral examination is held. For the purpose of the oral defense only, enrollment in a semester is considered valid through the Friday of the first week of class of the following semester.

At least 1 copy of the thesis must be available in the departmental office not less than two calendar weeks prior to the date of the oral defense. Oral examinations for the doctoral degree must be announced at least 2 weeks in advance. Oral examination announcements are to be submitted to the Office of Graduate Studies by entering the information into the Graduate Students Thesis Defense Announcement form at <http://www.rice.edu/thesis/>. An automatically generated email will be sent to the Office of Research and Graduate Studies once the defense form has been submitted.

Oral examinations for the master's degree require only that public notice of the oral defense be posted on the department bulletin board 1 week in advance and a copy be sent to the Office of Graduate Studies.

The length of the oral examination and the subject matter on which the candidate is questioned are left to the judgment of the committee. After candidates successfully pass the oral examination in defense of the thesis, they must submit 2 signed copies of the thesis to the Office of Graduate Studies no later than 6 months from the date of the examination. If the thesis is not ready for final signature by the end of the 6-month period, the "pass" will be revoked and an additional oral defense will need to be scheduled. Extensions of this 6-month period for completion without reexamination will be granted only in rare circumstances. Applications for an extension must be made by the candidate with the unanimous support of the thesis committee and approved by the Office of Graduate Studies. Students passing the oral examination on or before the end of the 1st week of classes of any semester do not have to register for that or any subsequent semester even though they may be continuing to make minor revisions to the final copy of their thesis.

Should a candidate fail, the committee chair may schedule a 2nd examination. Students who fail a second time must withdraw from the university.

Students must send a copy of their approval of candidacy form, signed by the thesis committee signifying successful defense of the thesis, to the Office of Graduate Studies within 1 week after the oral examination. The original approval of candidacy form must be turned in when the thesis is submitted.

PhD students must defend their theses before the end of the 16th semester of their residency at Rice. Master's students must defend their theses before the end of the eighth semester of their residency at Rice.

Thesis Regulations and Procedures—The thesis is the principal record of a student's work for an advanced degree. It is permanently preserved in the library. Instructions for thesis submission and guidelines for thesis formatting are provided by the Office of Graduate Studies at the time of approval of candidacy. Additional copies of these instructions are available from the graduate studies office and can also be accessed on the Rice website at: <http://rgs.rice.edu/grad/policies/thesis>.

Students must have the original signatures of their thesis committee on two title pages of their dissertation. Students submitting a dissertation for the PhD, DArch, or DMA must fill out a Survey of Earned Doctorates form. All students submitting theses, whether for master's or doctoral degrees, must complete a University Microfilm contract. Students must pay their fees for microfilming and binding their theses to the cashier before submitting the 2 copies to the Office of Graduate Studies for approval. The thesis may be submitted to the Office of Graduate Studies at any time; however students must meet the deadline for the thesis submission listed in the Academic Calendar (pages viii–xiv).

LEAVES OR WITHDRAWALS

Leave of Absence—A leave of absence is granted only by the Office of Graduate Studies on the recommendation of the department chair and only to graduate students in good standing with the university. Students must obtain approval for a leave before the academic semester in question. These requests, approved by the department, must be received in the Office of Research and Graduate Studies prior to the 1st day of classes.

Leaves are not granted after students register for courses or after the registration period passes. Normally, students may take a leave of absence for no more than 2 consecutive semesters. The semesters that a student is on leave do not count against the time to candidacy or the time to defense. It does, however, count against the time to degree. Students must pay a reinstatement fee of \$100 on their return from an official leave.

Short-Term Medical and Parental Leave—If a graduate student cannot fulfill the duties of his or her appointment due to a medical emergency or the adoption or birth of a child, enrollment and stipend support may be continued for up to 6 weeks or until the appointment expires (whichever occurs first). Complete guidelines for obtaining a short term or parental leave are available at: <http://rgs.rice.edu/Grad/Policies/med-mat-leave.cfm>.

Withdrawal and Readmission—Students who wish to withdraw from Rice during the semester, for any reason, are to notify the chair of their academic department in writing (see Refund of Tuition and Fees, pages 44–45). Failure to register for any period without a leave of absence granted by the Office of Graduate Studies constitutes a de facto withdrawal.

The university may insist on a student's involuntary withdrawal if, in the judgement of the vice provost for research and graduate studies, the student

- Poses a threat to the lives or safety of him/herself or other members of the Rice community
- Has a medical or psychological problem that cannot be properly treated in the university setting
- Has a medical condition or demonstrates behavior that seriously interferes with the education of other members of the Rice community

Students who later wish to resume study, whether after voluntary or involuntary withdrawal, must reapply to the university. Readmission requires the recommendation of the department chair and the approval of the vice provost for research and graduate studies. Accepted students must pay a readmission fee of \$300.

Students who withdraw for medical reasons must meet certain conditions when applying for readmission. They must submit a written petition for readmission to the Office of Graduate Studies at least 1 month before the start of the semester in which they wish to resume their work at Rice. They also must provide evidence from a health professional that they have resolved the problems leading to their withdrawal. Some cases may require an interview with the director of the Rice Counseling Center, the director of Student Health Services, or their designees.

Nonenrollment—Students may not do degree work at Rice or work involving Rice faculty or facilities during any period of nonenrollment, except during the period following successful oral defense prior to submission of the final thesis.

DROP/ADD

During the first 2 weeks of classes, all students may change their registration without a penalty fee by adding or dropping courses with the appropriate

advisor's approval. Students must obtain the instructor's permission and the advisor's approval to add a course after the 2nd week of classes. Students may not add courses after the 4th week of classes without the permission of the Office of Graduate Studies.

Students may not drop courses after the end of the 10th week of classes, except by approval of the Office of Graduate Studies (a \$50 fee is assessed for courses dropped after the 10th week by non-1st-semester students). The student's request to drop a course must be approved by the student's advisor and then forwarded to the vice provost for consideration.

Students who add or drop courses after the 2nd week but before the deadlines noted above are charged for each drop/add form submitted according to the fee schedule (see page 23).

ACADEMIC DISCIPLINE

Probationary Status—Students whose cumulative grade point average or the average for the most recently completed semester (including the summer semester) falls below 2.33 are placed on probationary status; some departments may have more stringent standards. Although the department in most cases sends the student a letter of warning, probationary status applies whether or not a letter has been issued. A second semester of probationary status leads to automatic dismissal by the Office of Graduate Studies unless the student's department presents a plea for exception that is approved by the vice provost for research and graduate studies. Departments are free to dismiss a student in the 1st semester of probationary status if they issue a warning before taking action.

Dismissal—Reasons for student dismissal include unsatisfactory progress as determined by the student's department or behavior judged by Rice to be disruptive or otherwise contrary to the best interests of either the university or the student.

APPEAL

Students may petition the Office of Graduate Studies regarding the application of any academic regulation. Petitions should go through department chairs and divisional deans, who will be asked to comment on their merits. In some cases, the vice provost will seek the advice of the Graduate Council. For appeals regarding nonacademic matters, see the following section on problem resolution.

OTHER DISCIPLINARY SANCTIONS

Additionally, the assistant dean of student judicial programs may place students on probation or suspension for violating the Honor Code or Code of Student Conduct or for other disciplinary reasons. Students on disciplinary suspension (including for an Honor Code violation) may not receive their degree even if they have met all academic requirements for graduation. They must leave the university within 48 hours of being informed of the dean's decision, though in cases of unusual hardship, the assistant dean of student judicial programs may extend the deadline to one week. Any tuition refund will be prorated from the official date of suspension, which is determined by the registrar. While on disciplinary suspension, students may not run for, or hold, any elective or appointed office in any official Rice organization. Participation in student activities on and off campus and use of Rice facilities are limited to enrolled students. Students seeking admission after leaving the university because of a sanction imposed by the assistant dean should submit a petition in writing for review by the assistant dean.

PROCEDURES FOR RESOLUTION OF PROBLEMS

Problems or conflicts may arise during a student’s graduate education. Students should take responsibility for informing the appropriate faculty of any such problem. All parties involved should work together amicably with the goal of resolving the problem informally if at all possible. When attempts to resolve a problem informally do not meet with success, the following grievance procedure should be adopted.

- 1. The student should submit the grievance in writing to the departmental chair, who will then attempt to resolve the problem.
- 2. If the student remains unsatisfied, the problem should be presented to a departmental committee for resolution. This committee should be a standing committee and not the student’s own review or dissertation committee. Both the student and the chair should submit a written record of their views to this committee.
- 3. If the student remains unsatisfied, the problem should be referred to a standing subcommittee designed at Graduate Council and composed of 3 faculty members (representing diverse disciplines within the university), 1 graduate student, and the associate dean for graduate studies. A written report of proceedings at stage 2 should be presented to the chair of graduate council for forwarding to the subcommittee, along with all other written materials generated during the investigation. The decision of this subcommittee will be considered final.

TUITION, FEES, AND EXPENSES

The tuition and fees for graduate students in this section are for the 2006–2007 academic year only and are subject to change in subsequent years. Current tuition and fees for all graduate students, full time and part time:

	Annual	Semester	Hour
Tuition			
Architecture and Music Students	\$23,400	\$ 11,700	\$1,300
Professional Masters in Engineering Students	23,400	11,700	1,300
Professional Masters in Natural Sciences Students			
Entering	23,400	11,700	1,300
Continuing	22,700	11,350	1,262
All other Entering Students Excluding Jones School	26,100	13,050	1,450
All Other Continuing Students Excluding Jones School	23,950	11,975	1,331
Required Fees*	538	269	
Jones School MBA			
Entering Fall '05	32,150	16,075	1,787
Entering Fall '06	32,150	16,075	1,787
Required Fees**	2,058	1,029	
Jones School MBA for Executives			
Entering Fall '05 (2-year rate)	78,300		
Entering Fall '06 (2-year rate)	81,450		

Jones School MBA for Professionals	
Entering Fall '06 (2-year rate)	74,000
Master of Liberal Studies	
Cost Per Course	2,160
Required Fees Per Session***	95

Fees

*Graduates	Annual	Semester
Graduate Student Association	20	10
Student Organization Fund	8	4
Honor Council	2	1
Health Services	388	194
Information Technology	120	60
	538	269
**Jones School MBA		
Graduate Student Association	20	10
Student Organization Fund	8	4
Honor Council	2	1
Health Services	388	194
Information Technology	120	60
Jones School Association	70	35
Jones School Material	1,450	725
	2,058	1,029
***Master of Liberal Studies		
Parking Per Course	60	
Activitie Fee Per Session	35	
	95	

Away Status—Graduate students pursuing their studies outside of the Houston area (graduate students on “away” status) must be registered and pay tuition but are not required to pay the fees listed above, with the exception of the Information Technology Fee (\$60/semester).

Reduced Tuition—After 6 semesters of full-time study in 1 degree program (excluding the summer semesters), continuing students enter a reduced-tuition rate. A semester of full-time study is defined as a fall or spring semester in which at least 9 hours of credit are earned. The reduced rate varies by department. For continuing graduates, the rate is \$1,331 per year \$665.50 per semester). For architecture, Shepherd School, and professional masters in natural sciences and engineering, the rate is \$1,300 per year (\$650 per semester). For professional masters in natural sciences prior to fall 2006, the rate is \$1,262 per year (\$631 per semester). Students who are admitted with a relevant master's degree, i.e., a master's degree that counts toward a doctoral program at Rice, may become eligible for reduced tuition earlier than those entering a doctoral program without a relevant master's degree. Semesters credited toward reduced tuition will be limited to 1 degree program. In extraordinary circumstances, the Office of Graduate Studies may consider petitions for exceptions.

Health Insurance—All students, full time or part time—including those on away status—must carry health insurance (see page 11).

Other Fees—Unless students elect a special payment plan, they must pay all tuition and fees for the fall semester by the middle of August and for the spring semester by the end of the 1st week of January. Past these deadlines, a late payment penalty of \$140 will be assessed.

Other fees applicable under special circumstances:

Preceptorship (per semester)	\$220
Internship (per semester)	220

Study abroad fee—per semester	250
Graduate application fee	35
Jones School application fee: MBA.	100
Jones School application fee: EMBA.	100
Part-time registration fee	120
Late registration fee.	115
Failure to preregister fee	65
Late course change fee	
Adds:	
Week 1–2	Free
Week 3–4	10
Week 5 and after	50
Drops:	
Weeks 1–4.	Free
Weeks 5–10.	10
Week 11 and after	50
Deferred Payment Plan late fee	35
Diploma fee: sheepskin	110
Diploma fee: parchment	35
Diploma fee: facsimile.	15
Diploma mailing fee: domestic	28
Diploma mailing fee: air mail.	35
Transcript fee	5
Class III registration fee.	120
Class III late application fee	85
Class III late registration fee	115
Intramural fee	15
Readmission fee: graduate students only	300
Reinstatement fee: graduate students only	100
Replacement ID	10

For more information, see Refund of Tuition and Fees (pages 45–46).

FINANCIAL AID

FELLOWSHIPS, SCHOLARSHIPS, AND ASSISTANTSHIPS

A range of fellowships, scholarships, and assistantships are available at Rice. Most graduate students in degree programs requiring a thesis are supported by fellowships or research assistantships.

Rice Graduate Fellowships—Doctoral students with high academic records and strong qualifications receive support through Rice fellowships. In most cases, these fellowships provide a stipend plus tuition for the 9-month academic period. Departments may nominate particularly outstanding entering students for a Rice Presidential Fellowship.

Rice Graduate Tuition Scholarships—Students whose previous records show marked promise but for whom no graduate fellowships are available may receive full or partial graduate tuition scholarships, which do not include a stipend.

Research and Teaching Assistantships—Usually funded from grants and contracts, research assistantships are available in many departments. Qualified students (usually 2nd-year or later) receive these awards to provide assistance on faculty research projects, work that usually contributes to the student’s own thesis. In some departments, a limited number of teaching assistantships may be available to advanced students.

Fellowship, scholarship, and assistantship recipients are selected by the individual departments, subject to the approval of the Office of Graduate Studies. Students should send their applications for such awards directly to the department involved.

To receive Rice fellowships, graduate tuition scholarships, or assistantship aid, students must be engaged in full-time graduate study; part-time students and students who are not enrolled are not eligible for such aid.

Students receiving stipends from fellowships or assistantships may not accept any regular paid employment on or off campus without the explicit permission of the department. Full-time students, whether receiving stipend support or not, may not accept paid employment in excess of 20 hours per week.

LOANS AND WORK-STUDY FINANCIAL AID

In addition to fellowships, scholarships, and assistantships, the Office of Student Financial Services offers assistance in the form of loans. Interested students must file a Free Application for Federal Student Aid (FAFSA) and a Rice Graduate Financial Aid application or a Rice Jones School application and submit copies of income tax returns and W-2's. The priority deadline to apply is April 15. (Loan assistance through Rice is not available to Master of Liberal Studies students.)

To be eligible to apply for loans and federal work-study employment, graduate students must maintain satisfactory academic progress as defined by their departments. Should a graduate student fail to make satisfactory academic progress, the student's aid eligibility will be terminated. Graduate students who enroll for less than 5 hours in a term will not be eligible for financial aid.

Federal Student Loans—These are low-interest loans made to students attending the university at least half time. Subsidized Stafford loans require need-based financial aid eligibility, but unsubsidized Stafford loans and PLUS loans are available to all students. Stafford loan eligibility is subject to annual and lifetime borrowing limits.

Loan Counseling—Students who are recipients of federal student loans will be required to complete online loan entrance counseling before funds will be credited to student accounts. Students also will be required to complete online exit counseling at the completion of a program of study at Rice. Failure to complete online exit counseling will result in a transcript hold.

Private Loan Programs—Private loans are available to graduate and MBA students. These loans are not based on need but do require credit approval from the lender and cannot exceed the student's cost of education, as determined by Rice, minus other resources.

Special Loan Programs—A Gulf Oil Corporation Foundation Loan Fund and the Benjamin S. Lindsey and Veola Noble Lindsey Memorial Loan Fund are available to help students working toward a degree meet their educational expenses, but funds are limited. Interested students may contact the Office of Student Financial Services.

The Mary Lyn and Niles Moseley Loan Fund and the Professor John A. S. Adams, Sr., Memorial Graduate Student Loan Fund—These funds provide financial assistance, in the form of loans, to graduate students at Rice University. Students wishing to apply for such a loan should obtain an application from the Office of Student Financial Services. Guidelines for the program are:

- Individual loans are made for an amount not to exceed \$1,500.
- Loans are made for a period of up to one year and, upon request, may be renewable annually.

- The interest rate applicable to these loans is determined by the university.
- Graduate students must be enrolled on a full-time basis to be eligible to apply for a loan and must maintain full enrollment during the full term of the loan.
- Upon completion, applications are submitted to the vice provost for research and graduate studies for approval.
- Loans are available during the full course of the academic year.
- Loans must be repaid before graduation.

Emergency Loan Fund—Established through gifts from the Graduate Wives Club of 1972–73, the Graduate Student Association, and various faculty members, this fund makes available emergency loans to help graduate students at Rice with short-term needs. Loans are limited to \$250 and must be repaid within 3 months. In lieu of interest, a charge of \$5 per loan is assessed to maintain the fund.

Summer Aid—Graduate students are eligible to apply for private educational loans if they are registered during the summer term.

Other Fellowships, Honors, and Prizes—Provisions are made for a variety of fellowships, scholarships, and prizes available to graduates of this and other universities. Memorial fellowships that have been founded and endowed by gift or bequest on the part of friends of Rice University provide stipends enabling the holders to devote their time to study and research in their chosen fields. There also are several industrial fellowships maintained by companies interested in the development of technical fields and the training of competent scientists, engineers, and business executives.

Persons desiring consideration for appointment as fellows should consult with the department in which they wish to do research. However, not all fellowships are available every year.

Return of Title IV Funds—Students who receive federal funds as part of their aid packages and do not complete the academic term may be subject to returning a portion of those funds. Contact student Financial Services for information about policies and procedures regarding the return of Title IV funds.

GRADUATE STUDENT LIFE

GRADUATE STUDENT ASSOCIATION

All full-time students in the graduate program are members of the Graduate Student Association, which is the sole organization representing graduate students as a body. The governing body of this organization is the Graduate Student Association Council, consisting of a representative from each department offering graduate study and a president, vice president, secretary, and treasurer elected by the council. Graduate students also participate in university affairs through their representatives on many standing and ad hoc university committees, such as the Graduate Council, the Research Council, and various department committees.

One of the functions of the Graduate Student Association is to encourage social interaction among graduate students from different departments. To that end, the association organizes a variety of social activities open to all members of the graduate student body.

HOUSING FOR GRADUATE STUDENTS

The Rice Graduate Apartments are housed in a garden-style complex located on a 2.7-acre site just north of campus. The project features attractive landscaping

and good lighting in all common areas, designed to enhance both the security and the aesthetics of pedestrian, bike, auto paths, parking, and recreational areas. Electronically controlled gates for both pedestrian and vehicular paths are provided. Handicap accessibility also is an important feature. A shuttle bus travels back and forth between the apartments and campus.

There are 112 units, including 1-bedroom, 2-bedroom, 4-bedroom, and efficiency apartments. The complex is designed with a centrally located space for social activities, a laundry room on each floor, a study room equipped with computers, enclosed areas with locks for bike racks, and 2 courtyards. Every apartment has a living area, a fully equipped kitchen, cable TV connection, and a network drop for a personal computer. Housing is assigned on a space-available basis. Call 713-348-GRAD (4723) for further information.

The Morningside Square Apartments are 2-story 1950s-vintage units located in a quiet neighborhood adjacent to Rice Village. They are within a short walking distance to campus, restaurants, and shopping areas. The complex is attractively landscaped and offers gated and covered parking.

There are 53 units, including 1-bedroom, 2-bedroom, and 3-bedroom apartments. The common hallways, bedrooms, and living rooms feature oak hardwood flooring. Kitchens are equipped with a refrigerator and gas range. All units have ceiling fans, a gas furnace, and window air conditioners. Basic cable TV is provided, and a coin-operated laundry is available on site. Apartments are assigned on a space-available basis. Call 713-524-1275 for further information.

The Information Desk, the Office of Student Activities, and the Graduate Student Association keep records of available rooms and apartments listed with the university by area landlords. The daily newspaper and a weekly *Greensheet* are other sources of rental housing information. Incoming graduate students should arrive in Houston several days early to allow themselves time to find suitable housing.

HEALTH INSURANCE REQUIREMENTS FOR GRADUATE STUDENTS

Paying the student health service fee gives graduate students access to both the Student Health Service and the Rice Counseling Center (see pages 11–12). New graduate students may not register for or attend classes until they have completed and returned the health data form to Rice and have met the immunization and TB screening requirements.

All graduate students must have health insurance purchased through Rice or provided by an outside source. Students may purchase insurance through the university. Rice's group coverage for the 2006–07 academic year is effective from 12:01 AM, August 15, 2006, until 12:01 AM August 15, 2007. Dependent coverage also is available. A description of the policy and the application form can be found on the Web at <http://studenthealthinsurance.rice.edu>. A waiver form, if outside insurance is provided, also can be found at this site. Students should submit either the application or waiver by August 15 each year.

CLASS III STUDENTS IN NONDEGREE PROGRAMS

Students with a 3.00 (B) or better grade average and an undergraduate or graduate degree from an accredited college or university may apply for admission as Class III students. These students may take courses for credit without being admitted to a specific degree program. Registration requires the permission of the instructor and approval by the vice provost for research and graduate studies. Class III students must register for at least 3 hours and cannot take

courses on a pass/fail or satisfactory/unsatisfactory basis. Class III students must receive at least a B for all classes taken or they will not be allowed to remain in the Class III program.

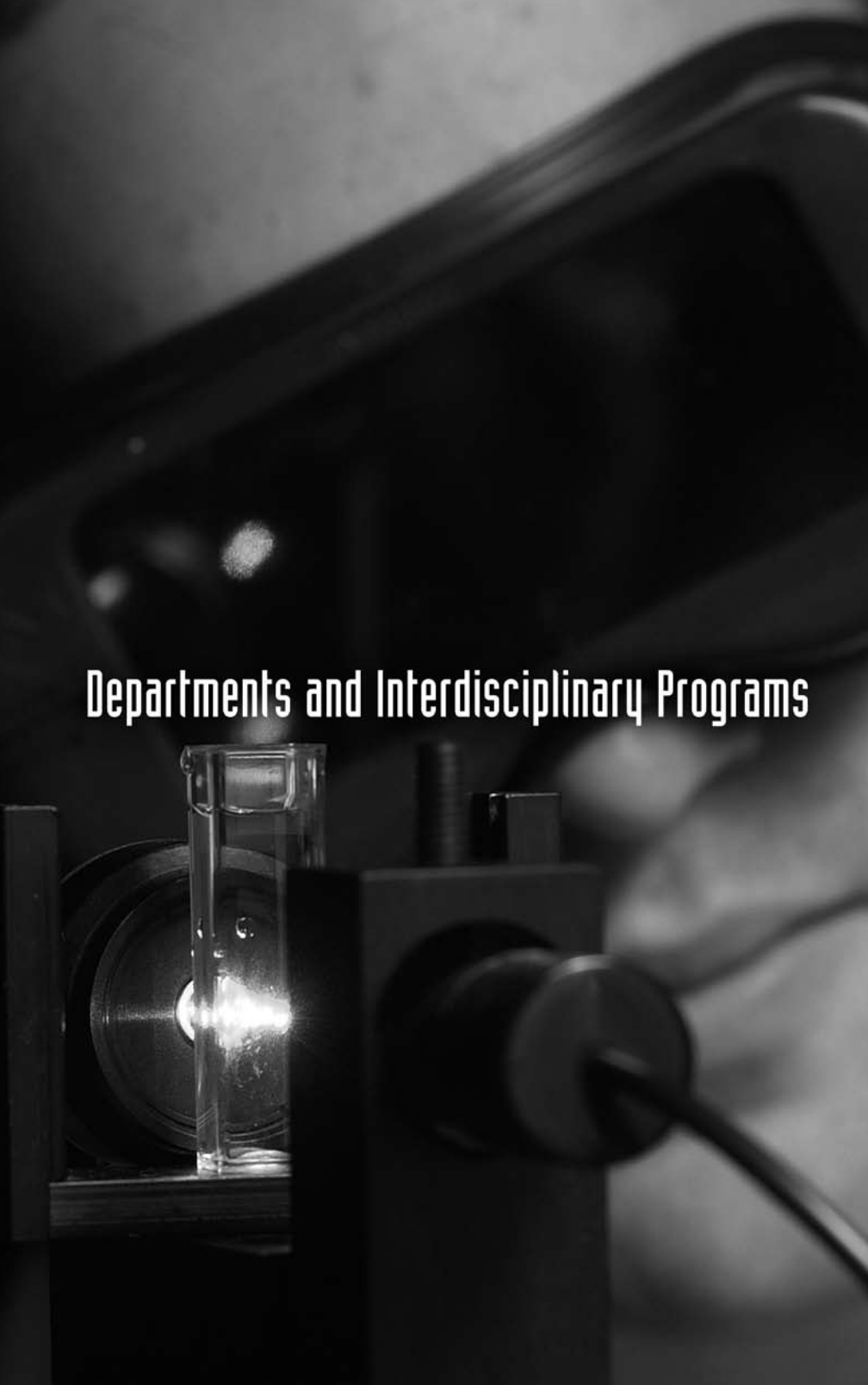
Students may not use courses taken under this arrangement to fulfill the requirements for a Rice degree unless and until they have been accepted into a degree program by an academic department (as well as, in the case of graduate students, by the vice provost for research and graduate studies) and received department approval; students are responsible for obtaining the proper approvals. Students may request that the department allow up to 3 courses taken as Class III to count toward their graduate degree.

APPLICATIONS FOR CLASS III

Applications and course request forms are available from the Office of Graduate Studies. Official transcripts from all colleges and universities the student has attended should be mailed directly by the institutions to the Office of Graduate Studies. Students who were previously Class III students must complete a new application (without transcripts) for each such semester. All application materials are due by the workday closest to August 1 for fall semester courses and December 1 for spring semester courses. Late applications are not considered after classes have begun. Individuals applying as Class III students for the summer term should apply to the Summer School for College Students (see pages 36–37).

TUITION AND FEES FOR CLASS III

The tuition for 2006–07 is \$1,450 per semester hour, plus a \$120 registration fee and a \$60 InfoTech fee each semester. All fees are payable prior to registration. Students failing to submit their applications by the deadline must pay a late application fee of \$85, and students registering after the 2nd week of class must pay a \$115 late registration fee and also may have to pay a late payment fee. For some courses, students may be charged for computer time. If a class fills with degree students, instructors may drop Class III students up to the end of the 3rd week of class. In that case, the tuition (less \$30 of the registration fee) will be refunded. Please see pages 36–37 for information pertaining to summer school.

A black and white photograph of a scientific instrument, possibly a laser or microscope. A bright light source is visible through a transparent component, creating a strong glow. The background is dark and out of focus, showing some mechanical parts and a cable.

Departments and Interdisciplinary Programs

AIR FORCE SCIENCE

COMMANDER AND PROFESSOR

Colonel Phil Bossert

ASSOCIATE PROFESSORS

Captain Malcolm Byrd

Captain Brian K. Kusiak

1st Lieutenant Albert Chapman

The Air Force ROTC program develops responsible, competent men and women prepared to assume leadership positions as commissioned officers in the active duty United States Air Force. On completion of the curriculum, students will have an understanding of the core values and the professional discipline of a military career. For more information on the air force science program, contact the Air Force Science Department at the University of Houston by calling 713-743-4932.

COURSE CREDIT

ROTC classes may be taken for elective credit toward any degree plan at the University of Houston as well as Rice University. Freshman and sophomore level classes are open to all students. No military obligation is incurred as a result of enrollment in these courses. Junior and senior level courses are more restrictive and do require a military obligation. ROTC scholarship students also incur a military obligation.

FOUR-YEAR PROGRAM

The General Military Course (GMC) is the first half of the 4-year program and is taken during the freshman and sophomore years. This program allows the student to try out Air Force ROTC without obligation (unless the student is on an Air Force ROTC scholarship).

Each semester of the GMC consists of 1 classroom hour of instruction as well as Leadership Laboratory each week.

During the first 2 years, the student will learn about the Air Force and the historical development of aerospace power.

During the summer preceding the junior year, the student will compete for the opportunity to attend a 4-week field training unit. Successful completion of field training is mandatory for entrance into the Professional Officer Course (POC), the junior and senior years of the 4-year program.

As a junior, the student will study the leadership and management techniques needed to become an effective Air Force officer.

During the senior year, students study the national security policy process and regional issues while preparing for entrance to active duty.

Enrollment in the POC is open to graduate students if they have four semesters of school remaining. Each semester of the POC consists of three classroom hours of instruction as well as Leadership Laboratory each week.

LEADERSHIP LABORATORY

As an Air Force ROTC cadet, each student will be required to attend an additional 2-hour class known as Leadership Laboratory.

Although it is not part of the academic class requirement, it is an essential part of officer training. Leadership Laboratory is a motivational, cadet-centered program

where the student gains valuable leadership and managerial experience while learning about the Air Force way of life. On occasion, the student will have the opportunity to hear guest speakers discuss a variety of interesting topics.

AFROTC SCHOLARSHIP OPPORTUNITIES

Air Force ROTC offers four different scholarship opportunities for students at the University of Houston and Rice University:

In-College Scholarship Program (ICSP)—a highly competitive scholarship program aimed primarily at college freshmen and sophomores in any major (students with a bachelor's degree can compete to earn a master's degree). The ICSP awards cover tuition capped at either \$15,000 per year, plus \$600 per year for books, or \$9,000 per year, plus \$600 per year for books.

The Express Scholarship Program—operated on a fully qualified basis: those who meet the qualifications are awarded the scholarship. Though the list of eligible college majors differs from year to year, the express scholarship pays up to \$15,000 tuition per year and \$600 for books. The processing of the scholarship award is completed at the local detachment.

STIPEND

All AFROTC scholarship recipients and POC cadets receive a nontaxable monthly stipend. The annual stipend amount ranges from around \$2,000 per year to \$4,000 per year depending on the recipient's enrollment year.

For additional information on AFROTC scholarship opportunities, please visit the AFROTC website at www.afrotc.com or call 1-800-4AFROTC.

FIELD TRAINING (FT)

Cadets completing the General Military Course attend four weeks of field training (FT) during the summer at a selected Air Force base. Those who have not completed the GMC attend an extended FT unit. This rigorous program of leadership training, physical conditioning, and academics assesses the cadet's potential to be an Air Force officer.

Cadets receive survival training, firearms training, and career information. Cadets receive travel pay and daily pay for FT.

PROFESSIONAL DEVELOPMENT TRAINING (PDT)

Cadets are eligible to compete to attend PDT during summer months.

PDT consists of several programs, including:

- Army Airborne
- United States Air Force Academy (USAFA) Soaring
- Cultural and Foreign Language Immersion
- USAFA Freefall Parachute Training
- Cadet Training Assistant
- Internships

Cadets receive travel pay and daily pay for the majority of these programs.

For more information, contact Colonel Phil Bossert at 713-743-4932 or visit the University of Houston Air Force website at www.uh.edu/afrotc.

See AFSC in the Courses of Instruction section (these are University of Houston listings).

ANCIENT MEDITERRANEAN CIVILIZATIONS

THE SCHOOL OF HUMANITIES

DIRECTOR AND ADVISOR

Donald Ray Morrison

PROFESSORS

James D. Faubion

Michael Maas

Roderick J. McIntosh

Susan Keech McIntosh

Donald Ray Morrison

Harvey E. Yunis

ASSOCIATE PROFESSORS

Matthias Henze

Hilary S. Mackie

Carol E. Quillen

Paula Sanders

ASSISTANT PROFESSORS

David Cook

Eva Haverkamp

Scott McGill

Caroline Quenemoen

DEGREE OFFERED: BA

This interdisciplinary major in the cultures of ancient Greece and Rome, Judaism, early Christianity, and early Islam, as well as their antecedents, explores these traditions both for their intrinsic interest and for the contributions each has made to contemporary Western society. Our combined focus on ancient cultural history in its broadest sense and on perspectives offered by cultural criticism enables students to examine the beginnings of the civilization in which they now participate.

Courses for this major address common questions about the transmission and transformation of cultures in the ancient Mediterranean world. Students examine sources, such as texts, artifacts, and institutions, that illuminate the process. They study how shifting cultural centers and frontiers in this world are delineated, and they explore the general integration and disintegration of specific ancient cultures. This major also offers opportunities for archaeological fieldwork and study abroad.

Rice is a sponsor of the American School of Classical Studies at Athens, the American School of Oriental Research, and the Intercollegiate Center for Classical Studies in Rome. Students majoring in Ancient Mediterranean Civilizations are encouraged to study in these programs as well as in the College Year in Athens program.

DEGREE REQUIREMENTS FOR BA IN

ANCIENT MEDITERRANEAN CIVILIZATIONS

Students must take 1 course from 3 of the 5 following categories: 1) Graeco-Roman Civilization, 2) Islamic Civilization, 3) Jewish Civilization, 4) Christian Civilization, and 5) Archaeological Methods & Theory. In addition, students must take 1 course that addresses the creation, transmission, and reception of traditions in the Mediterranean world. Courses that meet this requirement are designated as "Themes Across Time."

Students also must fulfill a comparative requirement by taking either 1 course that, in and of itself, treats 2 different cultural traditions (designated "Comparative") or 2 separate courses on similar themes but from different cultures (e.g. Women in Greece & Rome, Women in the Islamic World). Although not required, courses in ancient languages are recommended. A minimum of 5 courses must be taken at the 300-level or above.

For general university requirements, see the Graduation Requirements in this publication. Majors in Ancient Mediterranean Civilizations must complete at

least 30 semester hours (10 courses). Students must take a core course (HIST 200, CLAS 107, or CLAS 108) near the beginning of their studies and may select from the following courses to fulfill their requirements for the major.

Please note that not all courses listed below will be offered during the academic year. For a current list of AMC courses that will be offered in fall 2005 and spring 2006, please visit the AMC website at <http://amc.rice.edu>.

Core Courses

CLAS 107 *Greek Civilization and Its Legacy*
 CLAS 108 *Roman Civilization and Its Legacy*
 HIST 200 *Origins of Western Civilizations: Ancient Empires*
 HUMA 109 *Greek Civilization and Its Legacy*

Graeco-Roman Civilization

ANTH 321 *Text as Property, Property as Text: Across the Ages*
 ANTH 325 *Sex, Self, and Society in Ancient Greece*
 ANTH 363 *Early Civilizations*
 CLAS 101 *Socrates: The Man and His Philosophy*
 CLAS 107 *Greek Civilization and Its Legacy*
 CLAS 108 *Roman Civilization and Its Legacy*
 CLAS 209 *Greek and Roman Drama*
 CLAS 220 *The Novel in Classical Antiquity*
 CLAS 225 *Women in Greece and Rome*
 CLAS 235 *Classical Mythology: Interpretation, Origins, and Influence*
 CLAS 311 *Text as Property, Property as Text: Across the Ages*
 CLAS 312 *Greek Art and Architecture*
 CLAS 315 *Roman Art and Architecture*
 CLAS 316 *Democracy and Political Theory in Ancient Greece*
 CLAS 318 *The Invention of Paganism in the Roman Empire*
 CLAS 320 *The Age of Augustus*
 CLAS 336 *The Origin of the Languages of Europe*
 CLAS 337 *Epic and Novel*
 ENGL 335 *Epic and Novel*
 FSEM 101 *Socrates: The Man and His Philosophy*
 FSEM 151 *The Hero and His Companion from Gilgamesh to Sam Spade*
 GREE 101 *Introduction to Ancient Greek I*
 GREE 102 *Elementary Greek II*

GREE 201 *Intermediate Greek I: Prose*
 GREE 202 *Intermediate Greek II: Prose*
 GREE 301 *Advanced Greek*
 HART 204 *Art as Civilization*
 HART 218 *Special Topics: Ancient Greek Sites*
 HART 219 *Independent Study: Ancient Art*
 HART 228 *Special Topics: Christian, Byzantine, and Islamic Art*
 HART 229 *Independent Study: Christian, Byzantine, and Islamic Art*
 HART 312 *Greek Art and Architecture*
 HART 315 *Roman Art and Architecture*
 HART 320 *The Age of Augustus*
 HART 417 *Buried Cities: The Art and Architecture of Akrotiri, Pompeii, and Herculaneum*
 HART 428 *Special Topics: Early Christian, Byzantine, and Islamic Art*
 HART 429 *Independent Study: Early Christian, Byzantine, and Islamic Art*
 HIST 113 *God, Time, and History*
 HIST 151 *The Hero and His Companion from Gilgamesh to Spiderman*
 HIST 200 *Origins of Western Civilizations: Ancient Empire*
 HIST 202 *Introduction to Medieval Civilization: The Early Middle Ages*
 HIST 223 *Empires and Communities in the Middle Ages*
 HIST 257 *Jews and Christians in Medieval Europe*
 HIST 262 *Rome: City and Empire*
 HIST 304 *Imperialism and Its Critics in the Roman World*
 HIST 306 *The Roman Republic*
 HIST 307 *Imperial Rome from Caesar to Diocletian*
 HIST 308 *The World of Late Antiquity*
 HIST 316 *The Invention of Paganism in the Roman Empire*

HIST 323 *Empires and Communities in the Middle Ages*

HIST 357 *Jews and Christians in Medieval Europe*

HIST 358 *European Intellectual History from Augustine to Descartes*

HIST 382 *Classical Islamic Cultures*

HIST 437 *Christians and Jews in the Medieval Islamic World*

HIST 438 *Women and Gender in the Medieval Islamic Societies*

HIST 460 *Advanced Seminar in Ancient History*

HUMA 109 *Greek Civilization and Its Legacy*

HUMA 113 *God, Time, and History*

LATI 101 *Elementary Latin I*

LATI 102 *Elementary Latin II*

LATI 201 *Intermediate Latin I: Prose*

LATI 202 *Intermediate Latin II*

LATI 301 *Advanced Latin: Literature of Exile in the Roman Tradition*

LATI 302 *Advanced Latin: Roman Epic*

LATI 303 *Advanced Latin: Plautus and Terence*

LATI 311 *Latin Pastoral Poetry*

LATI 312 *Advanced Latin: Ovid*

LATI 313 *Cicero and Catullus: Literature and Society in the Roman Republic*

MDST 101 *Elementary Latin I*

MDST 102 *Elementary Latin II*

MDST 202 *Introduction to Medieval Civilization: The Early Middle Ages*

MDST 211 *Intermediate Latin I: Prose*

MDST 212 *Intermediate Latin II*

MDST 223 *Empires and Communities in the Middle Ages*

MDST 257 *Jews and Christians in Medieval Europe*

MDST 308 *The World of Late Antiquity*

MDST 357 *Jews and Christians in Medieval Europe*

MDST 358 *European Intellectual History from Augustine to Descartes*

MDST 382 *Classical Islamic Cultures*

MDST 385 *Christians and Jews in the Medieval Islamic World*

MDST 438 *Women and Gender in the Medieval Islamic Societies*

MDST 460 *Advanced Seminar in Ancient History*

RELI 123 *God, Time, and History*

RELI 316 *The Invention of Paganism in the Roman Empire*

WGST 225 *Women in Greece and Rome*

WGST 332 *Sex, Self, and Society in Ancient Greece*

WGST 455 *Women and Gender in the Medieval Islamic Societies*

Islamic Civilization

ASIA 221 *The Life of the Prophet Mubammad*

ASIA 441 *Popular Religion in the Middle East*

HIST 382 *Classical Islamic Cultures*

HIST 437 *Christians and Jews in the Medieval Islamic World*

HIST 438 *Women and Gender in the Medieval Islamic Societies*

MDST 382 *Classical Islamic Cultures*

MDST 385 *Christians and Jews in the Medieval Islamic World*

MDST 438 *Women and Gender in the Medieval Islamic Societies*

RELI 141 *Introduction to Islam*

RELI 221 *The Life of the Prophet Muhammad*

RELI 223 *Qur'an and Commentary*

RELI 350 *Sacred Scriptures in Monotheistic Faiths*

RELI 354 *Asian Apocalyptic Movements*

RELI 441 *Popular Religion in the Middle East*

WGST 455 *Women and Gender in the Medieval Islamic Societies*

Jewish Civilization

HIST 113 *God, Time, and History*

HUMA 113 *God, Time, and History*

RELI 122 *The Bible and Its Interpreters*

RELI 123 *God, Time, and History*

RELI 125 *Introduction to Biblical Hebrew I*

RELI 126 *Introduction to Biblical Hebrew II*

RELI 127 *Intermediate Biblical Hebrew I*

RELI 128 *Intermediate Biblical Hebrew II*

RELI 209 *Introduction to Judaism*

RELI 210 *Ethics in Judaism*

RELI 350 *Sacred Scriptures in Monotheistic Faiths*
 RELI 383 *The Dead Sea Scrolls*

Christian Civilization

RELI 122 *The Bible and Its Interpreters*
 RELI 125 *Introduction to Biblical Hebrew I*
 RELI 126 *Introduction to Biblical Hebrew II*
 RELI 127 *Intermediate Biblical Hebrew I*
 RELI 128 *Intermediate Biblical Hebrew II*
 RELI 223 *Qur'an and Commentary*
 RELI 243 *The Book of Genesis*
 RELI 282 *Introduction to Christianity*
 RELI 350 *Sacred Scriptures in Monotheistic Faiths*
 RELI 381 *The Messiah*
 RELI 383 *The Dead Sea Scrolls*
 RELI 410 *Apocalypse Then and Now*

Archaeological Methods and Theory

ANTH 203 *Human Antiquity: An Introduction to Physical Anthropology and Prehistory*
 ANTH 205 *Introduction to Archaeology*
 ANTH 345 *The Politics of the Past: Archaeology in Social Context*
 ANTH 362 *Archaeological Field Techniques*
 ANTH 363 *Early Civilizations*
 ANTH 425 *Advanced Topics in Archaeology*
 ANTH 460 *Advanced Archaeological Theory*

Themes Across Time

ANTH 321 *Text as Property, Property as Text: Across the Ages*
 ANTH 363 *Early Civilizations*
 CLAS 311 *Text as Property, Property as Text: Across the Ages*
 FSEM 151 *The Hero and His Companion from Gilgamesh to Sam Spade*
 HART 101 *Introduction to the History of Western Art: Prehistoric to Gothic*
 HIST 113 *God, Time, and History*
 HIST 151 *The Hero and His Companion from Gilgamesh to Spiderman*
 HIST 200 *Origins of Western Civilizations: Ancient Empires*
 HIST 308 *The World of Late Antiquity*
 HIST 358 *European Intellectual History from Augustine to Descartes*

HUMA 113 *God, Time, and History*
 MDST 308 *The World of Late Antiquity*
 MDST 358 *European Intellectual History from Augustine to Descartes*
 PHIL 201 *History of Philosophy I*
 PHIL 301 *Ancient and Medieval Philosophy*
 PHIL 307 *Social and Political Philosophy*
 PHIL 327 *History of Social and Political Philosophy*
 RELI 123 *God, Time, and History*

Comparative

CLAS 209 *Greek and Roman Drama*
 CLAS 225 *Women in Greece and Rome*
 CLAS 336 *The Origin of the Languages of Europe*
 CLAS 337 *Epic and Novel*
 ENGL 335 *Epic and Novel*
 HIST 357 *Jews and Christians in Medieval Europe*
 HIST 437 *Christians and Jews in the Medieval Islamic World*
 HIST 438 *Women and Gender in the Medieval Islamic Societies*
 MDST 357 *Jews and Christians in Medieval Europe*
 MDST 385 *Christians and Jews in the Medieval Islamic World*
 MDST 438 *Women and Gender in the Medieval Islamic Societies*
 PHIL 501 *Seminar in Ancient and Medieval Philosophy*
 WGST 225 *Women in Greece and Rome*
 WGST 455 *Women and Gender in the Medieval Islamic Societies*

ANTHROPOLOGY

THE SCHOOL OF SOCIAL SCIENCES

CHAIR

James D. Faubion

PROFESSORS

Roderick J. McIntosh
Susan Keech McIntosh
Stephen A. Tyler

PROFESSORS EMERITI

George E. Marcus
Julie M. Taylor

ASSOCIATE PROFESSOR

Eugenia Georges

ASSISTANT PROFESSORS

Christopher Kely
Hannah Landecker
Amy Ninetto

ADJUNCT PROFESSORS

George E. Marcus
Patricia Seed

ADJUNCT ASSISTANT PROFESSOR

Deepa Reddy

DEGREES OFFERED: BA, MA, PHD

The major in anthropology has 2 areas of concentration: cultural anthropology and archaeology. The focus in cultural anthropology is on contemporary theoretical issues. By reading primary sources, students gain an exposure to the styles of argument and reasoning of a broad range of theorists. They then can engage in the ongoing discussion and definition of central problems within the field. Fieldwork and ethnography are important in the doctoral research.

In archaeology, the focus is on research skills in the library, the field, and the laboratory. Most students also develop at least 1 analytical skill, such as remote sensing, archaeological statistics, osteology, or geomorphology, drawing on the university's extensive laboratory and computer facilities.

Students may organize a major in one or both fields or combine a major in anthropology with 1 in another discipline.

DEGREE REQUIREMENTS FOR BA IN ANTHROPOLOGY

For general requirements, see Graduation Requirements (pages 14–15).

Students majoring in anthropology must:

- Complete a total of 30 semester hours of approved courses (10 hours), at least 24 of which should be anthropology courses and at least 18 hours of which should be taken at the 300-level or above
- Successfully pass 3 of the following 5 courses or categories of courses:
 - ANTH 200 *Introduction to the Scientific Study of Languages or*
 - ANTH 313 *Language and Culture*
 - ANTH 201 *Introduction to Social/Cultural Anthropology*
 - ANTH 203 *Human Antiquity*
 - ANTH 205 *Introduction to Archaeology*
 - ANTH 298 *Biotechnology, 1900 to Now*
- Successfully pass 3 of the following 4 courses:
 - ANTH 302 *Anthropological Theory: A Survey*
 - ANTH 314 *Genetics*
 - ANTH 345 *The Politics of the Past*
 - ANTH 355 *Introduction to Science and Technology Studies*
- Successfully complete either:
 - ANTH 490 and ANTH 491 *Directed Honors Research*, or
 - ANTH 495 *Capstone in Anthropology*

With the approval of the undergraduate advisor, students may substitute for departmental courses at most 6 hours of courses from outside the major that

are related to their plan of study. The department recommends that students intending to pursue graduate study acquire a reading knowledge of 1 or 2 European languages.

Honors Program—Majors considering a career in anthropology should apply to the honors program, as should those who wish to include advanced training and an intensive, individual research project in their undergraduate education. Anthropology faculty determine acceptance into the program. More information is available from the department office; see also Honors Programs (page 26).

ARCHAEOLOGICAL FIELD SCHOOL ON GORÉE ISLAND, SENEGAL

The Department of Anthropology offers a 6-week field school in June and July on the island of Gorée, located off the coast of Senegal, just a short ferry ride away from the capital city of Dakar. The field school excavations are part of ongoing investigations into the growth and development of Gorée as a supply port for the Atlantic trade, occupied and serviced by a polycultural population of slaves, Europeans, mainland Africans, and mixed-race female landowners, known as *signares*. Two courses, ANTH 364 and 370, are offered for a total of 6 hours credit. The courses are offered without specific prerequisites, but there is a general requirement that students have some prior coursework in archaeology or African history. Program fees apply.

DEGREE REQUIREMENTS FOR MA AND PHD IN ANTHROPOLOGY

Because each field of specialization offers different opportunities for training and different research orientations, the department seeks applicants with a defined interest in either cultural anthropology or archaeology; an undergraduate background in anthropology is desirable but not required. Entering students devise a detailed 1st-year plan of study and provisional plans for succeeding years in consultation with an advisor. The plan should emphasize broad training in the selected field before the eventual definition of a project for dissertation research. For general university requirements, see Graduate Degrees (pages 57-58).

MA Program—Graduate students may earn the MA after obtaining approval of their candidacy for the PhD. For the MA as a terminal degree, students must complete:

- 30 semester hours of approved course work
- 1 of the 3 special papers required for the PhD
- A thesis

PhD Program—For the PhD degree, students must accomplish the following:

- Complete 3 substantial papers, each emphasizing an analytical, research, and writing skill appropriate to their field of specialization (should be completed during the first 2 years of study)
- Demonstrate reading competency in 1 foreign language
- Prepare a satisfactory proposal for dissertation research, based in substantial part on field research
- Complete and defend the dissertation

Special Options—The department will arrange seminars and tutorials on any topic relevant to a student's training; these seminars may be conducted in supervisory consultation with scholars in other disciplines as well as with adjunct faculty. Students interested in the specialized field of medical anthropology may take advantage of the extensive resources of the Texas Medical Center through ties established with the University of Texas School of Public Health and Graduate School of Biomedical Sciences; students may earn degree credit for formal courses taken at both schools.

Financial Support—All 1st-year students receive the same level of support: a combination of graduate fellowships and tuition scholarships. These awards are renewed for a further 3 years of study.

See ANTH in the Courses of Instruction section.

APPLIED PHYSICS GRADUATE PROGRAM

THE RICE QUANTUM INSTITUTE

DIRECTOR OF APPLIED PHYSICS GRADUATE PROGRAM

D. Natelson

PARTICIPATING FACULTY

This program is open to faculty from physics and astronomy, chemistry, mechanical engineering and materials science, electrical and computer engineering, bioengineering, computational and applied mathematics, civil and environmental engineering, and chemical and biomolecular engineering.

DEGREES OFFERED: MS, PHD

A joint effort of both the natural sciences and the engineering divisions at Rice and overseen by the Rice Quantum Institute (RQI), the Applied Physics Program (APP) is administered by a committee composed of members from the participating departments mentioned above. The objective is to provide an interdisciplinary graduate education in the basic science that underlies important technology. The faculty believes that the experience obtained by performing research at the intellectually stimulating interface of physical science and engineering is particularly effective in producing graduates who succeed in careers based on new and emerging technologies.

Due to the interdisciplinary nature of the program, students can access virtually any of the research facilities in either the natural sciences or engineering schools of Rice University. The Applied Physics Committee (APC) urges prospective students to contact individual departments or RQI for detailed descriptions of research facilities and ongoing research projects. Within RQI alone, there are more than 100 separate projects, and there are numerous other research opportunities.

DEGREE REQUIREMENTS

The Applied Physics Program (APP) offers master's and PhD degrees. For each degree, the student must fulfill the university requirements set forth in the catalog under which he/she entered. The semester hour requirements may be fulfilled both by classroom hours and research hours. A total of 9 one-semester graduate level courses is required for the master's degree in applied physics, ordinarily a requirement for advancement to candidacy in the PhD program. Four of these are core courses required of all students, and 5 are elective courses chosen according to individual research goals. The Applied Physics Committee (APC) may waive some course requirements for students who demonstrate a thorough knowledge of material in 1 or more core/elective course(s). The student normally will be expected to complete the course requirements in 3 semesters and maintain a minimum grade point average of 3.0 in core courses as well as a 3.0 average in all courses taken.

By the end of the 3rd year in the program, all APP students should have completed the university requirements for a master's degree, fulfilled the course requirements of the APP, and defended a master's thesis in a public oral examination by a committee approved by the APC. The examination covers the work reported in the thesis as well as the entire field in which the student intends to work toward the PhD. The examining committee votes

separately on awarding the master's degree and on admission to candidacy for the PhD. The student also must fulfill the teaching requirements set by the host department to achieve candidacy. Fulfillment of all university degree requirements and successful defense of a PhD thesis in a public examination by an APC approved committee is necessary for the PhD.

Core courses

Quantum Mechanics I (PHYS 521 or CHEM 530)

Quantum Mechanics II or *Statistical Physics* (PHYS 522 or PHYS 526 or CHEM 531 or CHEM 520)

Classical Electrodynamics (PHYS 532)

Introduction to Solid State Physics I (PHYS 563/ELEC 563)

It is assumed that the student has an adequate background in classical mechanics, electrostatics, and statistical and thermal physics. This background is determined from interviews or exams given to entering students by the APC or the host department.

Elective courses (5 required)

BIOE 584 *Lasers in Medicine and Bioengineering*

BIOE 589/BIOS 589 *Computational Molecular Biophysics*

BIOE 610/PHYS 600 *Methods of Molecular Simulation/Advanced Topics in Physics*

CENG 630 *Chemical Engineering of Nanostructured Materials*

CHEM 495 *Transition Metal Chemistry*

CHEM 515 *Chemical Kinetics & Dynamics*

CHEM 520 *Classical and Statistical Thermodynamics*

CHEM 530 *Quantum Mechanics I/Quantum Chemistry*

CHEM 531 *Quantum Mechanics II/Quantum Chemistry*

CHEM 533 *Nanostructure & Nanotechnology*

CHEM 547 *Supramolecular Chemistry*

CHEM 611 *High Temperature and High Pressure Chemistry*

CHEM 630 *Molecular Spectroscopy and Group Theory*

ELEC 462 *Semiconductor Devices*

ELEC 463 *Lasers and Photonics*

ELEC 465 *Physical Electronics Practicum*

ELEC 560 *Linear/Nonlinear Fiber Optics*

ELEC 561 *Topics in Semiconductor Manufacturing*

ELEC 562 *Submicrometer & Nanometer Device Technology*

ELEC 564/PHYS 564 *Introduction to Solid State Physics II*

ELEC 565 *Topics in Quantum Semiconductor Nanostructures*

ELEC 567 *Applied Quantum Mechanics*

ELEC 568 *Laser Spectroscopy*

ELEC 569 *Ultrafast Optics*

ELEC 591 *Optics*

ELEC 592 *Topics in Quantum Optics (Nonlinear Optics)*

ELEC 603 *Topics in Micro- and Nanophotonics*

ELEC 691 *Seminar Topics in Nanotechnology*

MECH 679 *Applied Monte Carlo Analysis*

MECH 682 *Convective Heat Transfer*

MECH 683 *Radiative Heat Transfer I*

MECH 684 *Radiative Heat Transfer II*

MSCI 402 *Mechanical Properties of Materials*

MSCI 523 *Properties, Synthesis, and Design of Composite Materials*

MSCI 535 *Crystallography and Diffraction*

MSCI 597 *Polymer Synthesis, Soft Materials, and Nanocomposites*

MSCI 610 *Crystal Thermodynamics*

MSCI 614 *Principles of Nanoscale Mechanics*

MSCI 615 *Thin Film Failure Analysis, Measurement, and Reliability*

MSCI 623 *Analytical Spectroscopies*

MSCI 634 *Thermodynamics of Alloys*

MSCI 635 *Transformation of Alloys*

MSCI 645/ELEC 645 *Thin Films*

MSCI 666 *Conduction Phenomena in Solids*

PHYS 480 *Introduction to Plasma Physics*

PHYS 512 *Ionospheric Physics*

PHYS 515 *Classical Dynamics*

PHYS 516 *Mathematical Methods*

PHYS 521 *Quantum Mechanics I*

PHYS 522 *Quantum Mechanics II*

PHYS 526 *Statistical Physics*

PHYS 533/534 *Nanostructures and Nanotechnology I/II*

PHYS 537/538 *Methods of Experimental Physics I/II*

PHYS 539 *Characterization and Fabrication at the Nanoscale*

PHYS 552 *Molecular Biophysics*

PHYS 564/ELEC 564 *Introduction to Solid State Physics II*

PHYS 566 *Surface Physics*

PHYS 568 *Quantum Phase Transitions*

PHYS 571 *Modern Atomic Physics and Quantum Optics*

PHYS 572 *Fundamentals of Quantum Optics*

PHYS/ELEC 605 *Computational Electrodynamics and Nanophotonics*

PHYS 663 *Condensed Matter Theory: Applications*

PHYS 664 *Condensed Matter Theory: Many-Body Formalism*

No courses may be used for both core and elective courses. Due to overlap of curricula, only 1 from each of the pairs PHYS 521/CHEM 530, PHYS 522/CHEM 531, and PHYS 526/CHEM 520 may be used for the 9 required courses.

ARCHITECTURE

THE SCHOOL OF ARCHITECTURE

DEAN

Lars Lerup

ASSOCIATE DEAN

John J. Casbarian

PROFESSORS

William T. Cannady

Carlos Jimenez

Albert H. Pope

Gordon G. Wittenberg Jr.

ASSOCIATE PROFESSORS

Farès el-Dahdah

Sanford Kwinter

Spencer W. Parsons

ASSISTANT PROFESSORS

Dawn Finley

David Guthrie

Christopher Hight

Nana Last

Clover Lee

LECTURERS

Alan Fleishacker

James Furr

Tom Lord

Mark Oberholzer

Frank S. White

PROFESSORS IN PRACTICE

Nonya S. Grenader

Douglas E. Oliver

ADJUNCT LECTURER

Stephen Fox

CAUDILL VISITING ASSISTANT PROFESSOR

Sean Lally

VISITING SMITH PROFESSOR

Danny M. Samuels

VISITING CULLINAN PROFESSOR

Mark Wamble

DEGREES OFFERED: BA, BARCH, MARCH, MARCH IN URBAN DESIGN, DARCH

The principal goal of the School of Architecture is to contribute to a more humane environment. The school focuses on teaching and research, the development of a broad liberal education for undergraduates in the allied sciences and arts of architecture, and professional graduate and postgraduate education in architecture and urban design. Intimate student–faculty interaction, academic freedom, and unrestricted institutional cooperation within and outside the university are distinctive qualities of the architecture degree programs at Rice.

“In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board, which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes 2 types of degree: the Bachelor of Architecture and the Master of Architecture. A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on its degree of conformance with established educational standards.

Master’s degree programs may consist of a preprofessional undergraduate degree and a professional degree, which, when earned sequentially, comprise an accredited professional education. However, the professional degree is not, by itself, recognized as an accredited degree.”—National Architectural Accrediting Board

The undergraduate programs maintain a balance between academic studies and professional practice. Lectures and other public programs, visiting faculty,

scholarly presentations, and the Preceptorship Program, which provides a 1-year internship in outstanding architectural offices throughout the United States, Europe, and Japan, all complement the school's core of distinguished teachers and practitioners.

The graduate programs have three areas of emphasis: architectural design, with particular attention paid to history, theory, and practice; urban design, where the concern is the emerging form of the American city; and research in computer visualization, which uses the resources of the state-of-the-art Rice Advanced Visualization Lab.

DEGREE REQUIREMENTS FOR BA IN ARCHITECTURE OR ARCHITECTURAL STUDIES

For general university requirements, see Graduation Requirements (pages 14–15). The conditions specified here for each major also satisfy the university distribution requirements.

BA in Architecture—The curriculum for architecture majors is divided into a foundation sequence taken in the freshman and sophomore years and a preprofessional sequence taken in the junior and senior years. The foundation sequence consists of 4 semesters of design studios and other related courses in architecture. The 1st-semester studio develops basic design skills through directed explorations and problem-solving exercises in form, texture, color, material, and structures. In the subsequent 3 studios, through a carefully sequenced series of exercises, students are introduced to a broad range of architectural design issues, processes, and methods. Students are required to take 4 courses in the history and theory of art and architecture during the freshman and sophomore years in addition to 2 semesters of architectural technology. They also must complete university distribution requirements. It is recommended that students take an introductory drawing course during their first 2 years of study to develop visual skills.

Students who satisfactorily complete the foundation sequence may, upon approval of their major, enter the junior and senior year preprofessional sequence. The fall studios for the 3rd and 4th years are organized around the workshop model and emphasize urban design issues, digital media applications, and comprehensive building design. The spring studios are vertically integrated, allowing students to select offerings emphasizing specialized design topics such as technology, landscape design, historical precedent, sustainable design, and project delivery systems. During the 3rd and 4th years, students are required to take 2 additional technology courses and to fulfill all remaining school or university distribution requirements. Students wishing to pursue the professional degree in architecture may apply for admission to the Bachelor of Architecture (BArch) degree program during the 2nd semester of the 4th year.

BA in Architectural Studies—As an alternative to the preprofessional degree sequence, and open only to students who have been admitted as architecture majors and have completed the 2-year foundation program, the Architectural Studies curriculum is an option. The first 4 semesters of the curriculum are identical to the foundation sequence of the architecture major except for the omission of 1 technology course. Subsequent requirements are the completion of an additional studio and 4 elective courses in architecture. The program provides basic preparation for later professional study while allowing other academic interests to be pursued at greater depth.

TYPICAL CURRICULUM FOR BA IN ARCHITECTURE

1st Semester

ARCH 101 *Principles of Architecture I*
HART 101 *Introduction to History of Art*
PHYS 101 *Mechanics (with lab)*
LPAP 101 *Lifetime Physical Activities*
Approved architecture-restricted distribution course in humanities

2nd Semester

ARCH 102 *Principles of Architecture I*
ARCH 132 *Freshman Seminar*
HART 102 *Introduction to History of Art*
LPAP 102 *Lifetime Physical Activities*
MATH 101 *Single Variable Calculus*
Approved architecture-restricted distribution course in humanities

3rd Semester

ARCH 201 *Principles of Architecture II*
ARCH 207 *Introduction to the Design of Structures*
ARCH 345 *Architecture and the City I*
Studio Art Elective*
Elective*

4th Semester

ARCH 202 *Principles of Architecture II*
ARCH 214 *Design of Structures II*
ARCH 346 *Architecture and the City II*
Approved architecture-restricted distribution course in social sciences
Elective*

5th Semester

ARCH 301 *Principles of Architecture III*
ARCH 316 *Design of Structures III*
Architectural Theory Elective
Elective*
Elective*

6th Semester

ARCH 302 *Principles of Architecture III*
ARCH 315 *Building Climatology*
Elective*
Elective*
Elective*

7th Semester

ARCH 401 *Principles of Architecture IV*
Elective*
Elective*
Elective*

8th Semester

ARCH 402 *Principles of Architecture IV*
Elective*
Elective*
Elective*

*All courses must be selected to satisfy both architecture major requirements and university distribution requirements.

DEGREE REQUIREMENTS FOR A BACHELOR OF ARCHITECTURE (BARCH)

The Bachelor of Architecture program is open only to students who have completed the undergraduate preprofessional architecture program at Rice. Upon admission, students are assigned a preceptorship, which takes place immediately after receipt of the Bachelor of Arts in Architecture degree. The preceptorship program balances academic learning with professional experience. Qualified students who have been admitted to the BArch degree program are assigned to work for a year in the United States or abroad with leading architectural offices designated by the school as preceptors. The BArch degree requires the successful completion of the BA in architecture, completion of the 2-semester preceptorship, and completion of 2 graduate studios and 5 approved lecture or seminar courses.

PRECEPTORS

Allied Works
Portland

Arquitectonica
Miami

Cambridge Seven Associates
Cambridge

Gensler
Houston, London, Los Angeles,
San Francisco, Santa Monica

Michael Graves Architects
Princeton

Kohn Pedersen Fox, Architects
London, New York

Lake/Flato Architects
San Antonio

Machado-Silvetti Associates
Boston

Richard Meier and Partners
Los Angeles

Mitchell Giurgola
New York

NBBJ
Seattle

Office dA, Inc
Boston

Ong & Ong Architects
Singapore

Pei, Cobb, Freed & Partners
New York

Pelli Clarke Pelli
New Haven

Renzo Piano Building Workshop
Genoa, Paris

Robert A. M. Stern Architects
New York

Rogers Marvel Architecture
New York

SOM
San Francisco

Venturi Scott-Brown & Associates
Philadelphia

Weiss/Manfredi Architects
New York

Zimmer Gunsul & Frasca
Los Angeles

MASTER OF ARCHITECTURE

The Master of Architecture (MArch) program prepares graduates for a full range of professional activities in the field of architecture. It is offered to individuals who possess a bachelor's degree. Students follow a course of study in all 4 areas of the curriculum: design; history, theory, and criticism; structures, practice, and environments; and computing, logic, and representation. These areas of study are sustained by groups of courses from which students may choose offerings according to the requirements of their particular program. Strong emphasis is given to developing design skills, logic, and imagination through an intensive series of design studio courses. Students also are required to prepare an independent thesis before graduating. A potential exists for dual degrees.

The Master of Architecture program is accredited by the National Architectural Accrediting Board. It leads to the degree of Master of Architecture, which qualifies graduates to take the state professional licensing examination after completing the required internship in an architectural office.

Programs of Study—Three program options are available at the Master of Architecture level. Options 1, 2, and 3 differ according to the bachelor's degree received before entering the graduate program.

OPTION 1

Seven-Semester Program—Option 1 is offered to individuals who hold a 4-year undergraduate degree with a major in a field other than architecture. Preference for admission is given to those who have completed a balanced education in the arts, sciences, and humanities. A minimum of 2 semesters of

college-level courses in the history of art and/or architecture are recommended, as is a minimum of one semester of college-level courses in mathematics or physics. Previous preparation in the visual arts also is desirable, as are courses in philosophy, literature, and economics.

To graduate, students must complete a 4-semester core curriculum (76 credit hours), which is followed by a 3-semester advanced curriculum (57 credit hours). Course work in both core and advanced curricula consists of 7 studios (including thesis) and 20 distribution courses (133 credit hours).

Core Curriculum

1st Semester

ARCH 501 *Core Design Studio I*

ARCH 507 *Introduction to Design of Structures II*

ARCH 635 *Architecture Computer Graphics Overview*

ARCH 685 *Architecture and Society I*

2nd Semester

ARCH 502 *Core Design Studio II*

ARCH 514 *Design of Structures II*

ARCH 532 *Introduction to Digital Visualization and Communication*

ARCH 686 *Architecture and Society II*

3rd Semester

ARCH 503 *Core Design Studio III*

ARCH 516 *Environmental Control Systems*

ARCH 683 *20th-Century History of Ideas in Architecture*

Distribution Elective (*Computing, Logic, and Representation*)

4th Semester

ARCH 504 *Architectural Problems*

ARCH 515 *Design of Structures III*

ARCH 623 *Professionalism and Management in Architecture*

Distribution Elective (*History, Theory, and Criticism*)

Advanced Curriculum

5th Semester

ARCH 601 *Architectural Problems*

Distribution Elective (*History, Theory, and Criticism*)

Distribution Elective (*Computing, Logic, and Representation*)

Elective

6th Semester

ARCH 602 *Architectural Problems*

ARCH 702 *PreThesis Preparation*

Distribution Elective (*Structures, Practice, and Environments*): *Sustainability*

Elective

7th Semester

ARCH 703 *Thesis Studio* or equivalent

Elective

Elective

OPTION 2

5-Semester Program—Option 2 is offered to individuals who hold a 4-year undergraduate degree with a major in architecture. Preference for admission is given to those who have successfully completed between 4 and 6 semesters of undergraduate design studio as well as undergraduate courses that are analogous to those given in the 1st year of Option 1. A minimum of 2 semesters of college-level courses in the history of art and/or architecture are recommended; as is a minimum of 1 semester of college-level courses in mathematics and physics.

Students in this program enter into the 2nd year of the core curriculum (2 semesters, 38 credit hours), followed by the advanced curriculum (3 semesters, 57 credit hours). Course work in both core and advanced curricula consists of 5 studios (including thesis) and 14 distribution courses (95 credit hours).

1st Semester

ARCH 503 *Core Design Studio III*
ARCH 516 *Environmental Control Systems*
ARCH 683 *20th-Century History of Ideas in Architecture*
Dist. Elective (*Computing, Logic, and Representation*)

2nd Semester

ARCH 504 *Architectural Problems*
ARCH 515 *Design of Structures III*
ARCH 623 *Professionalism and Management in Architecture*
Distribution Elective (*History, Theory, and Criticism*)

Advanced Curriculum

3rd Semester

ARCH 601 *Architectural Problems*

OPTION 3

3-Semester Program—Option 3 is offered to individuals who hold a professional degree in architecture (BArch) or its equivalent from a foreign university. Preference for admission is given to those who have significant practical experience in architecture and who have demonstrated high achievement in design.

To graduate, students must complete a 3-semester advanced curriculum of elective courses. Course work consists of 3 studios (including thesis) and 8 distribution courses (57 credit hours).

1st Semester

ARCH 601 *Architectural Problems*
Distribution Elective (*History, Theory, and Criticism*)
Distribution Elective (*Computing, Logic, and Representation*)
Elective
or
ARCH 610 *History, Theory/RSAP*
ARCH 620 *Architectural Problems/RSAP*

2nd Semester

ARCH 602 *Architectural Problems*

Thesis Requirement—All MARCH candidates are required to develop a thesis in partial fulfillment of graduate degree requirements. Students are asked to demonstrate their ability to independently undertake research and analysis and develop a hypothesis and a thorough demonstration of the thesis. This must take the form of either a research thesis (written thesis) or a thesis with a design demonstration (design thesis). Both thesis formats must address architectural consequences that may be derived from within or outside conventional boundaries of the architectural discipline.

Distribution Elective (*History, Theory, and Criticism*)
Distribution Elective (*Computing, Logic, and Representation*)
Elective

4th Semester

ARCH 602 *Architectural Problems*
ARCH 702 *Prethesis Preparation*
Distribution Elective (*Structures, Practice, and Environments*): *Sustainability*
Elective

5th Semester

ARCH 703 *Thesis Studio**
Elective
Elective
*or an approved alternative

Thesis preparation begins in the next-to-last semester with a 3-hour independent study course leading to the submission of a thesis proposal and the selection of a thesis director plus 2 faculty members as readers. While the thesis is independent work carried out by the student under the direction of a chosen advisor, it is organized as a studio in the fall term of the academic year. The thesis studio provides a support setting for both formal and informal review processes throughout the thesis semester. In early January, thesis projects are reviewed by a panel of guest critics and publicly presented in the Farish Gallery.

MASTER OF ARCHITECTURE IN URBAN DESIGN

The Master of Architecture in Urban Design (MAUD) program prepares graduates for a full range of professional activities in the field of urban design. It is offered to individuals who already hold a professional degree qualifying them for registration as architects or landscape architects. The MAUD program makes extensive use of Houston as a setting for case studies and design problems. During the 1st year, strong emphasis is given to developing design skills, logic, and imagination through an intensive series of urban design studio courses. Three additional courses in urban history, planning, and design are required each semester. Students also are required to prepare an independent thesis during their 3rd semester.

DOCTOR OF ARCHITECTURE

Admission to the Doctor of Architecture program requires either a bachelor's or master's degree in architecture and a detailed statement of research concerns and anticipated array of investigation. A student entering with a master's degree normally takes 3 semesters of course work before the qualifying examination. A student with a bachelor's degree normally requires 2 to 5 semesters of course work before the qualifying examination. Preparation for doctoral candidacy may include a foreign language or computer skills. Specific course requirements are established individually when a student is admitted to the program.

After successful completion of all required course work, students may apply to take the qualifying examination after submitting a prospectus outlining their research programs for the doctoral dissertation. The dissertation must represent an original contribution to knowledge in the field of architecture. Completion and successful defense of the dissertation will take a minimum of 1 year. University requirements for thesis (dissertation) preparation and defense must be carefully followed. The time limit for successful defense of the dissertation is established by university policy. Students should not expect to complete the Doctor of Architecture program in less than 4 years of full-time study.

See ARCH in the Courses of Instruction section.

ART HISTORY

THE SCHOOL OF HUMANITIES

CHAIR

Joseph Manca

PROFESSOR

Joseph Manca

ASSOCIATE PROFESSORS

Marcia Brennan

Linda E. Neagley

ASSISTANT PROFESSORS

Robert Leo Costello

Shirine T. Hamadeh

Shih-Shan Susan Huang

Caroline Quenemoen

LECTURER

Sarah Costello

ADJUNCT LECTURER

Charles Dove

POSTDOCTORAL FELLOW

Gordon Hughes

DEGREES OFFERED: BA

The Department of Art History offers a wide range of courses in European, American, Asian, and Middle Eastern/Islamic art history with additional strengths in architectural history and film and media studies. The major in art history is structured to expose students to the chronological, geographical, and methodological breadth of the field of scholarship.

DEGREE REQUIREMENTS FOR BA IN ART HISTORY

For general university requirements, see Graduation Requirements (pages 14–15).

Students with a single major in art history must complete 36 hours in art history (12 courses) and double majors must complete 30 hours (10 courses). A total of 6 of the courses for double and single majors must be at the 300 level or above. Of these 6 courses, 2 courses must be in each of the following periods: Pre Modern, Early Modern, and Modern. Three of these 6 courses must also be in American/European, distributed over the 3 periods; 1 course in Asian from any period; and 1 course in Middle East/Islamic from any period. Of the 12/10 courses for single and double majors, at least 2 courses must be seminars.

It is strongly recommended that majors in art history acquire a proficiency in at least one foreign language.

In addition, art history majors are encouraged to take advantage of the opportunities provided by museum internships, study abroad programs, and travel fellowships.

TRANSFER CREDIT

With approval from the departmental undergraduate advisor, a maximum of 4 courses may be taken outside of the department and applied to the major as transfer credits or study abroad course credits. No Advanced Placement credits may be used to satisfy major requirements.

See also Transfer Credit in the Information for Undergraduate Students section (page 26–27).

HONORS PROGRAM IN ART HISTORY

Art history majors may apply in the spring semester of their junior year for acceptance into the Honors Program. Interested students, with an excellent academic record, must submit a thesis proposal and recommendation from their thesis advisor to a committee of art historians for review. If accepted,

6 credit hours (included in the 36/30 hours for single and double majors) of directed research and writing would be taken the senior year to complete an honors thesis (HART 402/HART 403). Financial assistance is available for honor students to conduct research between their junior and senior years. In addition to a written thesis, honors students must make a presentation to the faculty and students of the department. Once the advisor and readers have evaluated the completed thesis, the art history faculty determine whether to award honors. Students who do not make satisfactory progress in the 1st term will not be allowed to continue. Students who miss the final thesis deadline (mid-spring semester of the senior year) will receive a grade and credit but no honors.

EXHIBITIONS, LECTURES, AND ARTS PROGRAMS AT RICE AND IN HOUSTON

Houston is fortunate to have some of the best art collections in the United States. The department enjoys a strong and ongoing relationship with the local museums, in particular the Menil Collection and the Museum of Fine Arts, Houston. The department offers opportunities for students to study with local museums, galleries, and alternative art spaces by way of internship courses (HART 400, HART 401, HART 500, HART 501), summer internship working opportunities, fellowships, or collaborative events. The collections and special exhibitions of local museums are often the focus of class lectures and research papers in art history.

The department sponsors the Katherine Brown Distinguished Lectures in Art History, which bring leading scholars to Rice to speak on a wide variety of topics. The department also hosts occasional symposia and lectures in collaboration with other departments, presenting the ideas of top scholars, critics, and artists.

The Department of Art History houses the Visual Resources Center, which currently holds a broad and extensive collection of approximately 300,000 slides and digital images related to the arts for teaching and research, serving both the department and the university at large.

Exhibitions and related activities organized by the Rice University Art Gallery enrich the university and the Houston community. The Department of Visual Arts mounts several art and photography exhibitions each year and sponsors Rice Cinema, a public alternative film program. Rice Cinema is intimately connected with the curriculum both in film and media studies (HART) and in film and photography production (ARTV) and includes frequent guest lectures, panel discussions, and media events.

(See HART in the Courses of Instruction section.)

ASIAN STUDIES

THE SCHOOL OF HUMANITIES AND THE SCHOOL OF SOCIAL SCIENCES

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Guatami Shah

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E. Douglas Mitchell

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Meng Yeh

DEGREE OFFERED: BA

Asian Studies is an interdisciplinary major that explores the complex interaction between political, social, religious, and other important spheres of human life in Asia. Emphasis is placed not only on the diversity and achievements of Asian civilizations but also on the ways an understanding of Asia may shed new light on Western cultural traditions. The major is built around courses in the humanities and social science divisions and a team-taught interdisciplinary core course, Introduction to Asian Civilizations. Some residential college courses may qualify for Asian studies credit.

Requirements: The undergraduate Asian Studies major will consist of 30 hours or more of course work. All majors must take the core course, ASIA 211, and 9 additional courses drawn from at least 3 of the departments offering courses in Asian studies. (See specific guidelines below.)

DEGREE REQUIREMENTS FOR BA IN ASIAN STUDIES

For general university requirements, see Graduation Requirements (pages 14–15). Students majoring in Asian studies must complete 30 semester hours or more of major course work, including:

- ASIA 211 Introduction to Asian Civilizations
- 9 additional courses drawn from at least 3 of the departments or programs that offer courses with predominantly Asian content. In the case of cross-listed courses, any 1 of the departments or programs appearing in the cross-listing can be used to satisfy this particular requirement. See courses listed below.
- 6 courses at the 300-level or above
- 2 years of a single Asian language (this may include an Asian language other than those offered by Rice), though students may count no more than

4 semesters of Asian languages toward the major. Students who have placed into the 3rd year (300-level) or higher of an Asian language at Rice will have satisfied our proficiency requirement for the Asian Studies major. Such students may continue with the same Asian language or another and receive up to 4 semesters of credit toward the major for this additional language coursework.

Any changes in the requirements for the major must be approved by the director of Asian Studies.

One or more independent reading courses (ASIA 401 for the fall and ASIA 402 or ASIA 403 for the spring) taught by Asian Studies faculty in these departments may be counted toward the major. Students also may use certain residential college courses to fulfill their major requirements, subject to the approval of the director of Asian studies.

The following courses, not all of which are taught every year, may be used to satisfy the major requirements. Note that a number of these courses are cross-listed.

Anthropology

- ANTH 220 *Contemporary China* (also offered as HIST 220)
 ANTH 310 *Contemporary China* (enriched version of ANTH 220; also offered as HIST 310)
 ANTH 353 *Cultures of India*

Asian Studies

- ASIA 139 *Introduction to Indian Religions* (also offered as RELI 139)
 ASIA 140 *Introduction to Chinese Religions* (also offered as RELI 140)
 ASIA 179 *The Arts of China*
 ASIA 211 *Introduction to Asian Civilizations* (Also listed as HIST 206)
 ASIA 221 *The Life of the Prophet Muhammad* (also offered as RELI 221)
 ASIA 231 *The Enlightenment of the Body* (also offered as RELI 231)
 ASIA 232 *Religions From India* (also offered as RELI 232)
 ASIA 240 *Gender and Politicized Religion* (also offered as WGST 240)
 ASIA 250 *Meditation, Mysticism, and Magic* (also offered as RELI 250)
 ASIA 280 *The Asian American Experience*
 ASIA 299 *Women in Chinese Literature* (also offered as CHIN 299 and WGST 299)
 ASIA 323 *The Knowing Body* (also offered as WGST 323 and RELI 323)
 ASIA 330 *Introduction to Traditional Chinese Poetry* (also offered as CHIN 330)
 ASIA 332 *Chinese Literature and its Movie Adaptations* (also offered as CHIN 332)

ASIA 334 *Traditional Chinese Tales* (also offered as CHIN 334)

ASIA 335 *Introduction to Classical Chinese Literature* (also offered as CHIN 335)

ASIA 340 *Gender and Politicized Religion* (also offered as WGST 340)

ASIA 344 *Korean Literature* (also offered as HUMA 344 and KORE 344)

ASIA 345 *Origin and Development of Korean and Related Languages in East Asia* (also offered as HUMA 345 and KORE 345)

ASIA 346 *Korean Culture and History* (also offered as KORE 346)

ASIA 350 *History and Politics of Central Asia*

ASIA 354 *Asian Apocalyptic Movements* (also offered as RELI 354)

ASIA 355 *Religion and Social Change in South Asia* (also offered as RELI 355)

ASIA 360 *China and the Chinese Diaspora*

ASIA 361 *The Oriental Renaissance* (also offered as RELI 361)

ASIA 363 *Marriage of Heaven and Hell* (also offered as RELI 363)

ASIA 365 *Mysticism and Meditation in China* (also offered as RELI 365)

ASIA 372 *Survey of Asian American Literature* (also offered as ENGL 372)

ASIA 380 *The Asian American Experience*

ASIA 385 *Chinese Art and Visual Culture* (also offered as HART 372)

ASIA 387 *Asian Religious and Medical Traditions*

ASIA 389 *The Indian Ocean World* (also offered as HIST 389)

ASIA 399 *Women in Chinese Literature*

(also offered as WGST 399)

ASIA 401/402 *Independent Reading***ASIA 422 *Original Beauty of Chinese Literature*****ASIA 432 *Islam in South Asia*** (also offered as HIST 432 and WGST 432)**ASIA 441 *Popular Religion in the Middle East***

(also offered as RELI 441/525)

ASIA 470 *Visual Culture in Revolutionary and Postrevolutionary China (ca. 1949-present)*

(also offered as HART 470)

ASIA 473 *Topics in Asian American Literature*

(also offered as ENGL 473)

Chinese**CHIN 101/102 *Introductory Chinese I and II*****CHIN 201/202 *Elementary Chinese I and II*****CHIN 203/204 *Accelerated Chinese I and II*****CHIN 211/212 *Accelerated Elementary Chinese I and II*****CHIN 215 *Classical Chinese*****CHIN 301/302 *Intermediate Chinese I and II*****CHIN 311/312 *Accelerated Intermediate Chinese I and II*****CHIN 313 *Advanced Intermediate Chinese: Media Chinese*****CHIN 314 *Contemporary China*****CHIN 315 *Taiwan's Films Since 1980s*****CHIN 316 *Texts from Popular Culture*****CHIN 318 *Medical Chinese*****CHIN 321 *Structure of Chinese: Syntax and Semantics*** (also offered as LING 321)**CHIN 322 *Taiwanese Language and Literature*****CHIN 330 *Introduction to Traditional Chinese Poetry*** (also offered as ASIA 330)**CHIN 332 *Chinese Literature and its Movie Adaptations*** (also offered as ASIA 332)**CHIN 334 *Traditional Chinese Tales*** (also offered as ASIA 334)**CHIN 335 *Introduction to Classical Chinese Literature*** (also offered as ASIA 334)**CHIN 346 *History of the Chinese Language*** (also offered as LING 346)**CHIN 399 *Chinese Teaching Practicum*****CHIN 411/412 *Advanced Chinese Language and Culture I and II*****CHIN 422 *Original Beauty of Chinese Literature*** (also offered as ASIA 422)**English****ENGL 372 *Survey of Asian American Literature*** (also offered as ASIA 372)**ENGL 473 *Topics in Asian American Literature*** (also offered as ASIA 473)**Hindi****HIND 101/102 *Elementary Hindi I and II*****HIND 201/202 *Intermediate Hindi I and II*****HIND 335 *South Asian Literature*****HIND 336 *South Asian Literature, Poetry, and Popular Culture*****HIND 398/399 *Hindi Teaching Practicum*****History****HIST 134 *20th-Century Chinese Women*****HIST 206 *Introduction to Asian Civilizations*****HIST 219 *Fortune-Tellers and Philosophers*****HIST 220 *Contemporary China***

(also offered as ANTH 220)

HIST 268 *Bondage in the Modern World***HIST 270 *South Africa and Indonesia*****HIST 302 *Traditional Chinese Culture*****HIST 310 *Contemporary China*** (enriched version of HIST 220; also offered as ANTH 310)**HIST 319 *Fortune-Tellers and Philosophers*****HIST 341 *Premodern China*****HIST 342 *Modern China*****HIST 389 *The Indian Ocean World*** (also offered as ASIA 389)**HIST 405 *Issues in Comparative History*****HIST 432 *Islam in South Asia*** (also offered as ASIA 432 and WGST 432)**HIST 450 *Traditional Chinese Culture*** (enriched version of HIST 250)**History of Art****HART 170 *The Arts of China*****HART 372 *Chinese Art and Visual Culture*** (also offered as ASIA 385)**HART 470 *Visual Culture in Revolutionary and Postrevolutionary China (ca. 1949-present)*** (also offered as ASIA 470)**Japanese****JAPA 101/102 *Introduction to Japanese I and II*****JAPA 201/202 *Intermediate Japanese I and II*****JAPA 301/302 *Advanced Japanese Reading and Composition I and II***

JAPA 370 *Structure of Japanese* (also offered as LING 370)

JAPA 398/399 *Japanese Teaching Practicum*

JAPA 498/499 *Independent Study*

Korean

KORE 101/102 *Introduction to Korean Language and Culture I and II*

KORE 201/202 *Intermediate Korean Language and Culture I and II*

KORE 301/302 *Advanced Korean I and II*

KORE 344 *Korean Literature and Culture* (also offered as ASIA 344 and HUMA 344)

KORE 345 *Origin and Development of Korean and Related Languages in East Asia* (also offered as LING 345 and ASIA 345)

KORE 346 *Korean Culture and History* (also offered as ASIA 346)

KORE 398/399 *Korean Teaching Practicum*

Linguistics

LING 321 *Structure of Chinese Syntax and Semantics* (also offered as CHIN 321)

LING 345 *Linguistic Structure of Korean* (also offered as KORE 345)

LING 346 *History of the Chinese Language* (also offered as CHIN 346)

LING 351/352 *Introduction to Sanskrit I and II* (also offered as SANS 301 and 302)

LING 370 *Structure of Japanese* (also offered as JAPA 370)

LING 451/452 *Advanced Sanskrit I and II* (also offered as SANS 401 and 402)

Political Science

POLI 460 *Seminar in Comparative Government*

Religious Studies

RELI 132 *Classical and Colloquial Tibetan* (also offered as TIBT 132)

RELI 139 *Introduction to Indian Religions* (also offered as ASIA 139)

RELI 140 *Introduction to Chinese Religions* (also offered as ASIA 140)

RELI 221 *The Life of the Prophet Mubammad* (also offered as ASIA 221)

RELI 231 *The Enlightenment of the Body* (also offered as ASIA 231)

RELI 232 *Religions From India* (also offered as ASIA 232)

RELI 235 *Introduction to Taoism*

RELI 250 *Meditation, Mysticism, and Magic* (also offered as ASIA 250)

RELI 322 *Introduction to Buddhism*

RELI 323 *The Knowing Body* (also offered as ASIA 323)

RELI 325 *Buddhism and the Female*

RELI 328 *Tantra in Comparative Perspective*

RELI 331/332 *Advanced Tibetan Language and Culture I and II* (also offered as TIBT 331/332)

RELI 354 *Asian Apocalyptic Movements* (also offered as ASIA 354)

RELI 355 *Religion and Social Change in South Asia* (also offered as ASIA 355)

RELI 356 *Major Issues in Contemporary Islam*

RELI 361 *The Oriental Renaissance* (also offered as ASIA 361)

RELI 363 *The Marriage of Heaven and Hell* (also offered as ASIA 363)

RELI 365 *Mysticism and Meditation in China* (also offered as ASIA 365)

RELI 441/525 *Popular Religion in the Middle East* (also offered as ASIA 441)

RELI 470 *Buddhist Wisdom Texts*

RELI 471 *Buddhist Meditation Theory: Women and Men*

RELI 480/580 *Sexuality, Sanctity, and Psychoanalysis* (also offered as WGST 470)

Sanskrit

SANS 301/302 *Elementary Sanskrit I and II* (also offered as LING 351 and 352)

SANS 401/402 *Advanced Sanskrit I and II* (also offered as LING 451 and 452)

Sociology

SOCI 323 *The Knowing Body: Buddhism, Gender, and the Social World* (also offered as ASIA 323 and WGST 323)

Tibetan

TIBT 132/133 *Tibetan Language and Culture I and II* (also offered as RELI 132/133)

TIBT 331/332 *Advanced Tibetan Language and Culture I and II* (also offered as RELI 331/332)

Women, Gender, and Sexuality Study

WGST 240 *Gender and Politicized Religion*
(also offered as ASIA 240)

WGST 299 *Women in Chinese Literature*
(also offered as ASIA 299 and CHIN 299)

WGST 323 *The Knowing Body: Buddhism,
Gender, and the Social World*
(also offered as ASIA 323 and SOCI 323)

WGST 340 *Gender and Politicized Religion*
(also offered as ASIA 240)

WGST 399 *Women in Chinese Literature*
(also offered as ASIA 399 and CHIN 399)

WGST 432 *Islam in South Asia*
(also offered as ASIA 432 and HIST 432)

WGST 470 *Sexuality, Sanctity, and
Psychoanalysis* (also offered as RELI 480/580)

See ASIA in the Courses of Instruction section.

BIOENGINEERING

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DEGREES OFFERED: BSB, MBE, MS, PHD

Graduate programs in bioengineering offer concentrations in areas such as biomedical imaging and diagnostics, cellular and biomolecular engineering, computational and theoretical bioengineering, drug delivery and biomaterials, supramolecular biophysics and bioengineering, and tissue engineering and biomechanics. Undergraduate programs in bioengineering offer concentrations in areas that include cellular and molecular engineering; bioinstrumentation,

imaging, and optics; and biomaterials and biomechanics. Research areas include biomechanical engineering, biological systems modeling, bioinformatics, biomaterials, biomedical lasers, cellular and molecular engineering, controlled release technologies, metabolic engineering, spectroscopy, statistical mechanics, systems engineering and instrumentation, thrombosis, tissue engineering, and transport processes.

Undergraduate Program—The bioengineering undergraduate program will prepare students for careers in rapidly developing areas of biomedical engineering and bioprocessing. Our unified and comprehensive program leading to the BS degree in bioengineering will:

- Provide students with a fundamental understanding of mathematics and the natural, life, and medical sciences
- Teach students bioengineering principles and their applications in life and medical sciences
- Develop critical problem-solving skills in bioengineering
- Develop the ability to communicate effectively and participate in interdisciplinary teams
- Expose students to a broad education that prepares them for diverse careers

Undergraduates in bioengineering will have the training to pursue further education in graduate school or medical school and will have strong preparation for a career in the biotechnology industry.

The BSB degree is organized around a core of required courses and a selection of elective courses from 3 areas of specialization. The specialization electives provide a flexibility that can be used to create a focus in cellular and molecular engineering; bioinstrumentation, imaging, and optics; or biomaterials and biomechanics. Because of the number of options, students should consult early with departmental advisors to plan a program that meets their needs.

DEGREE REQUIREMENTS FOR BS IN BIOENGINEERING

For general university requirements, see Graduation Requirements (pages 14–15). The curriculum for a BS degree in bioengineering requires 94 credit hours, which count toward the total of 134 hours required to graduate.

Preparation—As freshmen, students considering a major in bioengineering should take MATH 101 and 102, CHEM 121 and 122, PHYS 101 or PHYS 125, PHYS 102 or PHYS 126, and CAAM 210. Sophomore students should take MATH 211 and 212, CHEM 211, BIOS 201, ELEC 243 and MECH 211. BIOE 252 should be taken in the 1st semester of the sophomore year. BIOE 330, BIOE 320, and BIOE 322 should be taken the 2nd semester of the sophomore year.

Core Courses

Bioengineering

BIOE 252 *Bioengineering Fundamentals*

BIOE 320 *Systems Physiology*

Laboratory Module

BIOE 322 *Systems Physiology*

BIOE 330 *Bioreaction Engineering*

BIOE 332 *Thermodynamics*

BIOE 342 *Tissue Culture Laboratory*

BIOE 370 *Biomaterials*

BIOE 372 *Biomechanics*

BIOE 383 *Biomedical Instrumentation*

BIOE 385 *Biomedical Instrumentation*

Laboratory Module

BIOE 391 *Numerical Methods*

BIOE 420 *Biosystems Transport and
Reaction Processes*

BIOE 440 *Statistics for Bioengineers*

BIOE 442* *Tissue Engineering*

Laboratory Module

BIOE 443* *Bioprocessing Laboratory Module*

BIOE 444* *Biomechanical Testing*

Laboratory Module

BIOE 445* *Advanced Bioinstrumentation*

Laboratory Module

BIOE 451 *Bioengineering Design I*

BIOE 452 *Bioengineering Design II*

Biosciences

BIOS 201 *Introductory Biology*

BIOS 341 *Cell Biology*

Computational and Applied Mathematics

CAAM 210 *Introduction to Engineering*

Computation

Chemistry

CHEM 121 *General Chemistry*

CHEM 122 *General Chemistry*

CHEM 211 *Organic Chemistry*

Math

MATH 101 *Single Variable Calculus I*

MATH 102 *Single Variable Calculus II*

MATH 211 *ODEs and Linear Algebra*

MATH 212 *Multivariable Calculus*

Electrical Engineering

ELEC 243 *Introduction to Electronics*

Mechanical Engineering

MECH 211 *Engineering Mechanics*

Physics

PHYS 101, PHYS 111, or PHYS 125 *Mechanics*

PHYS 102, PHYS 112, or PHYS 126 *Electricity and Magnetism*

*Students must take advanced laboratory module in their specialization area: BIOE 442 or BIOE 443 for cellular and molecular engineering; BIOE 442 or 444 for biomaterials and biomechanics; and BIOE 445 for bioinstrumentation, imaging and optics. Students must take one other advanced laboratory module for a total of 2 of the 4 listed modules (BIOE 442, 443, 444, and 445).

SPECIALIZATION AREAS

Three specialization area elective courses, at least 2 of which must be at the senior level, will be required in 1 of the 3 areas:

- Cellular and molecular engineering
- Bioinstrumentation, imaging, and optics
- Biomaterials and biomechanics

The elective courses in these concentration areas will be announced in future course listings. All 3 specialization courses must be engineering courses.

Graduate Program—To train the next generation of leaders in bioengineering, we have built an innovative teaching program that transcends boundaries between bioengineering, basic science, and clinical medicine, integrating the academic, industrial, and societal perspectives.

Our hands-on approach to education is supported by a long standing tradition of cross-disciplinary research and education. The Rice bioengineering program is a comprehensive training program that provides student with:

- A fundamental understanding of the life and medical sciences
- Advanced analytical and engineering capabilities,
- Translational research that transfers biotechnical advances from bench to bedside

With this educational background, graduates will be well prepared to participate in independent or collaborative research and development endeavors in industry or academia.

DEGREE REQUIREMENTS FOR MBE AND MS AND PHD IN BIOENGINEERING

For general university requirements, see Graduate Degrees (pages 57–58).

To make sure scores are available when admission decisions are made, applicants need to register to take the GRE and TOEFL as required before September for the year in which they are applying. Applicants should request transcripts and letters of recommendation before September, as well, to give senders time to get the material to Rice University by the December 31 deadline. The Graduate Admissions Committee begins its deliberations in late November. Application materials received after the December 31 deadline will not be considered.

MBE Program—The master of bioengineering degree is intended for those having a BA or BS degree in an engineering or science discipline.

Candidates for the MBE degree must complete the following course work:

1. Curriculum must be approved by the Graduate Academic Affairs Committee of the bioengineering department. (This will be done on a case-by-case basis).
2. Total of 30 credit hours is required (courses must be above and beyond the requirement for the undergraduate degree) as follows:
 - At least 15 credit hours of the 30 must be taken as BIOE courses, including Fundamentals of Systems Physiology (BIOE 572)
 - Introduction to Partial Differential Equations (MATH 381) (3 hours)
 - 1 additional engineering course (3 hours)
 - 3 additional courses approved by the Graduate Academic Affairs Committee (9 hours)

In summary, the credit hours required are:

- 15 credit hours of BIOE courses
- 3 credit hours of MATH 381
- 3 credit hours of one additional engineering course
- 9 credit hours of additional courses approved by the Graduate Academic Affairs Committee
- 30 Total credit hours

MS Program—Candidates for the MS degree must:

- Complete at least 18 approved semester hours of foundation, supporting, and advanced courses with high standing
- Fulfill a teaching requirement
- Submit an original research thesis
- Defend the thesis in a public oral examination

PhD Program—Candidates for the PhD degree must:

- Complete at least 30 approved semester hours of foundation, supporting, and advanced courses with high standing. With departmental approval, the course requirements may be reduced to not less than 22 hours for students already holding an MS degree.
- Fulfill a teaching requirement. After their 1st semester in residence, students may be asked to spend the equivalent of 6 to 10 hours per week for a total of 3 semesters on teaching assignments.
- Submit a thesis proposal. PhD students must submit and successfully defend their thesis proposals by the end of their 4th semester in residence.

- Complete a 3- to 6-month internship. This requirement may be waived for those with adequate previous relevant experience.
- Submit a thesis that provides evidence of their ability to carry out original research in a specialized area of bioengineering.
- Defend the thesis in a public oral examination.

Graduate students take required courses and electives in the following areas:

- Molecular, cellular, and tissue engineering
- Imaging and optics
- Biomaterials, biomechanics, and tissue engineering
- Computational bioengineering

See BIOE in the Courses of Instruction section.

BIOSCIENCES

BIOCHEMISTRY AND CELL BIOLOGY

THE WIESS SCHOOL OF NATURAL SCIENCES

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THE WIESS SCHOOL OF NATURAL SCIENCES

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Michael Travisano

Diane Wiernasz

DEGREES OFFERED: BA, BS, MA, PHD

Undergraduate Programs—The Departments of Biochemistry and Cell Biology and Ecology and Evolutionary Biology offer a broad range of courses in the biosciences: animal behavior, animal biology, biochemistry, biophysics, cell biology, developmental biology, ecology, endocrinology, evolutionary biology, genetics, immunology, microbiology, molecular biology, neurobiology, plant biology, and advanced courses in these and related areas. Students may elect a BA in Biochemistry and Cell Biology, BA in Biological Sciences, BS in Biochemistry and Cell Biology, or BS in Ecology and Evolutionary Biology. They also may select courses from the range of topics listed above.

Core courses required of all biosciences majors:

Mathematics	BIOS 313 <i>Lab Module in Molecular Biology II</i>
MATH 101/102 <i>Single Variable Calculus I and II</i>	BIOS 314 <i>Lab in Cell and Developmental Biology</i>
Chemistry	BIOS 315 <i>Lab in Physiology</i>
CHEM 121/122 <i>General Chemistry with Laboratory</i>	BIOS 316 <i>Lab in Ecology</i>
CHEM 211/212 <i>Organic Chemistry</i>	BIOS 317 <i>Lab in Behavior</i>
CHEM 215 <i>Organic Chemistry Lab</i>	BIOS 318 <i>Lab in Microbiology</i>
Physics	BIOS 319 <i>Tropical Field Biology</i>
PHYS 125/126 <i>General Physics I and II</i>	BIOS 320/BIOE 342 <i>Lab in Tissue Culture</i>
Biosciences	BIPS 323 <i>Conservation Biology</i>
BIOS 201/202 <i>Introductory Biology</i>	BIOS 327 <i>Biological Diversity Lab</i>
BIOS 301 <i>Biochemistry</i>	BIOS 330 <i>Insect Biology Lab</i>
BIOS 211 <i>Introductory Lab in Biological Sciences</i> (2 credit hours)	BIOS 336 <i>Plant Diversity</i>
BIOS 213 <i>Introductory Lab in Ecology and Evolutionary Biology</i>	BIOS 337 <i>Field Bird Biology Lab</i>
1 Group B BIOS course	BIOS 393 <i>Laboratory Transfer Credit in Biosciences</i>
2 of the following advanced laboratory courses:	BIOS 530 <i>NMR Spectroscopy and Molecular Modeling</i>
BIOS 311 <i>Lab in Protein Purification</i>	BIOS 532 <i>Spectroscopy</i>
BIOS 312 <i>Lab Module in Molecular Biology I</i>	BIOS 533 <i>Computational Biology</i>
	BIOS 535 <i>Practical X-Ray Crystallography</i>

Math 111 and 112 may be substituted for Math 101; Chem 151 and 152 may be substituted for Chem 121 and 122; Phys 101 and 102 or Phys 111 and 112 and their labs may be substituted for Phys 125 and 126. See listings in the Courses of Instruction for Group A and B designations. No course may be counted more than once toward any of the major requirements.

One of the advanced laboratory course requirements can be satisfied by taking any of the following: (i) Bios 310 if taken for at least two credits; or (ii) Hons 470/471, if the research supervisor is from one of the biosciences departments or if the research is biological in nature and preapproved by the student's advisor; (iii) Bios 412; or (iv) BIOS 393.

BA IN BIOCHEMISTRY AND CELL BIOLOGY

In addition to the core courses required of all biosciences majors, BA majors within this option also must take:

- MATH 211 or MATH 213
- BIOS 311
- BIOS 341
- 2 of the following courses: BIOS 302, BIOS 344, BIOS 352
- 2 additional Group A biosciences courses, only one of which may be BIOS 401 or 402

CHEM 311/312 may be substituted for BIOS 352. NEUE 511/512 may be substituted for 1 Group A course. Students may receive credit toward the major for a maximum of 3 credits of BIOS 390.

BA IN BIOLOGICAL SCIENCES

In addition to the core courses that are required of all biosciences majors, BA majors within this option must take:

- MATH 211, MATH 213, STAT 305, or BIOS 338
- 1 of the following advanced lab courses: BIOS 311, 312, 313, 314, 315, 316, 317, 318, 319, 320 (BIOE 342), 323, 327, 330, 336, 337, 393, 530, 533, or 535
- 1 of the following Group A courses: BIOS 302, 341, 344, 352
- 1 additional Group A course
- 2 Group B courses
- 1 additional Group A or Group B course

Only 1 of the courses used to satisfy these Group A and Group B requirements may be BIOS 401, 402, 403, or 404. NEUR 511/512 may be substituted for 1 Group A course. CHEM 311/312 may be substituted for BIOS 352. Students may receive credit toward the major for a maximum of 3 credits of BIOS 390 and 3 credits of BIOS 391. Students desiring to specialize in ecology and evolutionary biology can choose a Group B course for the Group A or B course and their advanced lab can be BIOS 316, 317, 319, 323, 327, 330, 336, 337, or 393.

BS IN BIOCHEMISTRY AND CELL BIOLOGY

In addition to the core courses required of all biosciences majors, BS majors must also take:

- MATH 211 or MATH 213
- BIOS 311
- BIOS 302
- BIOS 341
- BIOS 344
- BIOS 352 or CHEM 312/313
- Three additional Group A bioscience courses

BIOS 401/402 are recommended Group A courses in the BS degree program. NEUR 511/512 may be substituted for one Group A course. Students may receive credit toward the major for a maximum of 3 credits of BIOS 390.

BS IN ECOLOGY AND EVOLUTIONARY BIOLOGY

In addition to the core courses required of all biosciences majors, BS majors must also take:

- MATH 211, MATH 213, STAT 305, or BIOS 338
- 1 of the following advanced laboratory courses: BIOS 316, 317, 319, 323, 327, 330, 336, 337, 393

- 1 Group A biosciences course
- BIOS 403 and BIOS 404
- 2 additional Group B biosciences courses
- 1 additional biosciences course from Group A or B

NEUR 511 and 512 may be substituted for 1 Group A course. Students may receive credit toward the major for a maximum of 3 credits of BIOS 390 and 3 credits of BIOS 391.

Advising—Students should contact the appropriate departmental office to be assigned to an advisor. Those pursuing a BS or BA in Biochemistry and Cell Biology should contact that department office. Those pursuing a BS in Ecology and Evolutionary Biology should contact that department office. Those electing a BA in Biological Sciences may choose the department that most closely corresponds to their interests, and that choice may be changed at any time. Students interested in environmental careers should consult with the ecology and evolutionary biology department for a list of recommended courses. See also Environmental Studies listings and Environmental Science Double Major.

It is recommended that the 100-level mathematics and chemistry courses be taken in the freshman year; that the 100-level physics courses and the 200-level biosciences courses be taken in either the freshman or sophomore year; and that CHEM 211, 212, 215 be taken in the sophomore year. Those with a limited background in chemistry should complete CHEM 121, 122 before taking BIOS 201, 202. Others are urged to take BIOS 201, 202 as freshmen to permit earlier access to advanced level BIOS courses. PHYS 125 and 126 are the preferred physics courses for biosciences majors. However, PHYS 101 and 102 or PHYS 111 and 112 and their labs may be taken instead by those wishing to preserve the option of majoring in a subject for which PHYS 101 and 102 are required.

Note that BIOS 311 is a prerequisite for BIOS 312, 313, 314, 315, and 318. This prerequisite will be strictly enforced, and majors in Biological Sciences whose interests are primarily in cell and molecular biology, are advised to take BIOS 311 as early as possible to allow for scheduling subsequent lab modules.

An undergraduate major in biosciences must have 48 semester hours in courses numbered 300 or higher to obtain a BA or BS degree. Students also must complete no fewer than 60 semester hours outside the departmental requirements. These must include the courses needed to satisfy the university distribution requirements.

ACCELERATED RICE BA-BS/PHD PROGRAM IN BIOCHEMISTRY AND CELL BIOLOGY

Qualified undergraduate students at Rice can apply to enroll in the biochemistry and cell biology graduate program in their senior year. The course requirements for graduate studies are therefore completed at the same time as the upper-level undergraduate degree requirements; laboratory research performed as part of the undergraduate thesis project can serve as the initial phases of the PhD thesis work. As a result, the graduate careers of these students will be accelerated by at least 1 full year, and, in principle, such students should be able to obtain their PhD degrees approximately 3 years after obtaining their BA or BS degree.

Criteria for selection include academic performance ($\text{GPA} \geq 3.3$), GRE scores, motivation, previous research experience, and personal qualities. Selection is made by the department admissions committee.

MECHANICS OF THE PROGRAM

The program requires the completion of 2 and 1-half years (or their equivalent) of undergraduate studies at Rice before a student can be considered for enrollment in the accelerated PhD program. To continue in the program, the following requirements must be fulfilled: (1) The student must take the GRE before receiving the BA or BS degree and receive scores greater than 80 percent in the Analytical and Quantitative Tests; (2) students also must maintain at least a B average in all courses in their senior year; and (3) the usual graduate requirements will apply for continuation in the program.

DEGREE REQUIREMENTS FOR MA AND PHD IN BIOCHEMISTRY AND CELL BIOLOGY

Admission—Applicants for graduate study in the Department of Biochemistry and Cell Biology must have:

- BA degree in biochemistry, biology, chemistry, chemical engineering, physics, or some equivalent
- Strong ability and motivation, as indicated by academic record, Graduate Record Examination (GRE) scores, and recommendations

Although the department offers an MA degree in biochemistry and cell biology, only on rare occasions are students who do not intend to pursue the PhD degree admitted to the graduate program. The department provides a program guide entitled “Graduate Requirements for Biochemistry and Cell Biology” which is updated annually. For general university requirements, see Graduate Degrees (in the *General Announcements*).

Both PhD and MA Programs—Most of the formal course studies will be completed in the 1st year of residence to allow the students to commence thesis research at the end of their 2nd semester at Rice. During the 1st year, all graduate students will be advised by the Graduate Advisory Committee. This committee will determine the formal course program to be taken during the 1st year in residence. Students are required to have training in biochemistry, cell biology, genetics, and physical chemistry or biophysics. If students are missing formal training in these subjects, they are required to take the equivalent background courses during their 1st year. The corresponding courses at Rice include the following:

BIOS 301 *Biochemistry*

BIOS 302 *Biochemistry*

BIOS 341 *Cell Biology*

BIOS 344 *Molecular Biology and Genetics*

BIOS 352 *Physical Chemistry for the Biosciences*

All PhD students are required to take the following graduate-level courses:

BIOS 575 *Introduction to Research*

BIOS 581, 582 *Graduate Research Seminars*

BIOS 583 *Molecular Interactions*

BIOS 587 *Research Design, Proposal Writing, and Professional Development*

BIOS 594 *The Ethics of Bioscience and Bioengineering*

BIOS 599 *Graduate Teaching*

BIOS 701/702 *Graduate Lab Research*
(rotations in 1st year)

Students must also take 2 units from the following set of advanced courses:

BIOS 525 *Plant Molecular Biology* (1 unit)

BIOS 530, 532, 533, 535 *Graduate Laboratory Modules in Molecular Biophysics*
(1/2 unit each)

BIOS 544 *Developmental Biology* (1 unit)

BIOS 545 *Advanced Molecular Biology and Genetics* (1 unit)

BIOS 551 *Molecular Biophysics* (1 unit)

BIOS 552 *Molecular Biophysics II* (1 unit)

BIOS 588 *Advanced Cell and Developmental Biology* (1 unit)

Students should complete BIOS 583 and BIOS 587 in their 1st year, and they will be responsible for the content of those course programs in their admission to candidacy examinations (see below). Students also gain teaching experience by serving as discussion leaders and graders in undergraduate sections during their 2nd year. Safety and ethics presentations are provided for 1st-year students.

Evaluation of Progress in Graduate Study—The Graduate Advisory Committee evaluates each student's undergraduate record and identifies any deficiencies to be corrected (usually in the 1st year). Thesis advisors may require additional course work of a more specialized nature. Students must complete all additional courses before taking the admission to candidacy examination.

At the end of each semester, the department chair, in consultation with the committee and faculty, reviews student performance in the formal course work; after students complete 2 semesters at Rice, the faculty conducts a review. Students must maintain at least a B average and demonstrate outstanding motivation and potential for research.

Evaluation after the 1st year includes:

- Ongoing review of research progress by the thesis research advisor
- A research progress review examination given each year by the student's Research Progress Review Committee
- Presentation of research progress at least once a year after the 1st year until submission of a complete doctoral thesis
- Completion of an oral admission to candidacy examination before the end of the student's fourth semester
- Defense of the PhD thesis research and text in a final public seminar presentation and oral examination attended by the student's thesis committee

MA Program—All the above requirements and evaluation procedures apply to MA candidates with the following exceptions. The research progress review examination held during the MA student's second full year, which is identical in format to that for PhD students, replaces the admission to candidacy examination; no other preliminary examination is held before the final oral defense of the master's thesis. MA candidates must complete a thesis and make a public oral defense of their research work to their thesis committee and other interested parties.

DEGREE REQUIREMENTS FOR MS, MA, AND PhD IN ECOLOGY AND EVOLUTIONARY BIOLOGY

Admission—Applicants for graduate study in the Department of Ecology and Evolutionary Biology must have:

- BA or BS degree or equivalent that provides a strong background in biology
- Strong ability and motivation, as indicated by academic record, Graduate Record Examination (GRE) scores, and recommendations
- Scores from the GRE Biology subject exam are optional but can be helpful, particularly for student with nontraditional backgrounds in biology

These requirements do not preclude admission of qualified applicants who have majored in areas other than biology. Although the department offers MA and MS degrees, only on rare occasions are students who do not intend to pursue the PhD admitted to the graduate program.

Students should have completed course work in physics, mathematics (including calculus), and chemistry (including organic chemistry) prior to admission.

Deficiencies in these subject areas or in specific areas of biology should be made up during the first year of residence; some may be waived at the discretion of the student's advisory committee and the department chair.

Entering students will meet with a faculty advisor to form a course of study of the first year. All first year students will complete the core course in ecology and evolutionary biology (BIOS 569) in their first semester. All graduate students are required to complete BIOS 585/586 (Graduate Seminar in Ecology and Evolutionary Biology) and two semesters of BIOS 591 (Graduate Teaching). Students must maintain a grade average of B in courses taken in the department and satisfactory grades in courses taken outside the department.

Students must demonstrate satisfactory progress in their degree program in annual reviews by a departmental committee. The review process requires that each student present a public seminar on their research, prepare a written report on their progress, and participate in an interview with the departmental committee. For general university requirements, see Graduate Degrees (in *General Announcements*).

MS Program. In addition to the general university requirements and those listed above, the master of science in ecology and evolutionary biology requires at least 10 hours of research credit.

MA Program. In addition to the general university requirements and those listed above, the master of arts in ecology and evolutionary biology requires the completion and public defense of a thesis embodying the results of an original investigation.

PhD Program. In addition to the general university requirements and those listed above, the PhD degree in ecology and evolutionary biology requires:

- Passing the admission to candidacy examination given by the Graduate Thesis Committee. (Committee will be composed of at least 4 members. At least 3 must be members of the EEB graduate faculty.)
- Complete an original investigation and a doctoral thesis with the potential to produce publications in reputable, peer-reviewed scientific journals
- Present a departmental seminar on the research
- Publicly defend the doctoral thesis

CENTER FOR THE STUDY OF LANGUAGES

THE SCHOOL OF HUMANITIES

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ASSOCIATE DIRECTOR

Claire Bartlett

DIRECTOR OF LANGUAGE

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Jonathan Ludwig (*Russian*)

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Meng Yeh (*Chinese*)

Elsa Zambosco-Thomas (*Spanish*)

The Center for the Study of Languages (CSL) was founded in 1997 to promote and enhance the study of languages at Rice University and is responsible for teaching 12 languages through the 3rd year of instruction. The role of the center is to establish innovative approaches to language acquisition, expand opportunities for language learning across the curriculum, and increase Rice students' participation in study and work abroad. The Language Resource Center (LRC), the technology division of the CSL, provides resources such as specialized computer software and enhanced videos to support and supplement all aspects of the teaching and learning of languages.

DEGREES OFFERED: NONE

The CSL does not offer degree programs itself, but students are able to pursue language degrees from language departments. Some of those degrees include: BA in Asian Studies (Asian Studies); BA in Classical Studies (Classical Studies); BA, MA, and PhD in French Studies (French Studies); BA in German Studies; BA in Slavic Studies (German and Slavic Studies); and BA and MA in Spanish (Hispanic Studies). See each department for degree requirements.

PLACEMENT TESTING

Foreign language classes are popular among Rice University students who wish to enhance their knowledge of world languages and cultures. Students who have some background in the language they intend to study are required to take a placement test to ensure that they are placed in the appropriate course. Placement tests can be taken online prior to matriculation or during O-Week. Additional information regarding language placement tests can be found on the Language Resource Center web page at www.ruf.rice.edu/~lrc/placement.html.

TRANSFER CREDITS

The CSL will determine equivalency for foreign language classes taken at other colleges or universities and approve them for transfer credit. University transfer credit guidelines (see page 27) as well as requirements of the degree-granting department still apply. Students who study abroad should have their transfer credits approved before they commit to a study-abroad program. When requesting Rice equivalent credit for foreign language acquisition courses students must submit no less than the following to the CSL for approval: 1) the appropriate transfer request form from the Registrar's Office, 2) a program description for courses taken abroad or catalog description for courses taken in the United States, and 3) a syllabus for the course they wish to take or have taken. Students should be aware that the approval process takes about 1 week and should plan accordingly.

SCHOLARSHIPS

Two scholarships are offered yearly through the CSL. The Donne Di Domani donates money to be awarded to outstanding Rice University students. This scholarship, to be used for tuition and books, is awarded to students committed to study of the Italian language and is based on need and merit. The Ministry of Education, Republic of China in Taiwan also offers a scholarship to study Mandarin Chinese in Taiwan for 1 year. Students interested in applying for either of these scholarships should contact the CSL at the beginning of the spring semester.

See ARAB, CHIN, FREN, GERM, HIND, HEBR, ITAL, JAPA, KORE, PORT, RUSS, and SPAN in the Courses of Instruction section.

CHEMICAL AND BIOMOLECULAR ENGINEERING

THE GEORGE R. BROWN SCHOOL OF ENGINEERING

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DEGREES OFFERED: BA, BSChE, MChE, MS, PHD

This major gives undergraduates a sound scientific and technical grounding for further development in a variety of professional environments. Courses in mathematics, chemistry, physics, and computational engineering provide the background for the chemical engineering core, which introduces students to chemical process fundamentals, fluid mechanics, heat and mass transfer, thermodynamics, kinetics, reactor design, process control, and process design. Course electives may be used to create a focus area in one of the following 4 disciplines: bioengineering, environmental engineering, materials science/engineering, and computational engineering. Upon completing either the flexible BA requirements or the more scientific and professional BSChE requirements, students may apply for a 5th year of study leading to the nonthesis Master of Chemical Engineering (MChE) degree. A joint MBA/MChE degree also is available in conjunction with the Jesse H. Jones Graduate School of Management.

Students admitted for graduate studies leading to the MS or PhD degrees must complete a rigorous program combining advanced course work and original research that must be formalized in an approved thesis. Graduate research is possible in a number of areas, including catalysis and nanotechnology, thermodynamics and phase equilibria, interfacial phenomena, colloids, microemulsions, rheology and fluid mechanics, biosystems engineering, biocatalysis and metabolic engineering, cell population heterogeneity and biological pattern formation, cellular and tissue engineering, energy and sustainability, gas hydrates, enhanced oil recovery, reservoir characterization, and pollution control.

DEGREE REQUIREMENTS FOR BS IN CHEMICAL ENGINEERING

For general university requirements, see Graduation Requirements (pages 14–15). The BS degree is accredited by the Accreditation Board for Engineering

and Technology (ABET). Through careful selection of other engineering and science courses, a student can develop a focus (or concentration) area in any of the following 4 engineering disciplines: environmental science/engineering, bioengineering, materials science/engineering, and computational engineering. These elective programs can be completed within the framework of a BS in chemical engineering. Students majoring in chemical engineering must complete 96 hours in the courses specified below for a minimum of 132 hours at graduation.

The undergraduate curriculum is designed so that outstanding students interested in careers in research and teaching may enter graduate school after earning either bachelor's degree.

ENGINEERING BREADTH AND FOCUS AREA OPTIONS

To complete their technical education, Rice students seeking a BS degree in chemical engineering take course electives in at least 2 other engineering disciplines to satisfy a "breadth" requirement.

Or, they can use their electives to create a focus (or concentration) area in 1 of the following four disciplines:

- biotechnology/bioengineering
- computational engineering
- environmental engineering
- materials science and engineering

Consult our department web page for a detailed list of courses that can be used to satisfy the engineering breadth or focus area requirements.

DEGREE REQUIREMENTS FOR BSChE IN CHEMICAL ENGINEERING

Chemistry

CHEM 121/122 *General Chemistry with Laboratory* or

CHEM 151/152 *Honors Chemistry with Laboratory*

CHEM 211/212 *Organic Chemistry*

CHEM 217 *Organic Chemistry Lab*

CHEM 311/312 *Physical Chemistry*

Any 2 of CHEM 212, CHEM 311, or CHEM 312

Chemical and Biomolecular Engineering

CHBE 301 *Chemical Engineering Fundamentals*

CHBE 303 *Computer Programming in Chemical Engineering*

CHBE 305 *Computational Methods for Chemical Engineers*

CHBE 343 *Chemical Engineering Lab I*

CHBE 390 *Kinetics and Reactor Design*

CHBE 401/402 *Transport Phenomena I and II*

CHBE 403 *Design Fundamentals*

CHBE 404 *Product and Process Design*

CHBE 411/412 *Thermodynamics I and II*

CHBE 443 *Chemical Engineering Lab II*

CHBE 470 *Process Dynamics and Control*

Mathematics

MATH 101/103 *Single Variable Calculus I and II*

MATH 211 *Ordinary Differential Equations and Linear Algebra*

MATH 212 *Multivariable Calculus or equivalent honors courses*

CAAM 336 *Differential Equations in Science and Engineering or*

MATH 381 *Introduction to Partial Differential Equations*

Physics

PHYS 101 or 111 *Mechanics*

PHYS 102 or 112 *Electricity and Magnetism*

Mechanical Engineering

MECH 211 *Engineering Mechanics*

Students pursuing the BA degree in chemical engineering must meet all of the requirements for the BSChE degree with the following exceptions: CHBE 404 and 470 are not required. Also, they do not have to satisfy the requirements for

either the engineering breadth or the focus area. Free electives may be substituted for these requirements to reach at least 132 semester hours for graduation.

Prerequisites for Chemical Engineering Courses—Before undergraduates may register for courses in chemical engineering at the 300-level and above, they must satisfy the following prerequisites.

For CHBE 301

Math 101/102

CHEM 121/122 or CHEM 151/152

Corequisite: CHBE 303

For CHBE 390

CHBE 301, 303, and 305

MATH 211/212

For CHBE 401

CHBE 411

MATH 211/212

PHYS 101/102

Co/Prerequisite: CHBE 305

For CHBE 402

CHBE 401

Co/Prerequisites: CAAM 336 or MATH 381

For CHBE 403

CHBE 390, 402, and 412

Co/Prerequisites: CHBE 470 and MECH 211

For CHBE 404

CHBE 403

For CHBE 411

CHBE 301 and 303

For CHBE 412

CHBE 411

For CHBE 470

CHBE 390, 402, and 412

DEGREE REQUIREMENTS FOR MCHE, MS, AND PHD IN CHEMICAL ENGINEERING

For general university requirements, see Graduate Degrees (pages 57–58).

MChE Program—For the MChE degree, students must complete at least 30 hours of courses beyond those counted for their undergraduate degree. At least 6 of the courses taken must be upper-level courses in chemical engineering and 1 must be an approved mathematics course. The chemical engineering courses selected should include process design (2 semesters) and process control, unless courses in these subjects were taken during the student's undergraduate studies.

MS Program—Candidates for the MS degree must:

- Complete at least 18 approved semester hours with high standing
- Submit an original research thesis
- Defend the thesis in a public oral examination

PhD Program—Candidates for the PhD degree must:

- Demonstrate competence in the areas of applied mathematics, thermodynamics, transport processes, and chemical kinetics and reactor design by passing qualifying examinations, usually during the 1st year of study
- Complete at least 36 approved semester hours with high standing (with department approval, the course requirements may be reduced to 24 hours for students already holding an MS degree)
- Submit a thesis that provides evidence of their ability to carry out original research in a specialized area of chemical engineering
- Defend the thesis in a public oral examination

See CHBE in the Courses of Instruction section.

CHEMISTRY

THE WIESS SCHOOL OF NATURAL SCIENCES

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DISTINGUISHED FACULTY FELLOW

Robert H. Hauge

Bruce R. Johnson

FACULTY FELLOW

Valery Khabashesku

Kristen Kulinowski

VISITING PROFESSOR

Raphael Levine

DEGREES OFFERED: BA, BS, MA, PHD

Recognizing the wide range of studies encompassed by chemistry, the department encourages undergraduates to explore offerings in other departments such as mathematics, computational and applied mathematics, biochemistry, and physics, as well as upper-level courses in chemistry. An interdepartmental major is offered in chemical physics. Taking advantage of the department's extensive facilities, each BS degree candidate carries out a program of individual research under the supervision of a faculty member.

Graduate studies emphasize individual research together with a fundamental understanding of chemistry beyond the students' specific interests. Faculty research interests include the synthesis and biosynthesis of organic natural products; the synthesis of small cycloalkanes, molecular recognition, and biological catalysis; bioinorganic and organometallic chemistry; main group element and transition metal chemistry; the chemistry of group 13 elements; high-pressure and high-temperature chemistry; fluorine chemistry; chemical vapor deposition; the design of nanophase solids; molecular photochemistry and photophysics; infrared kinetic spectroscopy, laser, and NMR spectroscopy; studies of electron transfer in crossed beams; theoretical and computational

chemistry; and the study of fullerene molecules, carbon nanotubes, and their derivatives; polymer synthesis and characterization; molecular electronics; and molecular machines.

DEGREE REQUIREMENTS FOR BA IN CHEMISTRY

For general university requirements, see Graduation Requirements (pages 14–15). Students choosing to receive a BA in chemistry must have a total of at least 120 semester hours at graduation, including the following courses required of all majors.

Core Courses Required of All Chemistry Majors

Chemistry

CHEM 121/122 *General Chemistry* with laboratory or CHEM 151/152 *Honors Chemistry* with laboratory

CHEM 211/212 *Organic Chemistry*

CHEM 215 *Organic Chemistry Lab*

CHEM 311/312 *Physical Chemistry*

CHEM 351 *Introductory Module in Experimental Chemistry I*

CHEM 352 *Introductory Module in Experimental Chemistry II*

CHEM 353 *Introductory Module in Analytical Methods*

CHEM 360 *Inorganic Chemistry*

Mathematics*

MATH 101/102 *Single Variable Calculus I and II* or MATH 121/122

MATH 211 *Ordinary Differential Equations and Linear Algebra*

MATH 212 *Multivariable Calculus* or MATH 221/222 *Honors Calculus III and IV*

Physics

PHYS 101 or 111 *Mechanics*

PHYS 102 or 112 *Electricity and Magnetism*

Other

One course from the following: NSCI 230, CAAM 210, CAAM 335, CAAM 336, CAAM 353, CHBE 305, or approved equivalent.

* The Department of Mathematics may, after consultation with a student concerning his/her previous math preparation, recommend that a student be placed into a higher level math course than for which the student has official credit. The Department of Chemistry will accept

this waiver of the math classes upon a written confirmation of the waiver from the Department of Mathematics and upon the student's successful completion of the higher level math course.

Additional Lecture Courses

At least 1 course from the following:

CHEM 401 *Advanced Organic Chemistry*

CHEM 430 *Quantum Chemistry*

CHEM 495 *Transition Metal Chemistry*

Additional Laboratory Courses

At least 3 advanced laboratory module credit hours from the following list:

CHEM 372 *Advanced Module in Synthesis and Characterization of Fullerene Compounds*

CHEM 373 *Advanced Module in Chemistry and Properties of Fullerene Compounds*

CHEM 374 *Advanced Module in Synthetic Chemistry*

CHEM 375 *Advanced Module in Nanochemistry*

CHEM 381 *Advanced Module in Experimental Physical Chemistry*

CHEM 382 *Advanced Module in Kinetic Physical Chemistry*

CHEM 384 *Advanced Module in Instrumental Analysis*

CHEM 395 *Advanced Module in Green Chemistry*

CHEM 399 *Advanced Module: Experimental Design*

CHEM 435 *Methods of Computational Quantum Chemistry*

To ensure that students receive suitable breadth in their laboratory experience, advanced module selections must be approved by the student's major advisor.

Other advanced laboratory courses from chemically related disciplines (biochemistry, materials science, environmental engineering, etc.) may be substituted for these advanced modules, with approval of the committee. Chemistry majors also may substitute an advanced organic laboratory module for CHEM 215. Students interested in applying for health professions programs are advised to take CHEM 215 (consult with the health professions advisor). Three hours of CHEM 491 (taken for 1 entire semester) may be substituted for 1 advanced laboratory module if no other CHEM 491 credit is taken in the same semester.

Students in the chemistry BA major must satisfy the university distribution requirements and complete no fewer than 64 semester hours in addition to the departmental requirements for the chemistry major, giving a minimum total of 120 hours for graduation.

DEGREE REQUIREMENTS FOR BS IN CHEMISTRY

In addition to the core courses required of all chemistry majors, the BS degree requires the following course and laboratory work:

- 1 additional course from the **Additional Lecture Courses** list
- At least 3 semester hours in undergraduate research (CHEM 491) in no less than 2-hour segments. With departmental approval, students may satisfy this requirement with HONS 470/471, which requires participation in CHEM 491 meetings. Students also may satisfy 3 of the 6 required hours in upper-level courses with additional research.
- 6 hours credit in upper-level courses (300 level or higher) in chemistry, mathematics, computational and applied mathematics, physics, biochemistry, or other subjects with advisor approval.

PHYS 201 *Waves and Optics* and PHYS 202 *Modern Physics* are recommended but not required.

Students in the chemistry BS major must satisfy the distribution requirements (see pages 15–16) and complete no fewer than 60 semester hours in addition to the departmental requirements for the chemistry major, giving a minimum total of 128 hours for graduation.

American Chemical Society Certification—The Rice Department of Chemistry is on the approved list of the Committee on Professional Training of the American Chemical Society and so can certify that graduates have met the appropriate standards. The BA degree is not certifiable. For certification, students must complete:

- All degree requirements for the BS degree listed above
- CHEM 495 *Transition Metal Chemistry* as one of the additional lecture courses
- A department-approved course in biochemistry
- 9 hours total in upper-level courses from chemistry, physics, mathematics, computational and applied mathematics, biochemistry, or other courses in science or engineering with the approval of the department. The required course in biochemistry listed above counts toward this total.

A foreign language, preferably German, is recommended.

Chemical Physics Major—The chemical physics major leading to a BS degree is offered in conjunction with the Department of Physics and Astronomy. Students take upper-level courses in both chemistry and physics, focusing on the applications of physics to chemical systems. Students majoring in chemical physics must complete the following courses:

Core Courses Required of All Chemical Physics Majors

Chemistry

CHEM 121/122 *General Chemistry with Laboratory* or CHEM 151/152 *Honors Chemistry with Laboratory*

CHEM 211 *Organic Chemistry*

CHEM 311/312 *Physical Chemistry*

Physics

PHYS 101 or 111 *Mechanics*

PHYS 102 or 112 *Electricity and Magnetism*

PHYS 201 *Waves and Optics*

PHYS 202 *Modern Physics*

PHYS 231 *Elementary Physics Lab II*

PHYS 301 *Intermediate Mechanics*

PHYS 302 *Intermediate Electrodynamics*

Mathematics

MATH 101/102 *Single Variable Calculus I and II*
or MATH 121/122

MATH 211 *Ordinary Differential Equations and Linear Algebra*

MATH 212 *Multivariable Calculus* or MATH 221/222 *Honors Calculus III and IV*

Additional Courses

1 course from CHEM 212 or CHEM 360

2 courses from PHYS 311, PHYS 312, CHEM 430, or CHEM 415

6 hours from CHEM 215, CHEM 351, CHEM 352, CHEM 372–395, CHEM 435, PHYS 331, or PHYS 332. Up to 2 hours of independent research (CHEM 491 or PHYS 491/492 may be counted toward this requirement.)

2 courses from NSCI 230, CAAM 210, or mathematics or computational and applied mathematics at the 300 level or above

ADMISSION REQUIREMENTS FOR ACCELERATED BS/PHD PROGRAM IN CHEMISTRY

The high level of training provided in the Rice BS program enables certain specially qualified undergraduates to enter an accelerated program that allows them to complete a PhD degree in significantly less time after receiving their BS degree. Students electing this option must begin their research during the summer following their junior year and continue the research by taking CHEM 491 during their senior year.

** Students wishing to be considered for the accelerated BS/PhD program should apply to the department by January 15 of the 2nd semester of their sophomore or junior years at Rice. The student should submit with the application a letter describing why they would like to enroll in this program and outline briefly their intended plan of study, stating their area of interest and with whom they would like to undertake graduate research. After an interview, the department's graduate admissions committee will consider the application and inform the candidate of its decision by no later than April 15 of that semester. Students admitted to the program will be assigned a committee to work out details of required courses for the accelerated program.

DEGREE REQUIREMENTS FOR MA AND PHD IN CHEMISTRY

For general university requirements, see Graduate Degrees (pages 57–58). Students who have completed course work equivalent to that required for a BA or BS in chemistry may apply for admission to the PhD program. For more information, see Admission to Graduate Study (pages 56–57).

MA Program—Students are NOT normally admitted to study for an MA degree. However, this degree is sometimes awarded to students who do not wish to complete the entire PhD program. Candidates for the MA degree must:

- Complete 6 one-semester courses
- Produce a thesis that presents the results of a program of research approved by the department
- Pass a final oral examination

Students who are admitted to PhD candidacy may apply for an automatic master's degree.

REQUIREMENTS FOR THE PHD IN CHEMISTRY AT RICE UNIVERSITY

The PhD in Chemistry is awarded for original research in chemistry. Candidates receive a PhD after successfully completing at least 90 semester hours of advanced study in chemistry and related fields, culminating in a thesis that describes an original and significant investigation in chemistry. The thesis must be satisfactorily defended in a public oral examination. The student must pass the thesis defense before the end of the 16th semester of residency.

RESEARCH

During the 1st semester of residence students will select a research advisor from among the members of the faculty; the department chair must approve this choice. In some cases, students may choose research advisors outside of the department; however, such arrangements must be approved by the chemistry faculty. The research advisor will guide the student in the choice of an appropriate research topic and in the detailed training required to complete that project. Students must enroll in CHEM 800 (Graduate Research) and must participate in 1 of the graduate seminar classes offered by the department (currently CHEM 600) each semester that the student is in residence.

COURSE WORK

The student must complete 6 3-semester-hour graduate-level lecture courses at Rice University. In order to satisfy this requirement, each of these courses must satisfy the following criteria:

- They must be approved by the department's graduate advising committee.
- If a chemistry course, it must be at the 400 level or higher. Certain 300-level courses in other departments may be acceptable with prior approval by the department's graduate advising committee. Courses must be in technical subjects in science or engineering. Courses in teaching, presentation, or management will not be counted toward the 6-class requirement.
- Each course must be passed with a grade of B or higher. It is possible to repeat or replace a course, upon approval of the department's graduate advising committee. A maximum of 2 courses can be repeated/replaced.

Students transferring from other graduate institutions or students with a master's degree can apply to have a maximum of 2 courses waived. A course waiver request must be accompanied by proof that a course pertinent to the student's field of research has been successfully completed at a different institution. Waiver requests must be submitted for approval to the department's graduate advising committee.

TEACHING

Each student is required to participate in CHEM 700 (Teaching Practicum) for 4 semesters with no grade less than B-.

QUALIFYING EXAMINATION

An examination committee, consisting of three faculty members excluding the research advisor, will be assigned to each student, typically in the 2nd semester. The student must defend an original research proposal before this committee,

involving both a written and oral presentation of the original research proposal. The written proposal must conform to the format and guidelines established by the chemistry department, which are available in the department office. The written proposal must be submitted to the committee at least 1 week before the date of the oral examination. The examination (including any follow up work deemed necessary by the committee) must be passed by the last day of class at the end of the student's 4th semester in residency.

ADVANCEMENT TO CANDIDACY FOR THE PHD

The course and examination requirements listed above must be completed within 2 years of admittance to the graduate program. After completing these requirements, a student must petition to be advanced to candidacy for the PhD degree. Upon advancement to candidacy, a student chooses a thesis committee of at least 3 faculty members with the guidance and approval of the research advisor and department chair. The thesis committee must include one faculty member holding his/her primary appointment outside of the chemistry department.

SATISFACTORY PERFORMANCE

Students are expected to perform satisfactorily in research as judged by their research director and thesis committee. Students also may be requested to fulfill certain service functions for the department. The student must be enrolled full time in a research group each semester that the student is in residence (except the first semester). Every year, the student must submit an annual 3-page research progress report to the thesis committee by August 1.

The thesis committee will assess the progress being made in research and may invite the student to present a discussion of his or her work. If progress is unsatisfactory, the committee may recommend a semester of probation, which could result in dismissal from the program if progress remains unsatisfactory in the subsequent semester. The student, advisor, or committee may request a meeting between student and committee at other times to evaluate progress or to determine a course of action.

In order to remain in good standing, a student must receive grades above B- in CHEM 800, CHEM 700, and the various seminar courses. A student must maintain a GPA of 3.00 (B) or higher in all lecture courses. Failure to maintain satisfactory progress in research and/or grades will result in probation and possible dismissal.

APPEAL

Students may petition the Chemistry Department Graduate Advising Committee for variances on these academic regulations.

CIVIL AND ENVIRONMENTAL ENGINEERING

THE GEORGE R. BROWN SCHOOL OF ENGINEERING

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Phillip deBlanc
Moyeen Haque
John E. Merwin
Charles Penland
John M. Sedlak
Ed Segner, III
Tauqir Sheikh

DEGREES OFFERED: BA, MCE, MEE, MES, MS, PhD

Civil and environmental engineering (CEVE) is a broad and diverse field of study that offers students an education with several degree options. The most flexible degree options are at the bachelor's level, where students can major in civil engineering (BS or BA) or complete a double major with any other Rice University major. Three nonthesis graduate degrees (MCE, MEE, and MES) are available to students who desire additional education and specialization in civil engineering, environmental engineering, or environmental sciences. Joint MBA/Master of Engineering degrees also are available in conjunction with the Jesse H. Jones Graduate School of Management.

Students admitted for graduate study leading to MS or PhD degrees must complete a rigorous course of study that combines advanced course work with scholarly research culminating in the public defense of a written thesis. Graduate research is carried out in a range of areas reflecting the interests of the department's faculty. Examples include environmental engineering, geotechnical engineering, structural engineering and mechanics, hydrology, water resources and water quality management, air pollution and its control, and hazardous waste treatment.

BS DEGREE IN CIVIL ENGINEERING

The Department of Civil and Environmental Engineering (CEVE) offers an innovative and challenging BS engineering curriculum that is designed to provide significant flexibility to the student. Specific details and typical course layouts by semester can be found at the departmental website: <http://ceve.rice.edu>.

The main features of the ABET accredited BS in Civil Engineering are as follows:

- 6 core courses and 2 labs (21 hours) primarily aimed at introduction to civil and environmental engineering, followed by 8 courses (24 hours) that represent the 4 thrust areas within CEVE
- The total required CEVE courses are kept to a minimum level of 45 hours to provide maximum flexibility to the student, as well as 2 additional focus area elective courses
- The thrust areas include (1) environmental engineering (air and water quality, transport theory and modeling); (2) hydrology and water resources

(watershed and aquifer management, flood prediction, data analysis, GIS); (3) structural engineering and mechanics (structural analysis, mechanics, design, matrix methods); (4) urban infrastructure and management (transportation systems, geotechnical engineering, engineering economics, management)

- A choice of free electives (18 hours) to allow maximum flexibility for students to choose from a approved list of courses
- General science (39 hours) courses involve mathematics, physics, and chemistry
- Distribution (24 hours) courses as per university requirements

A total of at least 132 hours are required for graduation with a BS (see detailed list below).

Additional features of the BS curriculum include:

- Freshman/sophomore year courses that introduce fundamentals of CEVE primarily targeted at students with diverse science, engineering, and humanities backgrounds (CEVE 101, 201, 203, 211, and 311, 312)
- Special-topics course available in the final year to help attract the best students to perform undergraduate research in the department
- Engineers Without Borders (EWB) (CEVE 315) is an important component of the program. This exciting new endeavor allows undergraduates to have an experience in a developing country where they are able to actually design and build a project to help society. Students have been attracted to the program in large numbers.

Course Requirements

General Science Requirements (* or an equivalent approved course)

MATH 101 *Single Variable Calculus I* (3)
 MATH 102 *Single Variable Calculus II* (3)
 CHEM 121 *General Chemistry with Lab* (4)
 CHEM 122 *General Chemistry with Lab* (4)
 PHYS 101 *Mechanics with Lab* (3)
 PHYS 102 *Electricity and Magnetism with Lab* (4)
 MATH 211 *Ordinary Differential Equations* (3)
 MATH 212 *Multivariable Calculus* (3)
 CAAM 210 *Introduction to Engineering Comp* (3)
 STAT 310* *Probability and Statistics* (3)
 CAAM 335* *Matrix Analysis* (3)
 CHEM 211 or PHY 201 or BIOS 201 (3)

CEVE Core Requirements (21 credits)

CEVE 101 (F) *Fundamentals of CEVE* (3)
 CEVE 203 (F) *Environmental Eng. Processes* (3)
 CEVE 211 (F) *Engineering Mechanics* (3)
 CEVE 311 (S) *Mechanics of Solids and Structures* (3)
 CEVE 312 (S) *Strength of Materials Lab* (1)
 CEVE 371 (F) *Fluid Mechanics* (3)
 CEVE 480 (S) *Senior Design Project* (4)

Area I Environmental Engineering (select 6 approved hours)

CEVE 401 (F) *Environmental Chemistry* (3)

CEVE 402 (F) *Environmental Chemistry Lab* (1)
 CEVE 406 (S) *Environmental Law* (3)
 CEVE 411 (S) *Air Resources Management* (3)
 CEVE 434 (F) *Fate and Transport of Contaminants in the Environment* (3)
 Or any approved environmental course in CEVE/CENG

Area II Hydrology and Water Resources (select 6 approved hours)

CEVE 412 (S) *Hydrology and Watershed Analysis* (3)
 CEVE 418 *Quantitative Hydrogeology*
 CEVE 443 (F) *Atmospheric Science* (3)
 CEVE 450 (S) *Remote Sensing* (3)
 CEVE 451 (F) *Analysis of Environmental Data* (3)
 CEVE 453 (F) *Geographical Information Science* (3)
 CEVE 512 (S) *Hydrologic Design Lab* (3)
 Or any approved computational course in CEVE/CAAM/ESCI

Area III Structural Engineering and Mechanics (select 6 approved hours)

CEVE 304 (S) *Structural Analysis* (3)
 CEVE 400 *Advanced Mech of Materials*
 CEVE 405 (S) *Steel Design* (3)
 CEVE 407 (F) *Reinforced Concrete Design* (3)
 CEVE 408 (F) *Structures Lab* (1)
 CEVE 427 (F) *Matrix Methods in Structural Mechanics* (3)

Or any approved structures/mechanics course in CEVE/MECH

Area IV Urban Infrastructure and Management (select 6 approved hours)

CEVE 201 (F) *Urban and Environmental Systems* (4)

CEVE 322 (F) *Engineering Economics* (3)

CEVE 452 (S) *Urban Transportation Systems* (3)

MGMT 750 (F) *Management for Science and Engineering* (3)

MGMT 751 (S) *Management for Science and Engineering* (3)

CEVE 470 (F) *Infrastructure Geotechnical Engineering* (4)

Or any approved urban infrastructure and management course in CEVE/MGMT/ECON

List of CEVE Recommended Elective Courses:

CEVE 308, 315, 316, 400, 417, 454, 479, 490, 499

ABET PRORAM OBJECTIVES

(see website at <http://ceve.rice.edu/> for additional information)

1. Develop/demonstrate strong problem-solving and communication skills
2. Achieve leadership position in technical or managerial area
3. Demonstrate initiative and innovative thinking in project work
4. Maintain a keen awareness of ethical, social, environmental, and global concerns
5. Remain engaged in continuing learning, including advanced degrees
6. Prepare for a Professional Engineering License

BA DEGREE IN ENVIRONMENTAL ENGINEERING SCIENCES

The BA degree in Environmental Engineering Sciences is designed to provide access to topics of common interest to students across the disciplines at Rice University. It is tailored to the specific needs of each student by discussion with and approval by the CEVE departmental advisor. An advisor will be assigned by the CEVE department chair, normally during the 1st year of study. Five core courses, plus 7 courses in a focused specialty area (see below for example curricula) of study are required; total CEVE requirements approximately 39 hours. In addition, each student is responsible for satisfying the university distribution requirements (24 hours) and additional electives for a total of at least 120 hours for graduation with a BA in Environmental Engineering Sciences. Although not required, students are encouraged to double major in their focus specialty area.

The coherent and complete core curriculum is designed to give Rice Undergraduate students a consistent technological literacy through the lens of civil and environmental engineering and to prepare students for graduate school in engineering, various sciences (depending on focus), economics, business MBA, political science, law, or medicine. Select students will be invited to finish an accelerated MS/PhD degree in the CEVE department at Rice (meet with your advisor or department chair for details). Those students who want to obtain an ABET accredited engineering degree must follow a BS degree program in one of the engineering disciplines, including CEVE.

A student must demonstrate proficiency in the basic concepts of mathematics, computation, chemistry, and physics. Generally, this will require that these subjects were studied previously, e.g., AP exams or concurrent enrollment with CEVE 101 or 201.

Seven courses from approved electives, including 4 courses from 1 specific focus area; 4 of these 7 courses must be 300, or above, and 2 of these upper-division courses must be from the CEVE curriculum.

Five Core courses required for all BA Environmental Engineering Science majors:

CEVE 101 *Fundamentals of CEVE* (3)

CEVE 201 *Urban and Environmental Systems* (4)*

CEVE 203(204) *Environmental Engineering Processes* 4*

CEVE 401 *Intro Environmental Chemistry* (4)

CEVE 412 *Hydrology and Watershed Analysis* (3)

* Courses with laboratories

Typical “focus specialty areas” might include (subject to advisor approval):

1. Environmental Engineering: CEVE 406, 411, 434; ESCI 451 plus 3 approved electives
2. Chemical Engineering: CENG 301, 390, 401, 402; CEVE 411, 434, 443
3. Chemistry: CHEM 211, 212; CEVE 406, 511 plus 3 approved electives
4. Economics: ECON 211, 212, 370, 450, 461; CEVE 406, 411
5. Management: ECON 211, 212, 461; ACCO. 305; POLI 336; CEVE 406, 411

Engineers Without Borders (EWB) (CEVE 315) is an important component of the CEVE program. This exciting new endeavor allows undergraduates to have an experience in a developing country where they are able to actually design and build a project to help society. Students have been attracted to the program in large numbers

BA DEGREE IN CIVIL ENGINEERING

The BA degree in civil engineering is designed to provide access to topics of common interest to students across the disciplines at Rice University. It is tailored to the specific needs of each student by discussion with and approval by the CEVE departmental advisor. An advisor will be assigned by the CEVE department chair, normally during the first year of study. For the BA degree in civil engineering the students must have a total of at least 120 hours. A student must demonstrate proficiency in the basic concepts of mathematics, computation, chemistry, and physics. Generally, this will require subjects studied previously, e.g., AP exams. The BA degree in civil engineering requires 21 hours of general math and science courses, 25 hours of core civil engineering courses, and 74 hours of electives (distribution courses 24 hours and remaining open or free electives 50 hours). Although not required, students are encouraged to double major in their focus specialty area.

The coherent and complete core curriculum is designed to give Rice undergraduate students a consistent technological literacy through the lens of civil and environmental engineering and to prepare students for graduate school in engineering. Those students who want to obtain an ABET accredited engineering degree must follow a BS degree in civil engineering program.

Required general math and science courses		Required core civil engineering courses	
MATH 101 <i>Single Variable Calculus I</i>	3	CEVE 101 <i>Fundamentals of CEVE</i>	3
MATH 102 <i>Single Variable Calculus II</i>	3	CEVE 211 <i>Engineering Mechanics</i>	3
MATH 211 <i>Ordinary Differential Equations</i>	3	CEVE 311 <i>Mechanics of Solids and Structures</i>	3
PHYS 101* <i>Mechanics with Lab</i>	3	CEVE 312 <i>Strength of Materials</i>	1*
PHYS 102* <i>Electricity and Magnetism with Lab</i>	3	CEVE 371 <i>Fluid Mechanics</i>	3
One of [COMP 110, CAAM 210, CAAM 335]	3	* Laboratory	
One of [BIOS 122, CHEM 121/122, ELEC 242, MECH200, MSCI 301]	3	Total:	13 hrs
* or equivalent [MATH 212 or 221 recommended]		Any 4 civil engineering courses from the following:	
Total:	21hrs	CEVE 202 <i>Environmental Eng. Processes</i>	3

CEVE 304 Structural Analysis	3	CEVE 427 Matrix Methods in Structural Mechanics	3
CEVE 322 Engineering Economics for Engineers	3	CEVE 452 Urban Transportation Systems	3
CEVE 405 Steel Design	3	CEVE 470 Infrastructure Geotechnical Engineering	4
CEVE 407 Reinforced Concrete Design	3	Total:	12 hrs
CEVE 412 Hydrology and Watersheds	3		

DEGREE REQUIREMENTS FOR MCE, MEE, MES, MS, AND PHD

Admission—Applicants pursuing graduate education in environmental engineering or hydrology should have preparation in mathematics, science, and engineering or related courses. A BS degree, or degree in natural science is preferred. Applicants pursuing graduate education in structural engineering, structural mechanics, and geotechnical engineering should have a BSCE with a significant emphasis on structural engineering, but students with other undergraduate degrees may apply if they have adequate preparation in mathematics, mechanics, and structural analysis and design. Applicants for graduate degrees should have a BS or BA in related areas of science and engineering. Successful applicants typically have at least a 3.00 (B) grade point average in undergraduate work and high Graduate Record Examination (GRE) scores. For general university requirements, see Graduate Degrees and Admission to Graduate Study (s 56–58).

MS Program—The Master of Science degree is offered in both civil engineering and environmental engineering. For general university requirements, see Graduate Degrees (s 57–58). To earn a MS degree, students must:

- Complete at least 24 semester hours of approved courses. For students studying environmental engineering, this must include 1 course each in environmental chemistry, water treatment, hydrology, and air quality. For students studying civil, structural engineering, and mechanics, this must include 1 course each in structural engineering, mechanics, advanced mathematics, and dynamic systems (comparable course work completed previously may be substituted for the core courses).
- Select a thesis committee according to department requirements and conduct original research in consultation with the committee.
- Present and defend in oral examination an approved research thesis.

Students take the oral exam only after the committee determines the thesis to be in a written format acceptable for public defense. Normally, students take 2 academic years and the intervening summer to complete the degree.

Students intending to extend their studies into the PhD degree program should note that the department does not grant an automatic MS degree to candidates who have not written a satisfactory master's thesis.

MCE Program—The Master of Civil Engineering (MCE) is a professional nonthesis degree requiring 30 hours of study. Students with a BS in civil engineering are eligible to apply. (see Graduate Degrees s 57–58). To earn an MCE degree, students must complete 30 semester hours of approved courses.

MBA/MCE Program—For general university requirements, see Graduate Degrees (pages 57–58). See also Management and Accounting (pages 200–211). To earn a MBA/MCE degree, students must:

- Complete 24 semester hours of civil engineering courses.
- Complete 52 semester hours of business administration courses.

MEE Program—The Master of Environmental Engineering (MEE) is a professional nonthesis degree requiring 30 hours of study. Students who have a BS degree in any field of engineering may apply (see Graduate Degrees pages 57–58).

MES Program—The Master of Environmental Science (MES) is a professional nonthesis degree requiring 30 hours of study. To enter the MES program, applicants must have a BA or BS degree in any of the natural or physical sciences (see Graduate Degrees pages 57–58).

PhD Program—To earn a PhD degree, candidates must successfully accomplish the following (spending at least 4 semesters in full-time study at Rice). (See candidacy, oral examinations, and the thesis (pages 65–68).

- Complete 90 semester hours of approved course work past BS (60 semester hours past MS) with high standing.
- Pass a preliminary written examination in civil and environmental engineering.
- Pass a qualifying examination on course work, proposed research, and related topics.
- Complete a dissertation indicating an ability to do original and scholarly research.
- Pass a formal public oral examination on the thesis and related topics.

PhD candidates in civil and environmental engineering take the preliminary exam, administered by department faculty, after 2 semesters of course work. Candidates who pass this exam then form a doctoral committee according to department requirements. The qualifying examination administered by the doctoral committee after candidates develop a research proposal evaluates their preparation for the proposed research and identifies any areas requiring additional course work or study.

CLASSICAL STUDIES

THE SCHOOL OF HUMANITIES

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ASSOCIATE PROFESSOR

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ASSISTANT PROFESSORS

Scott McGill

Caroline Quenemoen

LECTURER

Marcel Widzisz

DEGREE OFFERED: BA

The classical department offers instruction in the Greek and Latin languages, in Greek and Roman literature (studied in the original and in translation), in the classical civilizations surveyed as a whole, and in particular themes, genres, and periods of classical culture and its influence through subsequent ages.

We recognize that students come to the study of ancient Greece and Rome with a whole spectrum of different kinds of interest. Some will want to concentrate on learning the ancient languages and reading the classical texts in the original Greek or Latin. Others will desire a broader introduction to the cultures of Greece and Rome and their legacy. With this in mind, the classics department provides maximum flexibility without sacrifice of focus. We cater to students who wish to prepare for graduate school in classics and also to students who are interested in Greek and Roman culture for other reasons and wish to take a less specialized approach. Students will be able to explore ancient Greece and Rome from a variety of different angles and with whatever emphasis best suits their individual needs and goals.

The classics department offers 2 tracks to satisfy the requirements for a BA (specific information below): the classics track emphasizes the ancient languages and reading classical texts in the original; the classical civilizations track allows for a broader set of approaches and does not include a language requirement.

Classical studies majors, in either track, will, if they wish, have the opportunity to engage in research. In the final semester of study, a student may enroll in CLAS 493, in which the student writes a senior thesis on a topic of the student's choice in consultation with a faculty member.

The classics department also offers a program in the Classical Legacy. Using courses in translation, this program makes classical antiquity accessible to a wide range of students and offers those students basic knowledge of major trends in Western intellectual and cultural history. Courses offer grounding in classical literature, art, thought, and history and relate classical culture to later attempts in post classical and contemporary cultures to assimilate, emulate, and recreate classical models. A highlight of the Classical Legacy program is CLAS 321, a 2-week study-trip to Rome at the end of the spring semester, organized and run by Rice professors for Rice students. For current information on the Classical Legacy program and the study-trip to Rome, consult the website: <http://classicallegacy.rice.edu/>.

Further information on the department, its courses, its faculty members, and its events is available on the web: <http://classics.rice.edu/>.

Policy on Advanced Placement credit: For the exam on “Latin Literature,” new matriculants who score 4 receive 3 hours credit for LATI 104 and new matriculants who score 5 receive 3 hours credit for LATI 204 and D1 distribution credit. For the exam on “Latin: Virgil,” new matriculants who score 4 receive 3 hours credit for LATI 104 and new matriculants who score 5 receive 3 hours credit for LATI 202 and D1 distribution credit.

DEGREE REQUIREMENTS FOR BA IN CLASSICAL STUDIES

For general university requirements, see Graduation Requirements (pages 14–15).

Students majoring in classical studies may complete either of 2 tracks.

For the classics track, students must complete 30 semester hours (10 courses) listed under Greek, Latin, or Classics, including at least 2 of the following 3 courses:

- CLAS 107 *Greek Civilization and Its Legacy*
- CLAS 108 *Roman Civilization and Its Legacy*
- CLAS 235 *Classical Mythology: Interpretation, Origins, and Influence*

and at least 9 hours (3 courses) in either Greek or Latin at the 300 level or higher.

For the classical civilizations track, students must complete 30 semester hours (10 courses) listed under Greek, Latin, or Classics, including at least 2 of the following 3 courses:

- CLAS 107 *Greek Civilization and Its Legacy*
- CLAS 108 *Roman Civilization and Its Legacy*
- CLAS 235 *Classical Mythology: Interpretation, Origins, and Influence*

Some courses in ancient philosophy, history, art history, and religion offered by the departments of Philosophy, History, Art History, and Religious Studies also satisfy requirements for either track of the classical studies major. For advice on which courses do this, consult the undergraduate advisor.

See CLAS, GREE, and LATI in the Courses of Instruction section.

COGNITIVE SCIENCES

THE SCHOOL OF SOCIAL SCIENCES

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ASSISTANT PROFESSORS

Claire Bowers

Darcy Burgund

Denise Chen

Katherine Crosswhite

Robert Englebretson

DEGREE OFFERED: BA

Researchers in this interdisciplinary field seek to understand such mental phenomena as perception, thought, memory, the acquisition and use of language, learning, concept formation, and consciousness. Some investigators focus on relations between brain structures and behavior, some work with computer simulation, and others work at more abstract theoretical levels.

DEGREE REQUIREMENTS FOR BA IN COGNITIVE SCIENCES

For general university requirements, see Graduation Requirements (pages 14–15). Students majoring in cognitive sciences must complete 5 core courses and 7 additional courses (see below). Among the 7 additional courses, at least 3 and no more than 4 must be in a single area of concentration—linguistics, philosophy, psychology, or neuroscience.

INTRODUCTORY COURSES

Because the major is interdisciplinary, no single course introduces the full range of the subject. However, students who are interested in majoring in cognitive sciences should take 1 or more of the following courses during their 1st and 2nd years: LING200, PHIL103, PSYC101, or PSYC203.

HONORS PROGRAM

Students with a 3.5 GPA in cognitive sciences and 3.3 overall GPA may apply for the cognitive sciences honors program. Students in the honors program are expected to conduct an independent research project of either 1 or 2 semesters under the guidance of a member of the cognitive sciences faculty. Students who wish to enter this program should consult with prospective advisors during their junior year and submit a proposal by the end of the semester proceeding the initiation of the project. Typically, this means submitting a proposal by the end of the junior year and beginning the project during the fall of the senior year. Proposal will be reviewed by both the supervisor

and the program director. Students who undertake a 2-semester project will be allowed to continue into the 2nd semester only if their advisor judges that sufficient progress has been made during the 1st semester. At the end of a project, honors students are expected to submit a final paper to both their advisor and the program director and make an oral presentation. For more details, contact the program director.

INDEPENDENT RESEARCH

Majors may undertake supervised independent research by enrolling in CSCI390 or the honors program and may apply up to 9 credits of independent research toward the major. Students who wish to take CSCI390 must complete a CSCI390 contract and have it approved by their supervisor and the program director prior to the end of the 1st week of classes. All students taking CSCI390 also must write a substantive research paper, which is to be submitted to both their advisor and the program director at the end of the semester. (Copies of the contract form and instructions are available on the “forms” section of the cognitive sciences website.)

Core Courses

The core courses are divided into 5 groups.
Majors just take one course from each group.

Computer Science

Though all of these courses may be used to satisfy the computer science core requirements, no more than 1 may be taken for credit within the major

CAAM 210 *Introduction to Engineering Computation*

COMP 200 *Elements of Computer Science*

COMP 201 *Principles of Object-Oriented Programming*

COMP 210 *Introduction to Principles of Scientific Computation*

Psychology

PSYC 203 *Introduction to Cognitive Psychology*

Linguistics

LING 200 *Introduction to the Scientific Study of Language*

LING 306 *Language and the Mind*

LING 315 *Semantics*

Philosophy

PHIL 103 *Philosophical Aspects of Cognitive Science*

PHIL 305 *Mathematical Logic*

PHIL 312 *Philosophy of Mind*

Advanced Psychology

PSYC 308 *Memory*

PSYC 309 *Psychology of Language*

PSYC 351 *Psychology of Perception*

PSYC 360 *Thinking*

PSYC 362 *Biopsychology*

PSYC 430 *Computational Modeling of Cognitive Processes*

PSYC 432 *Brain and Behavior*

Additional Courses

At least 3 and no more than 4 courses must be in 1 of the following areas of concentration: linguistics, philosophy, psychology, or neuroscience. Note: you may not use the same courses to fulfill both a core course requirement and an additional course requirement; in other words, no double counting.

Cognitive Sciences

CCSCI 390 *Supervised Research in Cognitive Science*

CSCI 481 *Honors Project*

CSCI 482 *Honors Project*

Computer Science

COMP 212 *Intermediate Programming*

COMP 440 *Artificial Intelligence*

COMP 450 *Algorithmic Robotics*

Linguistics

LING 200 *Introduction to the Scientific Study of Language*

LING 300 *Linguistic Analysis*

LING 301 *Phonetics*

LING 304 *Introduction to Syntax*

LING 306 *Language and the Mind*

LING 311 *Phonology*
 LING 315 *Semantics*
 LING 317 *Language and Computers*
 LING 402 *Syntax and Semantics*
 LING 403 *Foundations of Modern Linguistics*
 LING 404 *Research Methodologies and Linguistic Theories*
 LING 411 *Neurolinguistics*
 LING 412 *Language and Intelligence*
 LING 490 *Discourse Analysis*

Neuroscience

Many of the neuroscience courses are taught by Baylor College of Medicine faculty.

For more information, see

<http://www.ruf.rice.edu/~neurosci/neurocoursesmain.html>.

BIOS 421 *Neurobiology*
 CAAM 415 *Theoretical Neuroscience*
 ELEC 481 *Fundamentals of Systems Physiology and Biophysics*
 LING 411 *Neurolinguistics*
 PSYC 362 *Biopsychology*
 PSYC 432 *Brain and Behavior (formally cross-listed as CSCI 420)*
 NEUR 500 *Functional Neuroanatomy and Systems Neuroscience*
 NEUR 501 *Cognitive Neuroscience I*
 NEUR 502 *Cognitive Neuroscience II*
 NEUR 503 *Molecular Neuroscience I and II*
 NEUR 504 *Cellular Neurophysiology I and II*
 NEUR 505 *Optical Imaging in Neuroscience*
 NEUR 506 *Learning and Memory*
 NEUR 511 *Integrative Neuroscience Core Course (1st semester)*
 NEUR 512 *Integrative Neuroscience Core Course (2nd semester)*
 NEUR 515 *Neural Development*

Philosophy

PHIL 103 *Philosophical Aspects of Cognitive Science*
 PHIL 303 *Theory of Knowledge*
 PHIL 305 *Mathematical Logic*
 PHIL 312 *Philosophy of Mind*
 PHIL 353 *Philosophy of Language*
 PHIL 357 *Incompleteness, Undecidability, and Computability*

Psychology

PSYC 308 *Memory*
 PSYC 309 *Psychology of Language*
 PSYC 340 *Research Methods*
 PSYC 351 *Psychology of Perception*
 PSYC 352 *Formal Foundations of Cognitive Science*
 PSYC 360 *Thinking*
 PSYC 362 *Biopsychology*
 PSYC 370 *Introduction to Human Factors*
 PSYC 409 *Methods in Human-Computer Interaction*
 PSYC 411 *History of Psychology*
 PSYC 430 *Computational Modeling of Cognitive Processes*
 PSYC 432 *Brain and Behavior (formally cross-listed as CSCI 420)*
 PSYC 441 *Human-Computer Interaction*
 PSYC 465 *Olfactory Perception*

Other

ANTH 406 *Cognitive Studies in Anthropology and Linguistics*
 ELEC 201 *An Introduction to Engineering Design*
 ELEC 498 *Introduction to Robotics*
 STAT 300 *Model Building*

COMPUTATIONAL AND APPLIED MATHEMATICS

THE GEORGE R. BROWN SCHOOL OF ENGINEERING

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Michael Fagan

INSTRUCTORS

Kirk D. Blazek

Elaine T. Hale

Dmitriy Leykekhman

DEGREES OFFERED: BA, MCAM, MCSE, MA, PHD

Courses within this major can provide foundations applicable to the many fields of engineering, physical sciences, life sciences, behavioral and social sciences, and computer science. Undergraduate majors have considerable freedom to plan a course of study consistent with their particular interests.

The professional degree (MCAM), for persons interested in practicing within this field, emphasizes general applied mathematics, operations research and optimization, and numerical analysis, while the MA and PhD programs concentrate on research. Faculty research interests fall in the 4 general areas of numerical analysis and computation; physical mathematics; operations research and optimization; and mathematical modeling in physical, biological, or behavioral sciences.

A further advanced degree program in computational science and engineering (CSE) addresses the current need for sophisticated computation in both engineering and the sciences. Such computation requires an understanding of

parallel and vector capabilities and a range of subjects including visualization, networking, and programming environments. An awareness of a variety of new algorithms and analytic techniques also is essential to maximizing the power of the new computational tools.

A joint MBA/Master of Engineering degree also is available in conjunction with the Jesse H. Jones Graduate School of Management.

DEGREE REQUIREMENTS FOR BA IN COMPUTATIONAL AND APPLIED MATHEMATICS

For general university requirements, see Graduation Requirements (pages 14–15). Students majoring in computational and applied mathematics are required to complete the 51 semester hours spelled out in the following program of study.

Introductory Courses: Typically completed during the 1st 2 years

MATH 101 <i>Single Variable Calculus I*</i>	CAAM 210 <i>Introduction to Engineering Computation</i>
MATH 102 <i>Single Variable Calculus II</i>	CAAM 335 <i>Matrix Analysis</i>
MATH 212 <i>Multivariable Calculus</i>	
COMP 110 <i>Computation in Science and Engineering*</i>	

*Students with prior experience with calculus and/or computational science may petition the department for a waiver.

Entering students should enroll in the most advanced course commensurate with their background; advice is available from the CAAM department during Orientation Week.

Intermediate Courses: Typically completed by the end of the 3rd year

CAAM 336 <i>Differential Equations in Science and Engineering</i>	CAAM 378 <i>Introduction to Operations Research and Optimization</i>
(or STAT 310 <i>Probability and Statistics</i> or STAT 331 <i>Applied Probability</i>)	CAAM 401 <i>Analysis I</i>
	CAAM 402 <i>Analysis II</i>

Advanced Courses: Typically completed during the 4th year

CAAM 453 <i>Numerical Analysis I</i>
CAAM 454 <i>Numerical Analysis II</i>

Electives: 5 courses at 300 level or above; 2 of which must be at the 400-level or above (chosen in consultation with the CAAM undergraduate advisor).

Highly Recommended Electives:

CAAM 415 <i>Theoretical Neuroscience</i>	MATH 423 <i>Partial Differential Equations</i>
CAAM 420 <i>Computational Science I</i>	MATH 425 <i>Integration Theory</i>
CAAM 436 <i>Partial Differential Equations of Mathematical Physics</i>	MATH 427 <i>Complex Analysis</i>
CAAM 460 <i>Optimization Theory</i>	STAT 431 <i>Overview of Mathematical Statistics</i>

DEGREE REQUIREMENTS FOR MCAM, MA, AND PHD IN COMPUTATIONAL AND APPLIED MATHEMATICS

Admission—Admission to graduate study in computational and applied mathematics is open to qualified students holding bachelor's or master's

degrees (or their equivalent) in engineering; mathematics; or the physical, biological, mathematical, or behavioral sciences. Department faculty evaluate the previous academic record and credentials of each applicant individually. For general information, see Graduate Degrees (pages 57–58) and Admission to Graduate Study (pages 56–57).

Applicants should be aware that it normally takes 2 years to obtain a master's degree and an additional 2 to 4 years for the doctoral degree.

MCAM Program—This professional degree program emphasizes the applied aspects of mathematics. The MCAM degree requires satisfactory completion of at least 30 semester hours of course work approved by the department.

MA Program—For an MA in computational and applied mathematics, students must:

- Complete at least 30 semester hours at the graduate level, including 5 courses in computational and applied mathematics, in addition to thesis work
- Produce an original thesis acceptable to the department
- Perform satisfactorily on a final public oral examination on the thesis

For students working toward the PhD, successful performance on the master's thesis may fulfill the PhD thesis proposal requirements upon approval by the thesis committee.

PhD Program—For a PhD in computational and applied mathematics, students must:

- Complete a course of study approved by the department, including at least 2 courses outside the major area
- Perform satisfactorily on preliminary and qualifying examinations and reviews
- Produce an original thesis acceptable to the department
- Perform satisfactorily on a final public oral examination on the thesis

Financial Assistance—Graduate fellowships, research assistantships, and graduate scholarships are available and are awarded on the basis of merit to qualified students. Current practice in the department is for most doctoral students in good standing to receive some financial aid.

DEGREE REQUIREMENTS FOR MCSE AND PHD IN COMPUTATIONAL SCIENCE AND ENGINEERING

CSE ProgramArea—Recognizing the increasing reliance of modern science and engineering on computation as an aid to research, development, and design, the Department of Computational and Applied Mathematics, in conjunction with the Departments of Biochemistry and Cell Biology, Earth Science, Computer Science, Chemical and Biomolecular Engineering, Electrical and Computer Engineering, Environmental Science and Engineering, and Statistics, has established an advanced degree program in computational science and engineering (CSE). The program focuses on modern computational techniques and provides a resource for training and expertise in this area.

The program is administered by a faculty committee chosen by the deans of engineering and natural sciences, with ultimate oversight by the provost. The Computational Science Committee (CSC) helps students design an appropriate course of study and sets the examination requirements.

Students may enter the CSE program either directly or indirectly through one of the participating departments (see list above). In all cases, however, students must fulfill the admissions requirements of 1 department, which is their associated department. Students then meet the normal requirements for graduate study within that department in every way (including teaching and other duties), except that the curriculum and examination requirements are set by the CSC.

MCSE Program—This program's intent is to produce professional experts in scientific computing able to work as part of an interdisciplinary research team. Training is concentrated in state-of-the-art numerical methods, high-performance computer architectures, use of software development tools for parallel and vector computers, and the application of these techniques to at least 1 scientific or engineering area. For general university requirements, see Graduate Degrees (pages 57–58).

Required Courses

CAAM 420 *Computational Science I* (taken as soon as possible)

CAAM 520 *Computational Science II* (taken as soon as possible)

CAAM 551 *Numerical Linear Algebra*

1 course from the following

COMP 412 *Compiler Construction*
(or ELEC 425 *Computer Systems Architecture*)

CAAM 452 *Numerical Methods for Differential Equations*

CAAM 453 *Numerical Analysis I*

CAAM 454 *Numerical Analysis II*

CAAM 464 *Numerical Optimization*

Computational Science Electives

4 courses selected from an approved list of COMP or CAAM courses (at least 2 courses at the 500 level)

Open Electives

2 approved courses other than CAAM or COMP courses at the 300 level or above
(a computational project taken within a participating department also satisfies this requirement)

Application Areas

An appropriate sequence of courses from a participating application area at the 300 level or above

For the MCSE degree, students must complete at least 30 semester hours of course work approved by the CSC; no more than 2 of the courses may be taken at the 300 level, taken outside the CSE program area, or satisfied by transfer credit. Each student's program of study must meet the requirements listed below. Modification of requirements can be requested by petition.

PhD Program—Study at the doctoral level seeks to advance the field through original research. For general university requirements, see Graduate Degrees (pages 57–58). For the PhD in computational science and engineering, students must:

- Complete a course of study approved by the CSC, including at least 2 courses outside the major area
- Perform satisfactorily on preliminary and qualifying examinations and reviews
- Produce an original thesis acceptable to the CSC
- Perform satisfactorily on a final public oral examination on the thesis

See CAAM in the Courses of Instruction section.

COMPUTER SCIENCE

THE GEORGE R. BROWN SCHOOL OF ENGINEERING

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Arun Chauhan

Daniel Chavarria-Miranda

Mark Moll

Joël Ouaknine

Kedar Swadi

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(with Electrical and
Computer Engineering)

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J. Robert Jump

ASSOCIATE PROFESSORS

Joseph Cavallaro

Edward Knightly

Peter Varman

ASSISTANT PROFESSORS

Vijay Pai

Yehia Massoud

Kartik Mohanram

(with Chemistry)

PROFESSOR

James Tour

DEGREES OFFERED: BA, BSCS, MCS, MS, AND PHD

Computer science is concerned with the study of computers and computing, focusing on algorithms, programs and programming, and computational systems. The main goal of the discipline is to build a systematic body of knowledge, theories, and models that explain the properties of computational systems and to show how this body of knowledge can be used to produce solutions to real-world computational problems. Computer science is the intellectual discipline underlying information technology, which is widely accepted now as the ascendant technology of the next century. Students in computer science at Rice benefit from the latest in equipment and ideas as well as the flexibility

of the educational programs. The research interests of the faculty include algorithms and complexity, artificial intelligence and robotics, compilers, distributed and parallel computation, graphics and visualization, operating systems, and programming languages.

The department offers 2 undergraduate degrees: the Bachelor of Arts degree (BA) and the Bachelor of Science in Computer Science degree (BSCS). The department offers 2 master's degrees: the professional Master of Computer Science degree (MCS) and the research-oriented Master of Science degree (MS). The department also offers a doctoral degree (PhD).

A joint MBA/Master of Engineering degree also is available in conjunction with the Jesse H. Jones Graduate School of Management.

DEGREE REQUIREMENTS FOR BA IN COMPUTER SCIENCE

For general university requirements, see Graduation Requirements (pages 14–15). The undergraduate program in computer science has been designed to accommodate a wide range of student interests. The program is sufficiently flexible for a student to customize it to his or her interests. A student can develop a broad educational program that couples computer science education with a variety of other fields in engineering, natural sciences, the humanities, or social sciences. Alternatively, a program might be designed for a student preparing for graduate study in computer science or for a career in computing and information technology.

The undergraduate program consists of required core courses, which are introductory courses covering material required of all majors; required breadth courses, which are upper-level courses ensuring knowledge in a broad range of areas; and electives, which give students the freedom to explore specific interests. Students majoring in computer science must complete between 58 and 60 semester hours of courses in these 3 categories. Students graduating with a BA in computer science must have at least 120 semester hours.

Core Courses

Eight courses for a total of 28 hours, required for all majors, usually taken in the freshman and sophomore years.
MATH 101/102 *Single Variable Calculus I and II*
COMP 210 *Introduction to Principles of Scientific Computation*
COMP 212 *Intermediate Programming*
COMP 280 *Mathematics of Computer Science*
COMP 314 *Applied Algorithms and Data Structures*

COMP 320 *Introduction to Computer Organization*
One course from the following:
MATH 211 *Ordinary Differential Equations and Linear Algebra*
MATH 221 *Honors Calculus III*
*Preferred choice

Breadth Courses

Seven courses for a total of 24 hours, required for all majors, usually taken in the junior and senior years.
STAT 331* or 310 *Probability*
CAAM 353 *Numerical Analysis*
MATH 355* or CAAM 335 *Linear Algebra*
COMP 311 or 412 *Programming Languages*

COMP 481 or 482 *Theory*
COMP 421 *Operating Systems*
ELEC 220 *Computer Engineering Fundamentals*

* Preferred Choice

Electives

2 courses for a total of 6 to 8 hours in computer science at the 300 level or higher. One of these may be an independent study project

DEGREE REQUIREMENTS FOR BS IN COMPUTER SCIENCE

The BS degree is designed for students who are interested in a more in-depth study of computer science to prepare themselves for a professional career in the computing industry. To receive a BS degree, a student must complete all the requirements of the BA degree (i.e., core, breadth, and electives), with the addition of PHYS 101/102 (or PHYS 111/112) (7 hours) to ensure a strong scientific background. In addition, the student must complete the depth component. This component consists of a coherent set of 4 or 5 courses specializing in some area of computer science. The same course cannot satisfy both the breadth requirement and the depth requirement. Students can adopt a preset depth component or design their own components, consisting of at least 15 hours. BS degree plans have to be approved by departmental advisors by no later than the end of the junior year. Sample curricula are listed on the department's website; more information is available from department advisors. The computer science requirements of the BS degree total 80 to 82 semester hours. For a BS degree in computer science, a total of 128 semester hours is required.

DEGREE REQUIREMENTS FOR MCS AND MS IN COMPUTER SCIENCE

For general university requirements, see Graduate Degrees (pages 57–58). The professional MCS degree is a terminal degree for students intending to pursue a technical career in the computer industry. To earn the MCS degree, students must successfully complete 30 semester hours of course work approved by the department and following the plan formulated in consultation with the department advisor. In general, the courses must be at the 400 level or above. At least 4 hours must be at the 500 level or above, excluding COMP 590.

Areas of concentration for the MCS include algorithms and complexity, artificial intelligence, compiler construction, distributed and parallel computing, graphics and geometric modeling, operating systems, and programming languages. The professional program normally requires three semesters of study.

The MCS degree with a concentration in bioinformatics is for students intending to pursue a technical career in the biotechnology industry. Students learn to integrate mathematical and computational methods to analyze biological, biochemical, and biophysical data. This program requires prior background in computer science, biosciences, and mathematics. To earn this degree, students must successfully complete 40 hours of approved course work meeting departmental requirements. This program normally requires 4 semesters of study.

The MS degree is a research degree requiring a thesis in addition to course work.

DEGREE REQUIREMENTS FOR PHD IN COMPUTER SCIENCE

The PhD degree is for students planning to pursue a career in computer science research and education. The doctoral program normally requires 4 to 6 years of study. To earn a PhD in computer science, students must:

- Meet departmental course requirements
- Complete a COMP 590 project by the end of the 3rd semester
- Complete a master's thesis by the end of the 5th semester, if a previous master's thesis has not been approved by the graduate committee
- Pass a qualifying examination in an area of specialization within 7 semesters after entering the PhD program

- Conduct original research, submit an acceptable PhD thesis proposal, and successfully defend the thesis proposal
- Submit an acceptable PhD thesis that reports research results and pass a final oral defense

Students who successfully meet the 1st 3 requirements are awarded the Master of Science degree. Students successfully meeting all requirements, plus any departmental and university requirements, are awarded the PhD degree.

Financial Assistance—Fellowships and research assistantships are available to students in the PhD program. Both provide a monthly stipend for the academic year and cover all tuition expenses. More substantial monthly stipends may be available during the summer for students working on departmental research projects. In all cases, continued support is contingent on satisfactory progress in the program. PhD students also are expected to assist in the teaching and administration of undergraduate and graduate courses.

Additional Information—For further information and application materials, write the Department of Computer Science—MS 132, Rice University, P.O. Box 1892, Houston, Texas 77251-1892.

See COMP in the Courses of Instruction section.

EARTH SCIENCE

THE WIESS SCHOOL OF NATURAL SCIENCES

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William Hockaday

EARTH SCIENCE JOINT APPOINTMENTS (WITH CHEMISTRY)

Andreas Luttge

ESCI DEGREES OFFERED: BA, BS, MS, PHD

All undergraduate majors in earth science take a 4-course core sequence, typically in the sophomore and junior years, on earth processes, materials, observations, and history. Majors also take a course in geological field techniques and introductory courses in mathematics, chemistry, and in many cases, physics and biology.

The selection of upper-division courses and additional science courses depends on which major, BA or BS, and, for the BS major, which of 5 tracks are chosen by the student: geology, geochemistry, geophysics, environmental earth science, or a track designed by the student subject to the approval of the department undergraduate advisor. The program of study typically includes experience with analytical equipment, computer systems, and fieldwork.

The BS in earth science degree should be chosen by students planning a career or further study in earth science or a related field. The BA in earth science degree has fewer requirements and might be a good choice for students planning a career or further study to which earth science is incidental.

DEGREE REQUIREMENTS FOR BS IN EARTH SCIENCE

For general university requirements, see Graduation Requirements (pages 14–15).

BS majors must also complete the “Additional Requirements” for one track (described below).

The following courses are required for all tracks:

MATH 101/102 *Single Variable Calculus I and II*
 CHEM 121/122 or 151/152 *General Chemistry I and II with lab*
 PHYS 101/102 or 111/112 *Introductory Physics I and II with lab*

ESCI 321 *Earth System Evolution and Cycles*
 ESCI 322 *Earth Chemistry and Materials*
 ESCI 323 *Earth Structure and Deformation with lab*
 ESCI 324 *Earth's Interior*
 ESCI 334 *Geological and Geophysical Techniques*

ADDITIONAL REQUIREMENTS FOR THE GEOLOGY TRACK

The following courses are required:

MATH 211 *Ordinary Differential Equations and Linear Algebra*
 ESCI 390 *Geology Field Camp*

Choose one of the following courses:

COMP 110 *Computation in Natural Science*
 CAAM 210 *Introduction to Engineering Computation (FORTRAN)*
 CAAM 211 *Introduction to Engineering Computation (C)*
 COMP 210 *Principles of Computing and Programming*

Choose one of the following courses:

ESCI 412 *Advanced Petrology*
 ESCI 430 *Principles of Trace-Element and Isotope Geochemistry*

Choose one of the following courses:

ESCI 427 *Sequence Stratigraphy*
 ESCI 521 *Seminar in Applied Micropaleontology*

Choose one of the following courses:

ESCI 504 *Siliciclastic Depositional Systems*
 ESCI 506 *Carbonate Depositional Systems*
 ESCI 421 *Paleoceanography*

Choose one of the following courses:

ESCI 446 *Solid Earth Geophysics*
 ESCI 442 *Exploration Geophysics I*

Choose one of the following courses:

ESCI 418 *Quantitative Hydrogeology*
 ESCI 463 *Advance Structural Geology*
 ESCI 428 *Geologic Interpretation of Reflection Seismic Profiles*
 ESCI 464 *Global Tectonics*

ADDITIONAL REQUIREMENTS FOR THE GEOCHEMISTRY TRACK

The following courses are required:

BIOS 201 *Introductory Biology I*
 ESCI 390 *Geology Field Camp* or
 ESCI 391 *Earth Science Field Experience*

Choose 9 hours from the following:

ESCI 340 *Global Biogeochemical Cycles*
 ESCI 412 *Advanced Petrology*
 ESCI 421 *Paleoceanography*
 ESCI 425 *Organic Geochemistry*
 ESCI 458 *Thermodynamics/Kinetics for Geoscientists*
 ESCI 203 *Biogeochemistry*
 ESCI 430 *Principles of Trace-Element and Isotope Geochemistry*

Choose 8 hours from the following:

All upper division ESCI courses

CEVE 401 *Introduction to Environmental Chemistry*
 CEVE 403 *Principles of Environmental Engineering*
 CEVE 434 *Chemical Transport and Fate in the Environment*
 CEVE 532 *Physical-Chemical Processes in Environmental Engineering*
 CEVE 534 *Transport Phenomena and Environmental Modeling*
 CEVE 550 *Environmental Organic Chemistry*
 BIOS 202 *Introductory Biology*
 BIOS 211 *Introductory Lab Module in Biological Science*
 CHEM 211/212 *Organic Chemistry*
 CHEM 311/312 *Physical Chemistry*
 CHEM 415 *Chemical Kinetics and Dynamics*

CHEM 495 *Transition Metal Chemistry*
 MATH 211 *Ordinary Differential Equations and Linear Algebra*
 MATH 212 *Multivariable Calculus*
 COMP 110 *Computation Science and Engineering*

CAAM 210/211 *Introduction to Engineering Computation*
 COMP 210 *Introduction to Principles of Scientific Computing*

ADDITIONAL REQUIREMENTS FOR THE GEOPHYSICS TRACK

The following courses are required:

MATH 211 *Ordinary Differential Equations and Linear Algebra*
 MATH 212 *Multivariable Calculus*
 PHYS 201 *Waves and Optics*
 PHYS 231 *Elementary Physics Lab II*
 ESCI 390 *Geology Field Camp* or
 ESCI 391 *Earth Science Field Experience*

Choose one of the following courses:

COMP 110 *Computation in Natural Science*
 CAAM 210 *Introduction to Engineering Computation (FORTRAN)*
 CAAM 211 *Introduction to Engineering Computation (C)*
 COMP 210 *Principles of Computing and Programming*

Choose 6 hours from the following:

ESCI 418 *Quantitative Hydrogeology*
 ESCI 440 *Geophysical Data Analysis: Digital Signal Processing*

ESCI 441 *Geophysical Data Analysis: Inverse Theory*
 ESCI 442 *Exploration Geophysics I*
 ESCI 444 *Exploration Geophysics II*
 ESCI 450 *Remote Sensing*
 ESCI 454 *Geographic Information Science*
 ESCI 461 *Seismology I*
 ESCI 462 *Tectonophysics*
 ESCI 464 *Global Tectonics*
 ESCI 532 *Advanced Global Tectonics*
 ESCI 542 *Seismology II*

Choose 6 hours from the immediately preceding or following lists:

Any 3- or 4-hour course in ESCI with a number between 411 and 475, except for research and special studies

Any 300- or 400-level MATH, CAAM, or PHYS class
 CHEM 311 *Physical Chemistry*

ADDITIONAL REQUIREMENTS FOR THE ENVIRONMENTAL EARTH SCIENCE TRACK

The following courses are required:

MATH 211 *Ordinary Differential Equations and Linear Algebra*
 BIOS 201 *Introductory Biology I*

Choose one of the following courses:

COMP 110 *Computation in Natural Science*
 CAAM 210 *Introduction to Engineering Computation (FORTRAN)*
 CAAM 211 *Introduction to Engineering Computation (C)*
 COMP 210 *Principles of Computing and Programming*

Choose 11 hours from the following, including at least two courses in ESCI:

ESCI 340 *Global Biogeochemical Cycles*

ESCI 418 *Quantitative Hydrogeology*
 ESCI 425 *Organic Geochemistry*
 ESCI 451 *Analysis of Environmental Data*
 ESCI 353 *Environmental Geochemistry*
 ESCI 442 *Exploration Geophysics*
 ESCI 454 *Geographic Information Science*
 ESCI 463 *Advanced Structural Geology I*
 ESCI 504 *Clastics*
 ESCI 506 *Carbonates*
 ESCI 568 *Paleoclimates and Human Response*
 CEVE 306 *Global Environmental Law and Sustainable Development*
 CEVE 434 *Chemical Transport and Fate in the Environment*

CEVE 412 *Hydrogeology and Watershed Analysis*CEVE 401 *Environmental Chemistry*CHEM 211 *Organic Chemistry*CHEM 311 *Physical Chemistry*CHEM 360 *Inorganic Chemistry*PHYS 201 *Waves and Optics*PHYS 231 *Elementary Physics Lab II*BIOS 202 *Introductory Biology II***ADDITIONAL REQUIREMENTS FOR THE SELF-DESIGNED TRACK**

The department recognizes the interdisciplinary nature of modern earth science and the opportunity for students to specialize in nontraditional and emerging fields. Therefore, students can design their own specialty track, normally in close consultation with 1 faculty member and followed by approval from the department's undergraduate advisor. In addition to required earth science courses and related courses, these tracks will generally comprise 15 additional hours that target a coherent theme from an approved list of 300- or higher-level courses, from inside or outside the department. Interested students are expected to submit a statement of rationale by the beginning of their 3rd year.

Choose 9 hours from the following:BIOS 201 *Introductory Biology I*COMP 110 *Computation in Natural Science*CAAM 210 *Introduction to Engineering Computation (FORTRAN)*CAAM 211 *Introduction to Engineering Computation (C)*COMP 210 *Principles of Computing and Programming*CHEM 311/312 *Physical Chemistry I and II*MATH 211 *Ordinary Differential Equations and Linear Algebra*MATH 212 *Multivariable Calculus*PHYS 201 *Waves and Optics*PHYS 203 *Atmosphere, Weather, and Climate*ESCI 390 *Geology Field Camp* orESCI 391 *Earth Science Field Camp*

Choose 12 hours of additional courses numbered 300 or higher targeting a coherent theme selected with approval of the department undergraduate advisor.

DEGREE REQUIREMENTS FOR BA IN EARTH SCIENCE

For general university requirements, see Graduation Requirements (pages 14–15).

The following courses are required:MATH 101/102 *Single Variable Calculus I and II*CHEM 121/122 or 151/152 *General Chemistry I and II with lab*ESCI 321 *Earth System Evolution and Cycles*ESCI 322 *Earth Chemistry and Materials*ESCI 323 *Earth Structure and Deformation with lab*ESCI 324 *Earth's Interior*ESCI 334 *Geological and Geophysical Techniques***Choose 6 hours from the following:**BIOL 201/202 *Introductory Biology I and II*BIOL 211, 213 *Biology Lab Modules*MATH 211 *Differential Equations*PHYS 101/102 or 125/126 *Introductory Physics*

COMP 110 *Computation in Natural Science* or CAAM 210 *Introduction to Engineering Computation (FORTRAN)* or CAAM 211 *Introduction to Engineering Computation (C)* or COMP 210 *Principles of Computing and Programming*

Choose 4 upper division ESCI courses, approved by the department undergraduate advisor.

Choose 6 hours in science and engineering (including ESCI) courses at the 200 level or above approved by the department undergraduate advisor.

UNDERGRADUATE INDEPENDENT RESEARCH

The department encourages, but does not require, earth science undergraduate majors to pursue independent supervised research in ESCI 481 *Research in Earth Science*. See also Honors Programs (page 26).

DEGREE REQUIREMENTS FOR MS AND PHD IN EARTH SCIENCE

All incoming students should have a strong background in physics, chemistry, and mathematics and should have, or should acquire, a broad grounding in fundamental earth science. The department encourages applications from well-qualified students with degrees in the other sciences and mathematics. For general university requirements, see Graduate Degrees (pages 57–58). The requirements for the MS and PhD in earth science are similar, but the PhD demands a significantly higher level of knowledge, research skills, and scholarly independence. Most students need at least 2 years beyond the bachelor's degree to complete the MS and at least 2 years beyond the MS degree for the PhD.

Candidates determine, with their major professor and thesis committee, a course of study following the *Guidelines for Advanced Degrees in the Department of Earth Science* distributed to all incoming students. For both degrees, candidates must:

- Complete 20 semester hours of course work at the 400 level and above (or other approved courses), not including research hours
- Pass a written preliminary exam
- Maintain a grade point average of 3.00 (B) or better
- Prepare a written thesis
- Produce a publishable thesis that represents an original contribution to science
- Defend the research and conclusions of the thesis in an oral examination

Students of exceptional ability with a bachelor's degree and department approval may work directly toward the PhD, in which case the course of study is equivalent to that required for both degrees; performance on the examinations and the thesis, however, should be at the level required for the PhD. Because the graduate programs require full-time study and close interaction with faculty and fellow students, the department discourages students from holding full (or nearly full) time jobs outside the university. Outside employment must be approved by the chair.

See ESCI in the Courses of Instruction section.

ECONOMICS

THE SCHOOL OF SOCIAL SCIENCES

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ADJUNCT ASSOCIATE PROFESSOR

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ADJUNCT ASSISTANT PROFESSOR

John Diamond

Kenneth Medlock

DEGREES OFFERED: BA, MA, PHD

Undergraduates may major in either economics or mathematical economic analysis. The latter is recommended for students who intend to continue on to graduate work in economics or pursue a business or governmental job in which analytical and quantitative skills are required.

The 8 major fields available for graduate study are econometrics, economic development, economic theory, industrial organization and regulation, international trade and finance, labor, macroeconomics and/or monetary theory, and public finance.

REQUIREMENTS FOR MAJORING IN ECONOMICS

1. All economics majors must complete a minimum of 10 courses with a grade point average of at least 2.0. When students repeat courses or complete more than the minimally required number of courses, the departmental GPA will be based on the set of courses that (i) satisfies all requirements for the degree and (ii) results in the highest GPA for the student. Major requirements are not reduced for multiple majors, although some courses can satisfy the requirements for more than 1 major. (Please note that students may not pursue a double major in economics and mathematical economic analysis.)
2. The following courses are required for all economics majors:*

ECON 211 *Principles of Economics I*

ECON 370 *Microeconomic Theory*

ECON 375 *Macroeconomic Theory*

STAT 280 *Elementary Applied Statistics* (or STAT 310/ECON 382)

ECON 446 *Applied Econometrics* (or ECON 400).

Please note that ECON 370 requires MATH 101 (or both MATH 111 and 112) as prerequisites. We suggest that economics majors take ECON 211, ECON

370, MATH 101, STAT 280 (or STAT 310/ECON 382), and ECON 446 (or ECON 400) as early as possible. Please note that failure to take prerequisite courses in earlier years may cause scheduling problems in later years.

3. Given that item 2 has been satisfied, the 5 remaining required economics courses must be selected from the following:

ECON 340 <i>Introduction to Game Theory</i>	ECON 450 <i>World Economy and Social Development</i>
ECON 348 <i>Organization Design</i>	ECON 451 <i>Economy of Latin America</i>
ECON 355 <i>Financial Markets</i>	ECON 452 <i>Religion, Ethics, and Economics</i>
ECON 400 <i>Econometrics</i>	ECON 455 <i>Money and Financial Markets</i>
ECON 403/404 <i>Senior Independent Research</i>	ECON 461 <i>Urban Economics</i>
ECON 415 <i>Labor Economics</i>	ECON 475 <i>Integer and Combinatorial Optimization</i>
ECON 420 <i>International Trade</i>	ECON 477 <i>Mathematical Economics</i>
ECON 421 <i>International Finance</i>	ECON 479 <i>Applied General Equilibrium Modeling</i>
ECON 435 <i>Industrial Organization</i>	ECON 480 <i>Environmental Economics</i>
ECON 436 <i>Regulation</i>	ECON 481 <i>Health Economics</i>
ECON 437 <i>Energy Economics</i>	ECON 482 <i>Distributive Justice</i>
ECON 438 <i>Business, Law, and Economics</i>	ECON 483 <i>Public Finance Tax Policy</i>
ECON 439 <i>Torts, Property, and Contracts</i>	ECON 484 <i>Public Finance Expenditure</i>
ECON 440 <i>Advanced Game Theory</i>	ECON 485/486 <i>Contemporary Economic Issues</i>
ECON 445 <i>Managerial Economics</i>	ECON 495/496 <i>Senior Seminar</i>
ECON 448 <i>Corporate Finance</i>	
ECON 449 <i>Basics/Financial Engineering</i>	

4. No more than 3 of the 10 economics courses may be transferred from other schools. Additional transfer credits in economics may count toward meeting university graduation requirements but not toward fulfillment of the departmental major requirements. AP credits do not count against the 3 allowed transfer credits. In order to transfer ECON 211, the student must pass a qualifying examination. Students wishing to take the ECON 211 qualifying examination must apply to the economics department office in Baker Hall 266A. For additional information on transfer credits, consult "Procedures for Transfer Credit," available in the economics department office.
5. Students may graduate with honors in economics by achieving a B+ (3.33) average in all economics courses and completing 2 semesters of independent research (for details, consult Economics 403/404—*Senior Independent Research*, available in the economics department office).
6. For additional course information, consult Economics Course Descriptions, compiled by the Rice chapter of the Omicron Delta Epsilon National Economics Honor Society.
7. Please note that it is primarily the responsibility of the student to satisfy all degree requirements, including the University Credit Requirements and University Distribution Requirements specified in the General Announcements. Students are advised that the relevant departmental requirements are those in effect on the day that the student declares economics as their major. Consult with the appropriate departmental advisor, who must sign all registration forms for each major.

* The Department of Statistics has advised that it may introduce a new class especially for economics majors in place of STAT 280. If and when it does, STAT 280 will be replaced by that new class. In the meantime, students should take STAT 280 (or STAT 310/ECON 382) before taking ECON 446 (or ECON 400).

- Students who are considering either graduate work in economics or a business or governmental job in which analytical and quantitative skills are required should seriously consider obtaining the alternative major in mathematical economic analysis.

REQUIREMENTS FOR MAJORING IN MATHEMATICAL ECONOMIC ANALYSIS

- The major in mathematical economic analysis (MTEC) is designed for students who are interested in either graduate work in economics or a business or governmental job in which analytical and quantitative skills are required.
- Students must choose between the 2 majors offered by the economics department; that is, students may not double major in economics and mathematical economic analysis. Major requirements are not reduced for students with multiple majors.
- All MTEC majors must complete a minimum of 16 courses in 6 areas with a grade point average of at least 2.0. These courses must include:

(a) 4 courses in economic theory:

ECON 211 *Principles of Economics I*
 ECON 370 *Microeconomic Theory*
 ECON 375 *Macroeconomic Theory*
 ECON 477 *Mathematical Economics*

(b) 4 courses in applied economics, selected from:

ECON 340 *Introduction to Game Theory*
 ECON 348 *Organizational Design*
 ECON 355 *Financial Markets*
 ECON 415 *Labor Economics*
 ECON 420 *International Trade*
 ECON 421 *International Finance*
 ECON 435 *Industrial Organization*
 ECON 436 *Regulation*
 ECON 437 *Energy Economics*
 ECON 438 *Business, Law, and Economics*
 ECON 439 *Torts, Property, and Contracts*
 ECON 440 *Advanced Game Theory*
 ECON 445 *Managerial Economics*
 ECON 446 *Applied Econometrics*
 ECON 448 *Corporate Finance*
 ECON 449 *Basics of Financial Engineering*
 ECON 450 *World Econ and Social Development*
 ECON 451 *Economy of Latin America*
 ECON 452 *Religion, Ethics, and Economics*
 ECON 455 *Money and Financial Markets*
 ECON 461 *Urban Economics*
 ECON 475 *Integer and Combinatorial Optimization*

ECON 479 *Applied General Equilibrium Modeling*

ECON 480 *Environmental Economics*
 ECON 481 *Health Economics*
 ECON 482 *Distributive Justice*
 ECON 483 *Public Finance Tax Policy*
 ECON 484 *Public Finance Expenditure*
 ECON 485/486 *Contemporary Economic Issues*

(c) 1 additional 400-level course in applied economics as listed in (b) or a course in advanced analysis, selected from:

CAAM 452 *NUM Methods for PDES*
 CAAM 453 *Numerical Analysis I*
 CAAM 454 *Numerical Analysis II*
 CAAM 460 *Optimization Theory*
 CAAM 475 *Integer and Combinatorial Optimization*
 STAT 421 *Computation Finance II*
 STAT 450 *Statistical Modeling*
 STAT 486 *Computation Finance I: Market Models*

or an equivalent or higher-level course approved in advance by the chair of the undergraduate committee.

(d) 1 course in econometrics:

ECON 400 *Econometrics*

(e) 5 courses in mathematics and statistics:

MATH 101 *Single Variable Calculus I*,
 MATH 102 *Single Variable Calculus II*, and

MATH 211 *ORD Differential Equations*, or
 MATH 355 *Linear Algebra*, or
 CAAM 335 *Matrix Analysis*, and
 MATH 212 *Multivariable Calculus* or
 221 *Honors Calculus III*, and
 ECON 382/STAT 310 *Probability and Statistics*, STAT 410 *Introduction to Regression and Statistical Computing*, or STAT 431 *Overview Mathematical Statistics*

(f) 1 semester of senior independent research or senior seminar (if offered):

ECON 495/496 or ECON 403/404

4. No more than 3 of the required economics courses and 2 of the required mathematics (or computational and applied mathematics or statistics) courses may be transferred from other schools. Additional transfer credits in economics, mathematics, computational and applied mathematics, or statistics may count toward meeting university graduation requirements, but not toward fulfillment of the departmental major requirements. AP credits do not count against the allowed transfer credits. In order to transfer ECON 211, the student must pass a qualifying examination. Students wishing to take the ECON 211 qualifying examination must apply to the economics department office in Baker Hall 266A. For additional information on transfer credits, consult Procedures for Transfer Credit, available in the economics department office.
5. Students may graduate with honors in mathematical economic analysis by achieving a B+ (3.33) average in the 16 courses required for the major. When students repeat courses or complete more than the minimally required number of courses, the departmental GPA will be based on the set of courses that (i) satisfies all requirements for the degree and (ii) results in the highest GPA for the student.
6. For additional course information, consult Economics Course Descriptions, compiled by the Rice chapter of the Omicron Delta Epsilon National Economics Honor Society.
7. Please note that it is primarily the responsibility of the student to satisfy all degree requirements, including the University Credit Requirements and University Distribution Requirements specified in the *General Announcements*. Students are advised that the relevant departmental requirements are those in effect on the day that the student declares mathematical economic analysis as his or her major. Consult with the appropriate departmental advisor, who must sign all registration forms for each major.

CONCENTRATION IN BUSINESS ECONOMICS

Students who complete the requirements for a major in economics or a major in mathematical economics analysis also may request certification from the department that they have completed the requirements for a concentration in business economics if they complete the following courses with a minimum grade point average of at least 2.0:

1. ACCO 305 *Introduction to Accounting*
2. The following electives for the economics or mathematical economics analysis mayor:
 ECON 348 *Organizational Design* or ECON 355 *Financial Markets and Institutions*
 ECON 438 *Business, Law, and Economics*
 ECON 445 *Managerial Economics*
 ECON 448 *Corporate Finance*

3. Note that to complete their major requirements, economics majors will need to choose 1 additional elective beyond those chosen to satisfy requirement 2, and this could include either ECON 348 or ECON 355 if not taken already. Similarly, mathematical economic analysis majors can choose either ECON 348 and ECON 355, if not taken already, to fulfill the remaining requirements of their major. If students complete both ECON 348 and ECON 355, their grade point average for the concentration in business economics will include the course that results in the highest grade point average for the student.

Substituting Economics Graduate Courses for Undergraduate Courses—Undergraduate majors satisfying the course prerequisites may, subject to the approval of the instructor and of the departmental undergraduate committee chair, substitute certain graduate courses for undergraduate courses. Only highly motivated students with excellent aptitudes for economics and a strong background in mathematics should consider making such substitutions. Typically, but not necessarily, such students will be majors in mathematical economic analysis. Permitted substitutions are as follows:

- ECON 501 for ECON 370 (if student has completed ECON 211 at Rice)
- ECON 502 for ECON 375
- ECON 504 for ECON 382
- ECON 510 for ECON 400
- Furthermore, ECON 505 and ECON 508 also may be taken by undergraduates and may be used toward satisfying MTEC requirements. Specifically, ECON 505 could be used as 1 of the courses in the applied economics category or in the advanced analysis category, while ECON 508 could be used only in the advanced analysis category.

Note that this set of substitutable graduate courses includes 6 of the 7 courses required during the 1st year of the PhD program at Rice. Accordingly, such advanced course work would be excellent preparation for graduate study in economics or in some related field such as finance. Taking such graduate courses also should open more opportunities for the student who will be seeking employment immediately after graduation.

THE 5-YEAR MA PROGRAM

Advanced undergraduate students can, subject to the approval of the departmental 5-year MA advisor, enter our 5-year MA program. In this program, a student who has taken advantage of the full menu of graduate course substitutions available could, with an additional year of study at Rice, earn an MA in economics.

To obtain the MA degree, students must satisfy all of the requirements for PhD candidacy. In particular, students must pass general examinations in microeconomic theory and in macroeconomic theory and econometrics, must pass an examination in a specialized field of study in economics, and must complete an original research project (a dissertation prospectus) that could be developed into a PhD dissertation under the supervision of a faculty member. This work could be an extension of a paper written as a senior independent research project (ECON 403/404). In some cases, at the discretion of the independent research advisor, the paper produced in ECON 403/404 may fulfill this requirement. Finally, the 1st-year graduate requirement to take ECON 507 Mathematical Economics would be waived with the approval of the departmental 5-year MA advisor.

Note that any student who subsequently decides to enter the economics PhD program at Rice would be given graduate credit for all 500-level economics

courses completed while an undergraduate. The completion of the PhD dissertation typically requires at least 1 additional year of research (but no additional courses) beyond the MA degree.

Students who opt for the 5-year MA degree program will have different backgrounds and interests on entering Rice and will choose to pursue this option at different stages in their academic careers. The following illustrates 2 (of many) possible paths to satisfying the MTEC major requirements, while at the same time completing all of the requirements for the MA degree over a 5-year period.

COURSES: SAMPLE PATH ONE

The student enters with AP credit for ECON 211 and MATH 101/102 and has an early interest in the 5-year MA program.

Freshman Year

ECON 370, 375, 477, and MATH 211/212

Sophomore Year

ECON 501; 1 course from Applied Economics category; and MATH 355 or CAAM 310

Junior Year

ECON 502, 504, 505, 510, and 1 course from Applied Economics category

Senior Year

ECON 403/404 and ECON 508

5th Year

Complete all remaining graduate courses and pass all remaining examinations required to achieve PhD candidacy.

(Note that with AP credit for MATH 101/102, but not for ECON 211, the student could substitute ECON 370 for ECON 211 in the freshman year.)

COURSES: SAMPLE PATH TWO

The student has no relevant AP credit and/or decides to enter the 5-year MA program only near the end of the sophomore year.

Freshman Year

ECON 211 and MATH 101/102

Sophomore Year

ECON 370, 375, 477, and 1 course from applied economics category; MATH 211/212

Junior Year

ECON 501, 502, 505, 508; MATH 355 or CAAM 310

Senior Year

ECON 504, 510, 403/404, and 1 course from applied economics category

5th Year

Complete all remaining graduate courses and pass all remaining examinations required to achieve PhD candidacy.

DEGREE REQUIREMENTS FOR PHD IN ECONOMICS

Preparation for PhD Program. Applicants to the PhD program should have had at least 2 semesters in calculus and 1 in linear algebra. Students who have not met these requirements may complete these prerequisites as Class III students (pages 75–76) before being admitted to the graduate program. All applicants are required to take the Graduate Record Exam.

Requirements. For general university requirements, see Graduate Degrees (pages 57–58). Candidates for the PhD degree usually spend from 2 to 2 and 1-half years in full-time course work and at least 1 year writing the dissertation; 4 to 5 years is a reasonable goal for completing the program. For the PhD, students must:

- Complete an approved program of at least 14 courses, not including ECON 593/594 *Workshop in Economics I* and ECON 595/596 *Workshop in Economics II*

- Complete an approved program of at least 4 sections of ECON 593/594 *Workshop in Economics I* and ECON 595/596 *Workshop in Economics II*
- Perform satisfactorily on written general examinations in economic theory and econometrics
- Demonstrate proficiency in a major field by taking the relevant courses in that field and performing satisfactorily on a written examination
- Complete and defend orally a doctoral dissertation setting forth in publishable form the results of original research

See ECON in the Courses of Instruction section.

EDUCATION

THE SCHOOL OF HUMANITIES

PROFESSOR

Linda M. McNeil

No degree is offered through the Department of Education. This department offers opportunities for students to explore the background, purposes, and organization of American schools, as well as the major issues facing education today. Research seminars allow students to engage in projects in a wide range of topics significant to education. Most courses require observation in the classroom.

Please see the section on Education Certification for information on the 3 teacher education plans offered at Rice:

1. A secondary teaching certificate in combination with the undergraduate degree in the elected subject field(s)
2. A Master of Arts in Teaching (MAT)
3. A postbaccalaureate plan for Class III students that involves taking those courses and state examinations needed for certification but that does not confer a degree

EDUCATION CERTIFICATION

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Linda M. McNeil

ADJUNCT PROFESSOR

Roland B. Smith Jr.

LECTURERS

Jean Ashmore

Eileen Coppola

Diana Norcross

Judy Radigan

Carolynne White

DEGREES OFFERED: SECONDARY TEACHING CERTIFICATE IN CONJUNCTION WITH BA IN MAJOR FIELD, MAT

Students in the teacher education program at Rice show a commitment to teaching, a strong record of scholarship in their subject areas, and promise as thoughtful, engaging teachers. The program emphasizes a sound liberal arts education; extensive knowledge of the subject(s) or area(s) to be taught; professional knowledge, including the relevant historical, philosophical, social, and psychological bases of education; and skills in classroom teaching, which include working with both children and adults. Graduates emerge from the program fully prepared for the teaching profession and knowledgeable about a multitude of teaching styles and methods to meet the needs of the diverse student population in schools today.

Rice offers 3 teacher education plans: (1) a secondary teaching certificate in combination with the undergraduate degree in the elected subject field(s), (2) a Master of Arts in Teaching (MAT), and (3) a postbaccalaureate plan for Class III students that involves taking those courses and state examinations needed for certification but that does not confer a degree. All 3 plans include student teaching in the Rice Summer School for Grades 8–12. While maintaining its academic integrity, the Rice program complies with state of Texas certification requirements. Students seeking additional information about the teacher education program are encouraged to meet with education faculty.

Texas Teaching Credential—Rice is approved by the state of Texas to offer teacher preparation programs in the following fields: art, English language arts and reading, French, German, health science technology education, history, Latin, life sciences, mathematics, mathematics/physics, physical education, physical science, Russian, science, social studies, and Spanish.

After satisfactory completion of the Rice program, which includes the state-mandated TExES and/or ExCET examinations, students are recommended for a Texas teaching credential. The Texas Education Agency then awards a Texas Standard Teaching Certificate (Grades 8–12).

Student Teaching—Apprenticeship (Plan A) and Internship (Plan B) programs are available. Unpaid *apprenticeships* are for undergraduates who wish to complete the teacher education program in 4 years and 2 6-week

summer sessions. Candidates enroll for the summer sessions following their junior and senior years. Apprentices create and teach courses under the supervision of experienced mentor teachers and university faculty in the Rice Summer School for Grades 8–12.

Paid internships are undertaken by Master of Arts in Teaching candidates, some Class III students, and undergraduates who begin earning certification in their senior year. Under this plan, students serve 1 apprenticeship in the Rice Summer School and then are supervised through their 1st semester of a full-time, paid internship in a neighboring, cooperating school system. Permission for the internship is contingent upon completing a successful apprenticeship.

REQUIREMENTS FOR SECONDARY TEACHING CERTIFICATE

Admission—Students may apply to the Rice University Education Certification Office for admission to the teacher education program if they show:

- Attainment of junior standing at Rice (bachelor's degree for MAT candidates) by the semester of admission to the program
- Grades of C- or better in all semester hours attempted in their teaching field(s) and a grade point average of 2.5 or better, both in courses in their teaching fields and overall
- Evidence of adequate physical vigor to perform as a teacher in a classroom
- Exemption or satisfactory scores on all required preprofessional skills tests
- A completed plan of study approved by department representatives and the major field advisor is required before admission to the program is complete

Completion of Program—To complete the program, students must:

- Be exempted from or pass the Texas Higher Education Assessment (THEA) exam prior to enrolling in any education courses
- Complete the courses specified by the major field advisor(s). Lists of courses for each subject are available in the Education Certification Office
- Complete 18 hours in professional education courses as follows:
 Either EDUC 301/501 *Philosophical, Historical, and Social Foundations of Education* or EDUC 330/530 *The American High School*
 EDUC 305/505 *Educational Psychology*
 EDUC 420 *Curriculum Development*
 3 hours in the appropriate seminar(s) in teaching methods
 6 hours in student teaching (see following)
- Satisfy a state requirement for computer literacy by completing 3 credits in computer use. EDUC 340 *Computers in Education* is recommended
- Complete all university and program requirements specified for undergraduates, MAT candidates, or nondegree (Class III) candidates
- Make grades of C- or better in all teaching field courses and education courses (B- or better for MAT students)
- Pass appropriate TExES and/or ExCET exams

Apprenticeship Plan (Plan A)

(For students beginning certification in their junior year and for some Class III students)

Junior Year

EDUC 301 *Philosophical, Historical, and Social Foundations of Education* or EDUC 330 *The American High School*

EDUC 305 *Educational Psychology*

EDUC 410–416 *Relevant seminar(s) in teaching methods*

EDUC 420 *Curriculum Development*

EDUC 440 *Supervised Teaching: Summer School*

Senior Year

EDUC 420 *Curriculum Development*

After Graduation

EDUC 440 *Supervised Teaching: Summer School*

Internship Plan (Plan B)

(For students beginning certification in their senior year, some Class III students, and MAT students)

Before Graduation

EDUC 301/501 *Philosophical, Historical, and Social Foundations of Education* or EDUC 330/530 *The American High School*

EDUC 305/505 *Educational Psychology*

EDUC 410–416 *Relevant seminar(s) in teaching methods*

EDUC 420 *Curriculum Development*

After Academic Year

EDUC 440 *Supervised Teaching: Summer School*

EDUC 540 *Internship* (paid internship in the fall in a local, accredited secondary school)

REQUIREMENTS FOR MAT

Admission—Applicants must have a bachelor's degree, scholarly ability, and an interest in teaching, and they must have taken the Graduate Record Examination (GRE) aptitude test. Education faculty review each application. A limited number of tuition waivers is available. See Admission to Graduate Study (pages 56–57). Admitted students must pass or be exempted from the state's Texas Higher Education Assessment (THEA) exam *prior* to enrolling in any education courses.

Degree Requirements—For general university requirements, see Graduate Degrees (pages 57–58). The MAT is a nonthesis degree program for students who want to qualify for secondary school teaching following a liberal arts education. Most candidates entering the program have had no professional education courses. By completing the program, candidates fulfill all requirements for a Texas Standard Teaching Certificate for grades 8–12. To earn the MAT degree, students must complete, with grades of B- or higher, at least 33 semester hours (the need to remove deficiencies may require additional courses for certification) at the graduate level. Requirements are as follows:

- Courses in secondary school educational theory, teaching strategies, educational practice, and evaluation
- Graduate or upper-level courses in the relevant teaching field(s) taken at Rice
- Supervised full-time teaching for 1 summer in the Rice Summer School for Grades 8–12, including design and implementation of courses, teaching, and evaluation
- Approval to begin an internship, based on a successful summer school teaching experience
- Supervised teaching internship for 1 semester in a cooperating secondary school, including the accompanying seminar

The cooperating school districts pay a regular salary for internship teaching, which covers the small cost of graduate tuition.

REQUIREMENTS FOR CLASS III CERTIFICATION

A nondegree (Class III) plan leading to secondary teacher certification is available for those who have earned a BA but do not choose to pursue a graduate degree. Candidates complete all requirements for secondary teacher certification, including professional education courses and courses in their selected fields. Interested students should contact the Education Certification Office.

HIGHER EDUCATION ACT TITLE II REPORTS

The Higher Education Act (HEA) of the U.S. Congress requires each institution of higher education with a teacher preparation program enrolling students receiving federal assistance under this act to report annually to the state and the general public certain information. This information consists of the pass rate of program completers on assessments required by the state for teacher licensure or certification, the statewide pass rate on those assessments, and other basic information on the teacher preparation program.

Rice University's teacher education program is accredited by the state of Texas. The 1st year pass rate for program completers on assessments required by the state for 2003–04 was 100%, compared with 96% for the overall state pass rate. The combined cumulative pass rate for program completers on assessments required by the state for 2002–04 was 100%, compared to 97% for the overall state pass rate. Thirty-five students were enrolled in the program in 2004–05. The students spent an average of 40 hours per week in supervised student teaching with a student/faculty ratio of 2.7-to-1. Rice teacher education program graduates are regularly recruited by school districts in Houston and the surrounding areas because of their innovative ideas, leadership abilities, and dedication to the teaching profession.

See EDUC in the Courses of Instruction section.

ELECTRICAL AND COMPUTER ENGINEERING

THE GEORGE R. BROWN SCHOOL OF ENGINEERING

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Thanh Tran

LECTURERS

Katherine Fletcher

J. Patrick Frantz

Osama Mawlawi

James B. Sinclair

James D. Wise

The Department of Electrical and Computer Engineering (ECE) strives to provide high-quality degree programs that emphasize fundamental principles, respond to the changing demands and opportunities of new technology, challenge the exceptional abilities of Rice students, and prepare students for roles of leadership in their chosen careers. Undergraduate and graduate programs in ECE offer concentrations in areas that include system and control theory; communications; quantum electronics and lasers; computer systems; and electronic materials, devices, and circuits. The latest information on the department's faculty, research areas, and degree programs and requirements can be found on the ECE website: <http://www.ece.rice.edu/>.

UNDERGRADUATE DEGREE PROGRAMS

The department offers 2 undergraduate degrees, the bachelor of arts (BA) and the bachelor of science in electrical engineering (BSEE). The BA degree provides a basic foundation in electrical and computer engineering that the student can build on to construct a custom program. Because of its flexibility and large number of free electives, the BA can be easily combined with courses from other departments to create an interdisciplinary program. This may be particularly appropriate for students planning further study in law, business, or medicine.

The BSEE degree is the usual degree taken by those students planning a career in engineering practice. It is accredited by the Accreditation Board for Engineering and Technology (ABET) and can reduce the time required to become a licensed professional engineer. The program for the BSEE requires more hours and greater depth than the BA degree but still provides considerable flexibility.

Both degrees are organized around a core of required courses and a selection of elective courses from 4 specialization areas. Each student's program must contain a depth sequence in 1 area and courses from at least 2 areas to provide breadth. The specialization electives provide a flexibility that can be used to create a focus that crosses traditional areas. Because of the number of options, students should consult early with department advisors to plan a program that meets their needs.

BSEE Degree Requirements—See Graduation Requirements (pages 14–15) for general university requirements. A BSEE program must have a total of at least 134 semester hours and include the following courses. A course can satisfy only 1 program requirement, except for design. Students who place out of required courses without transcript credit must substitute other approved courses in the same area. Current degree requirements and planning sheets may be found on the ECE website.

Mathematics and Science Courses

MATH 101 *Single Variable Calculus I*

MATH 102 *Single Variable Calculus II*

MATH 212 *Multivariable Calculus*

ELEC 331 *Applied Probability*

CAAM 335 *Matrix Analysis* or

MATH 355 *Linear Algebra*

PHYS 101 *Mechanics*

PHYS 102 *Electricity and Magnetism*

ELEC 261 *Electronic Materials and Quantum Devices*

CHEM 121 *General Chemistry*

Additional approved mathematics and science courses to bring the total to 32 hours.

ECE Core Courses

ELEC 220 *Fundamentals of Computer Engineering*

ELEC 241 *Fundamentals of Electrical Engineering I*

ELEC 242 *Fundamentals of Electrical Engineering II*

Specialization Area Courses

Upper-level ECE courses are organized into 4 specialization areas: computer engineering, systems, electronic circuits and devices, and quantum electronics. The computer engineering area provides a broad background in computer systems engineering, including computer architecture, digital hardware engineering, software engineering, and computer systems performance analysis. The systems area involves the study of processing and communicating signals and information through systems or devices, control theory, signal and

ELEC 301 *Introduction to Signals*

ELEC 305 *Introduction to Physical Electronics*

ELEC 326 *Digital Logic Systems*

Computation Course: One from

COMP 201 *Principles of Computing and Programming*

CAAM 210 *Introduction to Engineering Computation*

Design Courses

ELEC 391 *Professional Issues in Electrical Engineering*

ELEC 493 *Senior Design Seminar*

ELEC 494 *Senior Design Laboratory*

One from:

ELEC 424 *Mobile and Imbedded System Design and Applications*

ELEC 432 *Digital Radio System Design*

ELEC 464 *Photonic Sensor System Design*

ELEC 491 *Independent Design Project*

image processing, and communications. The electronic circuits and devices area covers the design of analog circuits, electromechanical devices, and the design and manufacturing of semiconductor devices. The quantum electronics area encompasses studies of electronic materials, including nanomaterials, semiconductor and optoelectronic devices, lasers and their applications, and photonics.

The BSEE program must include seven courses total from at least 2 areas, including at least 4 courses in 1 area. Graduate courses and equivalent courses from other departments may be used to satisfy area requirements with permission; consult the ECE website for the latest list of specialization area courses.

Design Requirement

All BSEE degree candidates must complete a design sequence of 4 courses taken during the junior and senior years. Two required seminars, ELEC 391 (spring, junior year) and ELEC 493 (fall, senior year), provide instruction in professional engineering topics, including ethics, design methodology, project planning, technical presentations, documentation, etc. In the fall semester of the senior year, students can choose any one of the approved design elective courses (see the ECE website for the current list). These courses, except for ELEC 491, provide technical instruction in a subject area and the development of a design project concept in that area. In the spring semester, the required ELEC 494 provides laboratory time in which to actually realize the project. ELEC 491, in conjunction with ELEC 494, provides 2 full semesters for more elaborate projects, including participation in design competitions sponsored by engineering societies. ELEC 491–494 independent design projects require advance approval by the ECE Undergraduate Curriculum Committee.

Unrestricted Electives

Additional courses to provide the BSEE minimum requirement of at least 134 semester hours.

BA Degree Requirements—See Graduation Requirements (pages 14–15) for general university requirements. A BA program must have a total of at least 120 semester hours and include the following courses. A course can satisfy only 1 program requirement, except for laboratory. Students who place out of required courses without transcript credit must substitute other approved courses in the same area. Current degree requirements and planning sheets may be found on the ECE website.

Mathematics and Science Courses

MATH 101 *Single Variable Calculus I*

MATH 102 *Single Variable Calculus II*

MATH 212 *Multivariable Calculus* or

CAAM 335 *Matrix Analysis*

CAAM 335 *Matrix Analysis* or

MATH 355 *Linear Algebra*

One from: ELEC 331 *Applied Probability*, MATH 355 *Linear Algebra*, MATH 381 *Introduction to Partial Differential Equations* or CAAM 335 *Matrix Analysis*

PHYS 101 *Mechanics*

PHYS 102 *Electricity and Magnetism*

ELEC 261 *Electronic Materials and Quantum Devices* or CHEM 121 *General Chemistry*

ECE Core Courses

ELEC 220 *Fundamentals of Computer Engineering*

ELEC 241 *Fundamentals of Electrical Engineering I*

ELEC 242 *Fundamentals of Electrical Engineering II*

ELEC 305 *Introduction to Physical Electronics*

ELEC 326 *Digital Logic Systems*

Computation Course: 1 from

CAAM 210 *Introduction to Engineering Computation*

COMP 201 *Principles of Computing and Programming*

Laboratory: 1 fromELEC 201 *Introduction to Engineering Design*ELEC 327 *Implementation of Digital Systems*ELEC 342 *Electronic Circuits*ELEC 433 *Architectures for Wireless Communications*ELEC 434 *Digital Signal Processing Laboratory*ELEC 442 *Advanced Electronic Circuits*ELEC 443 *Power Electronic Circuits*ELEC 444 *Electromagnetic Interference/Compatibility*ELEC 445 *Wireless Electronics*ELEC 465 *Physical Electronics Practicum*ELEC 494 *Senior Design Seminar***Specialization Area Courses**

Upper-level ECE courses are organized into 4 specialization areas, as described above in the BSEE degree requirements. The BA program must include 4 courses total from at least 2 areas, including at least 2 courses in 1 area. Each course must be at least 3 semester hours. Graduate courses and equivalent courses from other departments may be used to satisfy area requirements with permission; consult the ECE website for the latest list of specialization area courses.

Unrestricted Electives

Additional courses to provide the BA minimum requirement of at least 120 semester hours.

GRADUATE DEGREE PROGRAMS

The ECE department offers two graduate degree programs. The master of electrical engineering (MEE) degree is a course-based program designed to increase a student's mastery of advanced subjects; no thesis is required. The MEE prepares a student to succeed and advance rapidly in today's competitive technical marketplace. A joint MBA/MEE degree is offered in conjunction with the Jesse H. Jones Graduate School of Management. The doctor of philosophy (PhD) program prepares students for a research career in academia or industry. The PhD program consists of formal courses and original research conducted under the guidance of a faculty advisor, leading to a dissertation. Students in the PhD program complete a master of science (MS) degree as part of their program; the ECE department does not admit students for a terminal MS degree.

Information on admission to graduate programs is available from the ECE Graduate Committee and on the ECE website. See the section Information for Graduate Students (page 55) for the general requirements of graduate degrees at Rice. Students must achieve at least a B (3.0) average in the courses counted toward a graduate degree. In addition, no course in which the student earned a grade lower than a C may count toward a graduate degree.

MEE Degree Requirements—Students must prepare a MEE degree plan and have it approved by the ECE Graduate Committee. The plan must include at least 30 semester hours of courses, all at the 300 level or above. The program should include a major area of specialization (18 semester hours), a minor area (6 semester hours), plus free electives. At least 7 of the major and minor area courses must be at the 400 level or above, and at least 4 must be at the 500 level or above. ELEC 590 or ELEC 599 may not count as major area courses; no more than 3 semester hours can be transfer credit, and at most 1 1-hour seminar course may be included in the plan. A MEE degree planning form and current requirements may be found on the ECE website.

PhD Degree Requirements—Students are admitted to the PhD program only in the fall semester. ECE PhD students move through the program in stages, starting as 1st-year student, advancing to MS candidate, PhD-qualified student,

and PhD candidate; each advancement requires the approval of the ECE graduate committee. Students entering with previous graduate work may follow a hybrid program developed in consultation with the faculty and the graduate committee. The 1st academic year concentrates on foundation coursework and developing a research area. Each student must successfully complete a project, ELEC 599, in his or her chosen area of research in lieu of an oral or written qualifying exam. In addition to enabling the faculty to evaluate the student's research potential, the project encourages timely completion of the MS degree. The student must complete a master's thesis and successfully defend it in an oral examination. Students who already have acquired a master's degree elsewhere still are required to complete a 1st-year ELEC 599 project.

Completion of the MS degree, satisfactory performance in coursework, and a recommendation from the prospective PhD advisor is required for advancement to PhD candidacy. A candidate for the PhD degree must demonstrate independent, original research in electrical and computer engineering. After successfully presenting a PhD research proposal and completion of all coursework, a student is eligible for PhD candidacy. The student then engages in full-time research, culminating in the completion and public defense of the PhD dissertation. Details of the PhD program requirements, the phases of study, and a timetable may be found on the ECE website.

See ELEC in the Courses of Instruction section for course descriptions.

ENGLISH

THE SCHOOL OF HUMANITIES

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VISITING ASSISTANT PROFESSOR

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Max Apple

Edward O. Doughtie

Alan Grob

John Meixner

David Lee Minter

William Bowman Piper

COURSES

Detailed information on current semester course offerings can be found at www.english.rice.edu. Please note that undergraduate level courses range numerically from ENGL 100 through ENGL 499, and graduate courses begin with ENGL 500. Nonmajors wishing to enroll in upper-level courses (400 and above) are encouraged to consult with the professor prior to enrollment.

DEGREES OFFERED: BA, MA, PHD

The undergraduate program offers a broad spectrum of courses, including British and American literature, creative writing, women and gender studies, cultural studies, literary theory, media studies, and film. Beyond a critical appreciation of literature, students also will sharpen their written communication and analytical skills. The graduate program in English offers concentrations in all fields of British and American literature and literary theory.

DEGREE REQUIREMENTS FOR BA IN ENGLISH

For general university requirements, see Graduation Requirements (pages 14–15). Students majoring in English must complete 36 semester hours in English with at least 24 hours in courses at the 300 level or above. A double major requires 30 hours in English, with at least 18 hours in the upper-level courses. HUMA 101 and 102 may be counted toward the English major. All English majors must take the following:

- ENGL 200 *Seminar in Literature and Literary Analysis*
- ENGL 300 *Practices in Literary Study*
- 9 hours at the 300 level or above in periods before 1900 A.D.: 6 of the 9 hours must be in periods before 1800 A.D.: but only one may be a Shakespearean course
- 3 hours at the 200 level or above in a course that focuses on noncanonical traditions, such as courses in women, African American, Chicano/a, Asian American, ethnic, global, and diasporic writers

The department recommends that all English majors take courses in British and American history and, if they plan to do graduate work, at least 6 hours of upper-level courses in a foreign language.

DEGREE REQUIREMENTS FOR MA AND PHD IN ENGLISH

For general university requirements, see Graduate Degrees (pages 57–58). As part of their training, graduate students participate in both the teaching and research activities of the department. Upon entering, students will be assigned a Program Advisory Committee (PAC), consisting of 2 or 3 faculty members. In consultation with their PAC, students will design their own individualized program structured by the minimal requirements listed below. For more detailed information, please ask for a copy of the department's program outline.

MA Program—The English department does not have an MA program, but offers the MA degree to those PhD students who have achieved candidacy and are in the process of completing the doctorate, and qualified PhD students who leave the program before completing the doctorate. To receive an MA students must:

- Satisfactorily complete at least 30 hours of graduate work in English at Rice University. Courses must be those that count towards the PhD in English. These include courses numbered in the 500s and 600s in the English department excluding 510, 601/602, 603/604; up to 2 approved graduate or equivalent courses taken in other departments; and up to 2 approved courses in the English department numbered 400 and above. Students must satisfactorily complete ENGL 600 and distribution requirements for the PhD (see below).
- Satisfactorily complete 2 teaching assistantships (ENGL 601/602 and 2 research assistantships). These do not count toward the 30-hour requirement.

PhD Program—To gain admission to PhD candidacy, students must satisfy the 1st 7 of the following requirements, and they must receive approval for their dissertation prospectus from the department's graduate committee. To earn a PhD in English, candidates also must complete the last 2 requirements. Students must:

1. Satisfactorily complete at least 33 hours of course work plus ENGL 510, exclusive of the thesis. Courses can include: graduate courses in the English department numbered 500 to 600, excluding 510, 601/602, 603/604; up to 2 approved undergraduate courses in the English department; and up to 2 approved courses in another department.
2. Satisfactorily complete the following 2 required courses: ENGL 600 *Professional Methods* and ENGL 605 *Third-Year Writing Workshop*. These count toward the 33-hour requirement.
3. Satisfactorily complete the distribution requirement, which consists of 2 approved courses on literature before 1800 and 2 after 1800. These count toward the 33-hour requirement.

4. Satisfactorily complete the teaching requirement by serving twice as a teaching assistant, completing ENGL 510/511 *Pedagogy*, and teaching a lower-level course designed in conjunction with the instructor of ENGL 510. ENGL 510 does not count toward the 33-hour requirement.
5. Pass a 6-hour written preliminary examination focusing on 2 lists of books: 1 representing the full range of a literary period as defined by the student and his or her preliminary committee, the other representing a 2nd literary period, a single author, a genre traced over a period of time more comprehensive than that covered by the 1st list, or a particular theoretical or critical approach studied with reference to its own history and traditions, as well as to the historical field of the 1st exam.
6. Complete a dissertation prospectus that proposes a topic and an approach, offers a context to the topic in terms of work already done, offers an outline of chapters or sections, and includes a substantial bibliography.
7. Complete a dissertation that demonstrates a capacity for independent and original work of high quality.
8. Pass an oral exam on the dissertation and related fields of study.

Financial Support—Within the limits of available funds, qualified students may receive graduate scholarships or fellowships for up to 5 years. To qualify for this continuing financial aid, students must be approved for candidacy for the PhD by the beginning of their 9th semester at Rice.

See ENGL in the Courses of Instruction section.

ENVIRONMENTAL ANALYSIS AND DECISION MAKING

THE WIESS SCHOOL OF NATURAL SCIENCES

DIRECTOR

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Katherine B. Ensor

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Erzsébet Merényi

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Tayfun E. Tezduyar

ASSOCIATE PROFESSORS

Vicki L. Colvin

Matthias Heinkenschloss

ASSISTANT PROFESSOR

Evan H. Siemann

FACULTY FELLOW

Kristen M. Kulinowski

DEGREES OFFERED: MS

Rice University introduced a professional master's degree in environmental analysis and decision making in fall 2002. This degree is geared to teach students rigorous methods that are needed by industrial and governmental organizations to deal with environmental issues. As an interdisciplinary program, it aims to give students the ability to predict environmental problems, not just solve them. It emphasizes core quantitative topics such as statistics, remote sensing, data analysis, and modeling. In addition, it teaches laboratory and computer skills and allows students to focus their education by taking electives in relevant fields.

The environmental analysis and decision making degree is 1 of 3 tracks in the new professional master's program at Rice housed in the Wiess School of Natural Sciences. These master's degrees are designed for students seeking to gain further scientific core expertise coupled with enhanced management and communications skills. These degrees instill a level of scholastic proficiency that exceeds that of the bachelor's level, and they create the cross-functional aptitudes needed in modern industry. Skills acquired in this program will allow students to move more easily into management careers in consulting or research and development, design, and marketing of new science-based products.

DEGREE REQUIREMENTS FOR MS IN ENVIRONMENTAL ANALYSIS AND DECISION MAKING

In addition to the core science courses, students are required to complete a 3-to 6-month internship and take a set of cohort courses focusing on business and communications. At the conclusion of the internship, students must present a summary of their internship project in both oral and written form as part of the professional master's seminar.

Part-time students who already work in their area of study may fulfill the internship requirements by working on an approved project with their current employer. For general university requirements for graduate study, see pages 56-58, and also see Professional Degrees, page 58.

ADMISSION

Admission to graduate study in environmental analysis and decision making is open to qualified students holding a bachelor's degree in a related field

that includes general biology, chemistry, calculus, differential equations, and linear algebra. Department faculty evaluate the previous academic record and credentials of each applicant individually.

Science core courses

CEVE 401 *Introduction to Environmental Chemistry with lab* (F)

ESCI 450 *Remote Sensing* (S)

STAT 685 *Quantitative Environmental Decision Making* (S)

Plus a single course from each of the following:

Group A

ESCI 451 *Analysis of Environmental Data* (F)

STAT 305 *Introduction to Statistics for Biosciences* (F, S)

Group B

STAT 385 *Methods for Data Analysis* (S)

STAT 410 *Introduction to Statistical Computing and Linear Models* (F)

STAT 421 *Computational Finance II: Time Series Analysis* (S)

STAT 422 *Bayesian Data Analysis* (S)

STAT 509 *Advanced Psychological Statistics I* (F)

Group C

CEVE 411 *Air Resource Management* (S)

CEVE 412 *Hydrology and Watershed Analysis* (S)

CEVE 434 *Chemical Transport and Fate in the Environment* (F)

CEVE 511 *Atmospheric Chemistry and Physics* (F)

CEVE 550 *Environmental Organic Chemistry* (S)

Cohort Courses

NSCI 610 *Management in Science and Engineering* (F)

NSCI 501 *Professional Master's Seminar* (F, S)
[required for **two** semesters]

NSCI 511 *Policy and Ethics* (S)

NSCI 512 *Professional Master's Project* (F,S)

INTERNSHIP

An internship is conducted under the guidance of a host company, government agency, or national laboratory. A summary of the internship project is required in both oral and written form as part of the professional master's project.

ELECTIVE COURSES

Note: Each of these electives is not offered every year, and some courses may have prerequisites or require instructor permission.

Students will choose 5 elective courses, three of which should be from 1 of the focus areas. At least 1 elective should be from the management and policy focus area. Recommended courses include, but are not limited to, the following:

Sustainable Development

BIOS 322 *Global Ecosystem Dynamics* (S)

BIOS 325 *Ecology* (S)

CEVE 406 *Introduction to Environmental Law* (S)

CEVE 411 *Air Resource Management* (S)

CEVE 434 *Chemical Transport and Fate in Environment* (F)

ECON 480 *Environmental Economics* (S)

ESCI 353 *Environmental Geochemistry* (S)

MGMT 617 *Managerial Decision Making* (S)

MGMT 661 *International Business Law* (S)

MGMT 674 *Production and Operations Management* (F)

MGMT 676 *Project Management/Project Finance* (S)

MGMT 721 *General Business Law* (S)

SOCI 367 *Environmental Sociology* (S)

Management and Policy

CEVE 322 *Engineering Economics for Engineers* (F)

CEVE 406 *Introduction to Environmental Law* (S)
 ECON 480 *Environmental Economics* (S)
 NSCI 625 *New Venture Creation in Science and Engineering* (S)
 MGMT 721 *General Business Law* (S)
 MGMT 661 *International Business Law* (S)
 MGMT 617 *Managerial Decision Making* (S)
 MGMT 674 *Production and Operations Management* (F)
 MGMT 676 *Project Management/Project Finance* (S)
 MGMT 636 *Systems Analysis and Database Design*
 SOCI 367 *Environmental Sociology* (S)

Biological Sciences

BIOS 322 *Global Ecosystem Dynamics*
 BIOS 325 *Ecology*
 BIOS 424 *Microbiology and Biotechnology*
 BIOS 425 *Plant Molecular Biology* (F)
 CEVE 536 *Environmental Biotechnology*
 ESCI 468 *Climate Change and Human Civilization* (S)

Chemistry

CENG 630 *Chemical Engineering of Nanostructured Materials* (S)
 CEVE 511 *Atmospheric Chemistry and Physics* (F)
 CEVE 550 *Environmental Organic Chemistry* (S)
 ESCI 353 *Environmental Geochemistry* (S)

Fluid Dynamics and Transport

CENG 571 *Flow and Transport in Porous Media I* (S)
 CENG 671 *Flow and Transport in Porous Media II* (F)
 MECH 371 *Fluid Mechanics I* (F)
 MECH 372 *Fluid Mechanics II* (S)
 MECH 454/554 *Finite Element Methods in Fluid Mechanics* (F)

Engineering

CEVE 411 *Air Resource Management* (S)
 CEVE 434 *Chemical Transport and Fate in the Environment* (F)
 CEVE 530 *Physical/Chemical Processes in Environmental Engineering* (S)
 CEVE 640 *Advanced Topics in Environmental Engineering* (F)

Advanced Computation

CAAM 378 *Introduction to Operations Research and Optimization* (F)
 CAAM 420 *Computational Science I* (F)
 CAAM 451 *Numerical Linear Algebra* (F)
 CAAM 452 *Computational Methods for Differential Equations* (S)
 CAAM 454 *Optimization Problems in Computational Engineering and Science* (S)
 ESCI 441 *Geophysical Data Analysis* (F)
 ESCI 451 *Analysis of Environmental Data* (F)
 ESCI 454 *Geographic Information Systems* (F)
 MECH 454/554 *Finite Element Methods in Fluid Mechanics* (F, S)
 MECH 343 *Modeling of Dynamic Systems* (F)
 MECH 417/517 *Finite Element Analysis* (S)
 MECH 420 *Feedback Control of Dynamical Systems* (F)
 MECH 563/ CAAM 563 *Engineering Approach to Mathematical Programming* (F)
 MECH 679 / CEVE 679 *Applied Monte Carlo Analysis* (F)
 STAT 421 *Methods in Computational Finance II* (S)
 STAT 422 *Bayesian Data Analysis* (S)
 STAT 431 *Mathematical Statistics* (F)
 STAT 540 *Practicum in Statistical Modeling* (S)
 STAT 541 *Multivariate Analysis* (S)
 STAT 546 *Design and Analysis of Experiments and Sampling Theory*
 STAT 553 *Biostatistics* (S)

ENVIRONMENTAL STUDIES

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Paul A. Harcombe (*Ecology and Evolutionary Biology*)
Walter W. Isle (*English*)

PROFESSORS

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Arthur A. Few (*Physics and Environmental Science*)
Thomas Haskell (*History*)
Stephen Klineberg (*Sociology*)
Neal Lane (*University Professor*)

Ronald J. Parry (*Chemistry*)
Gordon G. Wittenberg (*Architecture*)
Kyriacos Zygourakis (*Chemical Engineering*)

ASSOCIATE PROFESSOR

Melissa J. Marschall (*Political Science*)

ASSISTANT PROFESSOR

Carrie Masiello (*Earth Science*)

LECTURER

Donald Ostdiek (*Political Science*)

The Environmental Studies Program offers several interdisciplinary courses for students interested in broadening their understanding of environmental issues. These courses often are team-taught by faculty from various areas of study.

Students wishing to major in an environmental program have 3 options: environmental science, environmental engineering sciences (see civil and environmental engineering), or environmental policy (see policy studies).

Students seeking advice regarding environmental programs may contact Walter Isle, Paul Harcombe, or the coordinator of the Center for the Study of Environment and Society.

See ENST in the Courses of Instruction section.

DEGREE REQUIREMENTS FOR BA IN ENVIRONMENTAL SCIENCE

Environmental science is an interdisciplinary program that addresses environmental issues in the context of what we know about earth, ecology, and society. In addition to its science core, the major also seeks to provide students with some appreciation of social, cultural, and policy dimensions of environmental issues, as well as exposure to the technologies of pollution control. The double major is designed to accommodate:

- Students wishing to obtain a solid preparation for later graduate study in environmental science or other careers as environmental professionals (e.g., environmental economics or environmental law)
- Students pursuing other careers (e.g., historians, lawyers, mechanical engineers, chemists) who hope to contribute to solutions to one of the major global issues of the 21st Century.

Students may take environmental science *only as a 2nd major*. The 67-semester-hour (minimum) double major in environmental science may be taken in conjunction with any stand-alone major offered in any school of the university.

The key components of the double major include:

- Foundation course work in mathematics, physics, chemistry, and biology.
- A set of 5 undergraduate core courses, required of all double majors, that acquaint undergraduates with a range of environmental problems encountered by scientists, engineers, managers, and policy makers. Core courses stress the components of the global environment and their interactions.

- 24 semester hours of environmental electives from 4 categories: 1) social sciences and economics, 2) humanities and architecture, 3) natural sciences, and 4) engineering. Students may petition to have electives, in addition to those currently listed, apply toward the double major.

Major tracking forms are available in the Center for the Study of Environment and Society (CES) office for declared environmental science majors.

Specific course requirements for a double major (BA) in environmental science include:

General Prerequisites

CHEM 121 or 151 *General Chemistry with Laboratory*

CHEM 122 or 152 *General Chemistry with Laboratory*

MATH 101 or 111 *Single Variable Calculus I*

MATH 102 or 112 *Single Variable Calculus II*

PHYS 101 or 125 or 111 *Mechanics*

PHYS 102 or 126 or 112 *Electricity and Magnetism*

BIOS 201 *Introductory Biology*

BIOS 202 *Introductory Biology*

Core Courses

BIOS 325 *Ecology*

ESCI 321 *Earth System Evolution and Cycles*

1 of the following two courses

CEVE 411 *Air Resource Management*

PHYS 203 *Atmosphere, Weather, and Climate*

2 of the following 3 courses

CEVE 401 *Introduction to Environmental Chemistry*

CEVE 412 *Hydrology and Watershed Analysis*

ESCI 451 *Analysis of Environmental Data*

Advanced Electives (24 hours; at least 6 semester hours from each category)

Category A—Social Sciences and Economics

CEVE 306 *Global Environmental Law and Sustainable Development*

CEVE 406 *Environmental Law*

ECON 480 *Environmental and Natural Resource Economics*

ENST 302/UNIV 303 *Environmental Issues: Rice into the Future*

POLI 317 *Congress*

POLI 331 *Environmental Politics and Policy*

POLI 332 *Urban Politics*

POLI 334 *Political Parties and Interest Groups*

SOCI 331 *Demography*

SOCI 367 *Environmental Sociology*

SOCI 411 *Social Change: Making Sense of Our Times*

Category B—Humanities and Architecture

ANTH 468/ESCI 468 *Climate Variability and Human Response*

ARCH 313 *Sustainable Architecture*

ARCH 351 *Social Issues and Architecture*

ENGL 367 *American Ecofeminism*

ENGL 378 *Literature and the Environment*

ENST 301/UNIV 300 *Introduction to the Environment: Environmental History and Literature*

Category C—Natural Sciences

BIOS 316 *Lab Module in Ecology*

BIOS 321 *Animal Behavior*

BIOS 323 *Conservation Biology*

BIOS 334 *Evolution*

BIOS 336 *Plant Diversity*

CHEM 211 *Organic Chemistry*

CHEM 395 *Advanced Module in Green Chemistry*

ESCI 323 *Earth Structure and Deformation*

ESCI 340 *Biogeochemistry*

ESCI 421 *Paleoceanography*

ESCI 430 *Trace Element and Isotope Geochemistry for Earth and Environmental Sciences*

ESCI 442 *Exploration Geophysics*

ESCI 450 *Remote Sensing*

ESCI 454 *Geographic Information Science*

ESCI 468/ANTH 468 *Climate Variability and Human Response*

Category D—Engineering

CEVE 201 *Introduction to Environmental Systems*

CEVE 203 *Introduction to Environmental Engineering*

CEVE 315 *Sustainable Development*

CEVE 401 *Introduction to Environmental Chemistry*

CEVE 403 *Principles of Environmental Engineering*

CEVE 411 *Air Resources Management*

CEVE 412 *Hydrology and Watershed Analysis*

CEVE 434 *Chemical Transport and Fate in the Environment*

CEVE 451 *Introduction to Transportation*

CEVE 470 *Basic Soil Mechanics*

CEVE 490 *Undergraduate Research in Environmental Engineering*

STAT 300 *Model Building*

STAT 305 *Introduction to Statistics for the Biosciences*

STAT 310 *Probability and Statistics*

STAT 339/PSYC 339 *Statistical Methods—Psychology*

FRENCH STUDIES

THE SCHOOL OF HUMANITIES

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Philip R. Wood

ASSISTANT PROFESSORS

Julie Fette

Louisa Shea

DEGREES OFFERED: BA, MA, PHD

Courses in this department hone language skills in French while placing a diverse, generalized knowledge of French literature within a broad spectrum of cultural, historical, philosophical, and theoretical concerns. Students also are urged to take courses in fields closely related to French studies, including European and English history, literature, and philosophy. The department encourages students to spend time studying in a francophone country, and to that end the French studies department and Office of Academic Advising will help students select an appropriate program.

DEGREE REQUIREMENTS FOR BA IN FRENCH STUDIES

For general university requirements, see Graduation Requirements (pages 14–15). Students majoring in French studies must complete at least 30 semester hours in upper-level courses (at the 300 or 400 level). A double major or an area major must complete 24 hours in upper-level courses.

Required Courses

FREN 311 *Major Literary Works and Artifacts of Pre-Revolutionary France*

FREN 312 *Major Literary Works and Artifacts of Post-Revolutionary France: The*

Romantic Legacy

FREN 336 *Writing Workshop*

Electives

7 additional courses (for single majors)—at least 3 courses at the 400 level and at least 1 course from Group III (culture, history, and civilization)

5 additional courses (for double majors)—at least 2 courses at the 400 level and at least 1 course from Group III (culture, history, and civilization)

As many as 2 French courses taught in English may count toward a major in French studies. Students who have taken 300- and 400-level French courses (except those taught in English) cannot enroll simultaneously or afterward in 200-level French courses for credit. More than half of the courses for the major must be taken at Rice University. The department normally requires that the basic courses for the major (FREN 311, 312, and 336) be taken at Rice. Students who matriculate before 2003 may choose to graduate with the requirements listed in the *General Announcements* of the year of their matriculation or of their graduation.

Students with diplomas from French-speaking institutions must consult with the department before enrolling in courses, and all majors and prospective majors must have their programs of study approved by an undergraduate adviser. Students wishing to complete the honors program in French studies also should consult one of the advisors.

Campus Activities—To acquaint students with French language and culture, the department sponsors a weekly French table that meets at lunch in a college. The Club Chouette also organizes outings to French movies, sponsors guest lectures, and, in cooperation with the department, helps to produce a play during the spring semester. Students who maintain at least a B average in 2 or more advanced French courses and have a GPA of at least 3.0, are invited to join the Theta chapter of the honorary Pi Delta Phi.

Travel Abroad—The department encourages majors to spend time living and studying in a francophone country. The Alliance Française of Houston offers a summer scholarship of \$3,000 each year to a qualified sophomore or junior for 6 weeks of study in France. The Clyde Ferguson Bull Traveling Fellowship is awarded each year to an undergraduate to spend the junior year studying in France with a program approved by the department. Candidates must have taken at least 1 300-level course in the department and have a GPA of at least 3.0. Information about study abroad is available from the department faculty and in the Office of Academic Advising.

DEGREE REQUIREMENTS FOR MA AND PHD IN FRENCH STUDIES

Admission to graduate study in French, granted each year to a limited number of qualified students, requires a distinguished undergraduate record in the study of French literature or a related field and a capacity for independent work. All candidates should have a near-native command of the French language. For general university requirements, see Graduate Degrees (pages 57–58).

MA Program—In most cases, students take 2 years to complete work for the MA degree in French studies. While graduate students normally take 500-level courses, as many as 2 courses at the 400 level may count toward fulfillment of the following course requirements. MA candidates must:

- Complete with satisfactory standing 27 semester hours (in addition to BA course work) of upper-level courses, plus 6 hours of independent study in the preparation of 3 advanced research papers to be defended before their MA committee. The selection of the paper topics must receive preliminary approval from the examination committee.
- Perform satisfactorily on a reading examination in 1 department-approved language other than French or English.
- Perform satisfactorily on preliminary written and oral examinations conducted in French on works specified on the department reading list.

PhD Program—Candidates normally take 500-level courses, but students entering with a BA may count toward their PhD degree as many as 3 courses at the 400 level; those entering with an MA may count 2 such courses. Graduate student enrollment in a course listed only at the 400 level, however, is subject to the instructor's approval. Candidates for the PhD degree must meet the following criteria, ensuring that they complete the language requirement and their preliminary exams one year before they submit a dissertation:

- In a program approved by the department, complete with high standing at least 57 semester hours of course work, plus 36 thesis hours (for those already holding an MA degree, the requirement is 39 hours of course work, plus 36 thesis hours). Six of these units may be fulfilled with a 600-level independent study course.
- Satisfactorily complete 1 course at the 300 level or above in a language other than French or English. With the permission of the graduate committee, this requirement also may be met through satisfactory performance on a written

language examination or by such other means as the graduate committee may direct.

- Perform satisfactorily on preliminary written and oral examinations based on readings comprising both required and individually selected texts, including readings in French literature from all major periods and readings in philosophy and theory; history, cultural studies, and film; and postcolonial and gender studies. The oral exam can be taken only after successful completion of the written exam.
- Complete a dissertation, approved by the department, that represents an original contribution to the field of French studies.
- Perform satisfactorily on a final oral examination on the dissertation.

See FREN in the Courses of Instruction section.

GERMAN AND SLAVIC STUDIES

THE SCHOOL OF HUMANITIES

CHAIR

John Zammito

PROFESSORS

Peter Caldwell

Steven Crowell

Klaus Weissenberger

RESEARCH PROFESSOR OF SLAVIC STUDIES

Ewa M. Thompson

ASSOCIATE PROFESSORS

Maria-Regina Kecht

Uwe Steiner

Sarah Westphal

ASSISTANT PROFESSOR

Christian Emden

VISITING ASSOCIATE PROFESSOR

Malgorzata Dabrowska

DEGREES OFFERED: BA IN GERMAN STUDIES, BA IN SLAVIC STUDIES

GERMAN

The department offers instruction in the German language, in German literature (studied in the original and in translation), and in the achievements of German culture surveyed as a whole and in particular themes, genres, and periods. The department stresses linguistic competence, interdisciplinary study, and the role of German culture within the broad context of European history. Studies in film, cultural theory, and gender complement traditional studies of German literature, philosophy, history, and art.

The BA in German prepares students for graduate study in German and for careers in law, business, international affairs, economics, and other academic fields. Our language acquisition courses maximize linguistic proficiency and prepare students for study abroad. Our freshman seminars are conducted in small groups and stress written and oral communication. Culture courses under the rubric "Mapping German Culture" are taught in English and consider major cultural and literary topics. For students who have some proficiency in German, the Mapping German Culture courses are accompanied by sections that conduct discussions and study sources in German. Upper-level literary courses and special topics seminars both polish linguistic skills and offer intensive study at a high level.

The department encourages study abroad in Germany and Austria. There are weekly German tables in the colleges.

DEGREE REQUIREMENTS FOR BA IN GERMAN STUDIES

For general university requirements, see Graduation Requirements (pages 14–15). Students who have German as their only major must complete at least 30 semester hours above the 200 level, as follows:

- GERM 303 and 304 (bridge course in German literary/cultural language)
- GERM 410 *Advanced Composition and Conversation: Language and Style in Cultural Texts*
- GERM 411, 412 (basic German literature survey courses)

- 2 special topics seminars (GERM 351 to any other 400-level special topics)
- 3 Mapping German culture courses

Students who have German as a double major must complete at least 24 semester hours above the 200 level, as follows:

- GERM 303 and 304 (bridge course in German literary/cultural language)
- GERM 410 *Advanced Composition and Conversation: Language and Style in Cultural Texts*
- GERM 411, 412 (basic German literature survey courses)
- 1 special topics seminar (GERM 351 to any other 400-level special topics)
- 2 Mapping German culture courses

Note: For single majors, a maximum of 4 transfer courses can count toward the major. For double majors, a maximum of 3 transfer courses can count toward the major. Request for exceptions to these rules will be considered by department committee.

Honors—Outstanding students are presented annually with the Max Freund Prize. The department also offers an honors program for majors excelling in their studies. Honors work consists of readings and research leading to a substantial honors essay under the supervision of a department faculty member (GERM 403). Students should consider this work to enhance preparation for graduate school.

SLAVIC

The School of Humanities currently is reviewing the status of the Slavics majors program. At this time, the school is not registering new majors in the Slavics program. The School of Humanities is committed, however, to courses in Russian language, Slavic culture, and East European history, which are expected to be offered next year and in the future.

DEGREE REQUIREMENTS FOR BA IN SLAVIC STUDIES FOR EXISTING MAJORS

For general university requirements, see Graduation Requirements (pages 14–15). Single majors in Slavic studies must complete 24 semester hours at the 300 level or above. Double majors must complete 18 semester hours at the 300-level or above. At least 1 of these courses must cover the entire Slavic area (e.g., SLAV 320 *Slavic Cultures*, RUSS 411 *Contemporary Russia*, or SLAV 412 *Contemporary Eastern and Central Europe*).

Courses in Polish are offered subject to availability of an instructor. Students may take 2 Slavic studies-related courses from outside the department, subject to approval by the Slavic studies advisor (Ewa M. Thompson).

Currently there is a moratorium on new majors in Slavic Studies, approved by the dean of humanities at the request of the department.

See GERM, PLSH, RUSS, and SLAV in the Courses of Instruction section.

HISPANIC STUDIES

THE SCHOOL OF HUMANITIES

CHAIRS

Maarten van Delden

PROFESSOR

James A. Castañeda

Beatriz González-Stephan

ASSOCIATE PROFESSORS

Robert Lane Kauffmann

J. Bernardo Pérez

Rafael Salaberry

VISITING PROFESSOR

Gina Saraceni Carlini

DEGREES OFFERED: BA AND MA IN HISPANIC STUDIES

The department offers courses on the literatures and cultures of the Spanish-speaking nations of the world and on Spanish linguistics. The department stresses linguistic competence, interdisciplinary study, and a transnational perspective on Spanish and Spanish American literature and culture. In addition to courses on the novel, poetry, and the essay, the department also offers the opportunity to study film, art, cultural theory, translation, and gender. Freshman seminars are conducted in English and stress written and oral communication. Qualified students may undertake independent work.

DEGREE REQUIREMENTS FOR BA IN HISPANIC STUDIES

For general university requirements, see Graduation Requirements (pages 14–15). Both single and double majors must take at least 1 course in Hispanic linguistics, one course in Spanish literature and/or culture, and 1 course in Latin American literature and/or culture. No more than 2 courses taught in English may count toward the major in Hispanic studies. More than half of the courses for the major must be taken at Rice University.

Single Majors—Students majoring in Hispanic studies must complete at least 30 semester hours in upper-level courses (SPAN 330 and above) as follows:

- 1 course between SPAN 330-SPAN 359
- 4 courses between SPAN 360-SPAN 399
- 4 courses at the 400 level
- 1 elective course

Double Majors—Students double majoring in Hispanic Studies must complete at least 24 semester hours in upper-level courses (SPAN 330 and above) as follows:

- 1 course between SPAN 330-SPAN 359
- 3 courses between SPAN 360-SPAN 399
- 3 courses at the 400 level
- 1 elective course

For a list of recommended elective courses, please see the department coordinator.

Honors—Every year, the department presents the Cervantes Award for Outstanding Seniors to its top students. The department also offers to outstanding majors the opportunity to do honors work during their final year of study. Honors work consists of an independent research project leading to a thesis and is undertaken under the direction of a departmental faculty member. Students wishing to do honors work must submit a thesis proposal to be approved by

the department before the end of the semester prior to the semester in which they will register for the honors thesis (SPAN 495).

DEGREE REQUIREMENTS FOR MA IN HISPANIC STUDIES

For general university requirements, see Graduate Degrees (pages 57–58). For the MA degree, candidates must:

- Complete with high standing an approved program that normally includes 27 semester hours in advanced courses, plus 6 hours of thesis work
- Pass a reading examination in 1 foreign language (other than Spanish) that has been approved by the department
- Perform satisfactorily on a written comprehensive examination in Spanish, which tests students' competence in Hispanic literature and linguistics
- Take SPAN 507 *Teaching College Spanish*
- Complete an acceptable thesis
- Perform satisfactorily on a final oral examination on the thesis

See SPAN in the Courses of Instruction section.

HISTORY

THE SCHOOL OF HUMANITIES

CHAIR

Martin J. Wiener

PROFESSORS

John B. Boles

Peter C. Caldwell

Ira D. Gruber

Thomas L. Haskell

Michael Maas

Allen J. Matusow

Atieno Odhiambo

Richard J. Smith

Martin J. Wiener

John H. Zammito

PROFESSORS EMERITI

Katherine Fischer Drew

Harold Hyman

Gale Stokes

Albert Van Helden

ASSOCIATE PROFESSORS

Edward L. Cox

Eva Haverkamp

Alex Lichtenstein

Ussama Makdisi

Carol E. Quillen

Paula A. Sanders

Lora Wildenthal

ASSISTANT PROFESSORS

Alexander X. Byrd

G. Daniel Cohen

Rebecca A. Goetz

Allison Sneider

Kerry R. Ward

VISITING ASSISTANT PROFESSOR

Moramay Lopez-Alonso

LECTURER

Carl W. Pearson

DEGREES OFFERED: BA, MA, PHD

The undergraduate program offers courses in the 4 main areas of ancient and medieval history; modern European history; U.S. history; and the histories of Asia and Africa. Faculty interests range from ancient Greek and medieval Jewish history to modern British and German; from areas in American history that include Colonial America, the Old and New South, the Civil War, and intellectual history; and from general global history to specific areas such as East Asian, Caribbean, and Middle Eastern history. The department encourages its majors to acquaint themselves with other humanistic disciplines, such as literature, fine arts, and philosophy; the contributions of political science, sociology, economics, and anthropology also are vital to historical studies. The graduate program, which trains a limited number of carefully selected students, offers studies in U.S., Europe, Atlantic, and African, and a graduate certificate in the study of women and gender.

DEGREE REQUIREMENTS FOR BA IN HISTORY

For general university requirements, see Graduation Requirements (pages 14–15). Students majoring in history must complete a minimum of 30 semester hours (10 courses) in history. No less than 18 hours (6 courses) should be taken at Rice. No more than 6 hours (2 courses) may be satisfied by advanced placement (AP) credit. Transfer credit, foreign or domestic, when combined with AP, cannot count for more than 12 hours (4 courses). At least 18 hours (6 courses) are required on the 300 or 400 level. Two courses must be chosen from a departmental list of seminars devoted mainly to writing and discussion. In addition, majors are expected to distribute their 10 courses over 4 fields (AP credit may not be used for these):

Ancient or medieval—1 course minimum

Modern Europe—2 course minimum

United States—2 course minimum

Africa, Asia, Latin America—2 course minimum

Some foreign language proficiency is desirable and the department highly recommends that students contemplating graduate work in history study at least one foreign language in some depth.

Transfer Credit—The Department of History grants transfer credit on a case-by-case basis to enrolled undergraduates (the registrar determines the credit hours). Courses taken at another institution must be the equivalent in required reading, writing, and testing of a Rice history course. It does not have to have an equivalent in the Rice history offerings. For the current procedures to request transfer credit, see the department homepage history.rice.edu. Rice students planning to study at a foreign university also must obtain approval from the Office of International Programs.

Honors Program—Qualified undergraduates may enroll for 6 semester hours of directed honors research and writing, completing an honors thesis in their senior year (these 6 hours are in addition to the 30 hours required for the major). Application to the program is required. For current procedures, see the department homepage, history.rice.edu. Students must complete both semesters of HIST 403 and 404 to receive credit; the grade for the final project applies to the full 6 hours. Limited financial assistance is available to conduct related research during the summer between the junior and senior year for all students accepted into the Honors Program.

DEGREE REQUIREMENTS FOR MA AND PHD IN HISTORY

The Rice University graduate program in history is primarily a PhD program. Students who have a BA in history (or its equivalent) from an acceptable institution are eligible to apply to the PhD program. Although many successful candidates to the PhD program have an MA or other advanced degree, advanced study is not a requirement for admission. Graduate study is offered in U.S., European, intellectual, and other areas of history. Further information is available on request from the department. For general university requirements, see Graduate Degrees (pages 57-58).

The department awards graduate tuition waivers and fellowship stipends, within the limits of available funds, to qualified PhD candidates with demonstrated ability. University funding is not available for master's program study only. All graduate students in the history department are expected to participate in the professional activities of the department as part of their training. These include, but are not limited to, assisting with the *Journal of Southern History* or the *Papers of Jefferson Davis* and serving as research assistants or teaching assistants for department members. Insofar as possible, these assignments are kept consistent with the interests of the students.

MA Program—The department gives priority to applicants for the PhD. Completion of the MA degree usually takes two years; no more than 3 years may elapse between graduate admission and the completion of the degree unless the department graduate committee approves an extension. MA degrees are awarded in two ways: (1) completion of one year of course work (24 credit hours) and a thesis written and defended in an oral examination during the 2nd year; and (2) completion of 2 years of course work (48 credit hours), normally including at least 2 seminar research papers.

PhD Program—Doctoral candidates must prepare themselves in three fields of history: 2 in their major area of concentration, whether European, U.S., or other history, and a 3rd in an area outside of that concentration (e.g., if the major area is European history, the 3rd field must be in U.S. or other non-European history, and if the major area is U.S. history, the third field must be in European or other non-U.S. history, and so on). Students who wish to pursue a 3rd field in an area outside the department should petition the graduate committee by the end of their 2nd semester.

The requirements for completing the degree will be administered as flexibly as possible within the bounds of the general university regulations. These requirements state that the PhD degrees will be awarded after successful completion of at least 90 semester hours of advanced study and an original investigation reported in an approved thesis. Passing the qualifying exam and receiving approval of a dissertation prospectus allows the student to apply for formal admission to candidacy for the PhD degree.

For the PhD, candidates must:

- Prepare themselves thoroughly in 3 examination fields.
- Take 8 graduate seminars, including Introduction to Doctoral Studies.
- Pass reading examinations in the principal language of research (unless it is English) and 1 other language (not English).
- Perform satisfactorily on written and oral examinations. For students entering with a BA, those examinations normally will be taken before the beginning of the 5th semester and no later than the beginning of the 6th semester. Students entering with an MA may take their examinations earlier, with departmental approval.
- Complete a dissertation presenting the results of original research.
- Defend the thesis in a public oral examination.

See HIST in the Courses of Instruction section.

KINESIOLOGY

THE SCHOOL OF HUMANITIES

INTERIM CHAIR

Gary Wihl

PROFESSORS

Bruce Entyre

Nicholas K. Iammarino

PROFESSORS EMERITI

Eva J. Lee

Hally B.W. Poindexter

Dale W. Spence

ASSOCIATE PROFESSOR

James G. Disch

ASSISTANT PROFESSORS

Clark Haptonstall

Peter G. Weyand

ADJUNCT PROFESSORS

Becky Gorham

Mark Jenkins

Cathy Sunday

LECTURERS

John F. Eliot

Carwyn Sharp

Ryan Zapalac

PART-TIME LECTURERS

Roberta Anding

Cassius B. Bordelon Jr.

Emily Page

DEGREE OFFERED: BA

The department was one of the 1st of its kind in the nation to institute an academic program structure that allows students to concentrate their efforts on a specific subdiscipline. Academic programs include sports medicine, sport management, and health science. Detailed requirements of each program can be obtained on the departmental webpage at <http://kinesiology.rice.edu>.

DEGREE REQUIREMENTS FOR THE BA IN KINESIOLOGY

For general university requirements, see Graduation Requirements (pages 14–15). A minimum of 120 semester hours is required for a bachelor of arts degree in kinesiology. Because of the interdisciplinary and diverse nature of the field of kinesiology, each student is required to specify an academic program concentration within the major.

SPORTS MEDICINE PROGRAM

Advisor: Peter Weyand

Students who choose the sports medicine program typically continue their education at the graduate level or plan on attending medical school or other medically related professional schools, such as physical therapy. Graduates also may be directly employed in medical and corporate settings, which include both preventative and rehabilitative programs. Graduates who choose not to seek postbaccalaureate education generally are encouraged to obtain certification for exercise testing, physical fitness evaluation, or exercise prescription through the American College of Sports Medicine at <http://www.acsm.org/>.

The sports medicine curriculum intends to provide a strong natural science foundation and interface this foundation with application to the human body. Prerequisite courses in chemistry and physics, elective courses in biology and biochemistry, as well as an array of required and elective courses offered within the department provide this foundation. The sports medicine program is the only academic specialization on campus that provides detailed exposure to human anatomy and human physiology. In addition, students receive a solid foundation in nutrition, biomechanics, sports psychology, motor learning,

measurement and statistics, exercise physiology, and sports medicine. Practical experience is afforded through several academic labs. Other elective courses include writing for professional communication, epidemiology, case studies in human performance, motor control, advanced exercise physiology and preventative medicine, research methods, and muscle physiology and plasticity. During advising sessions, students are encouraged to select from these electives according to their respective career goals. Students in the sports medicine program are expected to develop a strong scientific knowledge base as well as adept critical reading, writing, and oral communication skills.

Qualified students of the sports medicine program will be encouraged to participate in an independent study. This independent study allows integral involvement in basic or applied research directed by a faculty advisor. The application (proposal) process for independent studies is outlined on our webpage at <http://kinesiology.rice.edu/programs.cfm>. Qualified students also are encouraged to apply for any 1 of a variety of highly competitive internships. The internships generally provide students with an opportunity to experience the application of preventative and rehabilitative sports medicine concepts and practice at a healthcare or corporate setting.

SPORT MANAGEMENT PROGRAM

Director: Clark Haptonstall

Sport management is an interdisciplinary field of study of fairly modern development. It first appeared in the curricula of American universities under a variety of designations in the early to mid-1980s. Rice University became a pioneer institution in integrating this field into the traditional academic area known as kinesiology by making sport management 1 of the original programs when the department was reorganized into its present configuration.

As a distinct body of knowledge and field of study, sport management draws from a wide range of academic disciplines: economics, sociology, political science, psychology, law, communication, and managerial studies. Each discipline can be applied to the business enterprise of amateur and professional sport, as well as the management of highly effective teams in sport, corporate America, or other management related professions. While public and private sector sport operation is the topic of a large segment of the curriculum, the thoroughly interdisciplinary emphasis aims to educate students in the skills and theory necessary to assume responsible leadership roles in and out of sport.

Career preparation for leadership and entrepreneurial positions is the ultimate goal of sport management at Rice. Students will acquire a solid foundation in public speech, professional writing, and leadership and thus will be competitive for opportunities at the country's best law and business school as well as with journalism programs and premier consulting corporations.

Students wishing to gain employment in the sport industry should pay particular attention to practical experience. Networking and out-of-class development often play the most significant role in obtaining jobs and promotions along high profile career paths such as those in collegiate or professional sports organizations. Students interested in careers in public relations, media, event direction, or promotion, office management, management of coaching and scouting, human resources, business development, sports information, or advertising will therefore need to demonstrate a commitment to securing and completing internships. Membership in national sport societies, specifically the North American Society for Sport Management (NASSM)—the leading academic

association in this field and governing body from which Rice is in the process of obtaining national accreditation—is strongly recommended.

Highly qualified students also will be encouraged to seek an honors major, a double major, and/or consider pursuit of an advanced degree in business, law, sport management, or organizational psychology.

HEALTH SCIENCES PROGRAM

Advisor: Nicholas K. Iammarino

The goal of the health science program is to provide students with a fundamental background in health promotion and disease prevention. This background will enable them to understand the complexities of maintaining an optimal level of personal health while also considering the role that health promotion plays in society and the mechanisms that affect community health. The health science program is viewed as an excellent option for undergraduate students who are preparing to enter graduate school in health education, health promotion, or public health, as well as other health-related graduate or professional programs, such as medicine or dentistry.

Students must complete a total of 42 semester hours in addition to the general university requirements (see pages 14–15). Six lecture courses are required for a total of 18 required hours. These required courses cover the structure and function of the human body (Human Anatomy), an introductory course designed to acquaint students with the fundamental concepts of health and models of health promotion (Concepts of Health Science), understanding and assessing community health needs (Principles of Community Health), methods of understanding the disease process (Epidemiology), a course that introduces statistics and measurement (Measurement and Statistics), and a professional preparation course (Foundations of Health Promotion/Health Education) that introduces students to the profession.

The remaining 24 semester hours are drawn from elective courses that are both within the kinesiology department and, at present, more than 20 courses from other academic departments. In keeping with the university's interest in an interdisciplinary approach to undergraduate education, this allows students to choose health-related courses within the natural sciences, social sciences, and humanities divisions.

See HEAL and KINE in the Courses of Instruction section.

LEADERSHIP RICE

INTERIM DIRECTORS

Natalia Ksiezzyk

Jennifer Murray

The mission of Leadership Rice is to help Rice University undergraduates from all disciplines build their leadership capacities to create and manage change effectively. Leadership Rice explores how heart and mind, theory and practice, and ideas and actions come together to facilitate change.

The introductory course, LEAD 309 *Leadership: Theory to Practice* (formerly UNIV 309), is required to apply for participation in the Summer Mentorship Experience and the Leadership Certificate. LEAD 309 is offered only during the fall. Other courses may be taken independently. Leadership Rice's Summer Mentorship Experience places 40 to 50 students each summer in full-time, paid summer mentorships in Houston or nationally. Students are accepted by application between December and February and, if accepted, become part of the Leadership Rice program.

Leadership Rice courses are open to undergraduates from all disciplines:

LEAD 309: *Leadership: Theory to Practice*

LEAD 310: *Leadership Certificate Seminar*

LEAD 311: *Creativity*

HUMA 311: *Leadership Communication*

LEAD 313: *Entrepreneurial Leadership*

PHIL 120: *Ethics of Leadership*

LEAD 409: *Leadership Practicum* (for LEAD 309 teaching assistants)

THE LEADERSHIP CERTIFICATE:

The program offers a Leadership Certificate for students eager to experience personal growth and reflect deeply on their activities while at Rice. The intention of the certificate is not to have students burdened by doing more but to get more from what they will already be doing. More details about the Leadership Certificate can be found on the Leadership Rice website www.rice.edu/leadership.

Certificate requirements, which can be met in a variety of ways, include:

ACADEMIC WORK

LEAD 309 (formerly UNIV 309)

Communications

Public policy/leadership theory

Ethics

EXPERIENTIAL COMPONENTS

Summer work experience

Community service

International experience

Campus engagement

CAPSTONE PROJECT

At the end of the process, certificate students address their understanding of leadership by tackling a “real world” problem, either on campus or beyond. Students are expected to make a public presentation of their work and include documentation in their portfolio.

More information about the program may be found at www.rice.edu/leadership.

LIBERAL STUDIES

THE SUSANNE M. GLASSCOCK SCHOOL OF CONTINUING STUDIES

DEAN

Mary B. McIntire

DIRECTOR

John W. Freeman

Please refer to the program website <http://www.mls.rice.edu> for program information and academic policies.

DEGREE OFFERED: MLS

The part-time Master of Liberal Studies is an interdisciplinary program founded on the principle that, in an increasingly complex and fragmented world, a liberal arts education becomes all the more important. Though exploring the liberal arts at a highly integrated level is not frequently possible in a career-focused undergraduate curriculum, it is both possible and well suited to a master's level program designed for committed, energetic adults. Courses in the Master of Liberal Studies program are taught by distinguished Rice faculty and invited visiting faculty who appreciate the opportunity to teach adults.

The program is designed for working adults and does not follow the traditional university schedule of fall and spring semesters. Classes meet 1 evening per week for 10–11 weeks, with 2 or 3 Saturday morning classes. Sessions are offered in the fall, winter, and spring.

Fall classes begin in September and end before Thanksgiving; winter classes begin in January and end in March; spring courses begin in April and end in early June. No classes are held in July or August.

DEGREE REQUIREMENTS

For general university requirements for graduate study, see pages 56-58. The MLS program consists of 33 credit hours, which include 3 core courses, 7 electives, and a capstone course. A student may take only 1 course in his or her entering session. The core courses—1 in humanities, 1 in social sciences, and 1 in natural sciences—are designed to acquaint 1st-year students with the contrasting perspectives and methodological approaches that define academic inquiry in the 3 broad fields. Core courses must be completed before electives may be taken. Electives may focus on just 1 “track” (science, social science, or humanities) or may be chosen more broadly. All courses will require research papers; some may require tests or oral presentations.

The capstone course is designed to help students integrate their knowledge through writing an extended paper or completing a project to be presented to MLS faculty and students. A thesis is not part of the degree program. The program can be completed in approximately 4 years if 1 class is completed every session.

ADMISSION

Admission to graduate study is open to qualified students holding a bachelor's degree (or equivalent) from an accredited university or college. A minimum GPA of 3.0 from the applicant's undergraduate work is expected, though the admissions committee also gives consideration to applicants' postgraduate experience and recent accomplishments.

COURSES

Please refer to the Master of Liberal Studies website for current course listings, <http://www.mls.rice.edu>.

LIFETIME PHYSICAL ACTIVITY PROGRAM

UNDERGRADUATE EDUCATION

DIRECTOR

Dr. Elizabeth Slator

INSTRUCTORS

Mauro Hamza

Elizabeth Harwood

Tracy King

Christine Lidvall

Justin Stafford

Heather Thompson

Rebecca Valls

Historically, Rice University has recognized that becoming physically educated is integral to one's overall education. Since the founding of the university in 1912, the Lifetime Physical Activity Program has worked to create a multifaceted learning experience that promotes the physical, social, and emotional benefits of physical activity. It is the mission of the Lifetime Physical Activity Program to teach both theoretical and practical components of a variety of exercise/performance activities such that they will bring enjoyment and demonstrate the importance of maintaining health and wellness throughout the course of a lifetime.

Specifically, the goals of the Lifetime Physical Activity Program are:

- To encourage a lifetime of fitness through the teaching of mechanical, physiological, and nutritional principles.
- To teach other pertinent knowledge, such as historical and cultural foundations, rules, and strategy.
- To create an environment that fosters a sense of emotional satisfaction, physical accomplishment, and social interaction for its participants.
- To provide students with high-quality instruction specific to the course material so that they may learn skills that will improve the length and quality of their lives.
- To expose students to activities that are not necessarily mainstream in United States culture.

To satisfy the LPAP requirement, students must satisfactorily complete 2 different noncredit LPAP classes. Students with disabilities may make special arrangements to satisfy this requirement. While LPAP courses may not be repeated to meet the graduation requirement, students can repeat a course for credit. However, students will not receive more than 4 hours of credit from the successful completion of LPAP classes.

Lifetime physical activity classes are strongly recommended for all 1st-year students, including transfers who have not taken equivalent courses elsewhere.

The Lifetime Physical Activity Program offers a variety of sport/exercise/performance activities. In the 40-plus sections that are offered each semester, many have a dual sport focus (i.e., volleyball/basketball), allowing a student to experience 3 or 4 activities during 1 year. A student may select an LPAP section that meets his/her scheduling needs and that offers activities that satisfy his/her interests. Some of the current activities offered include racquet sports (tennis, racquetball, badminton), fitness activities (aerobics, personal fitness, weight training), aquatic activities, dance (Latin, ballroom, modern, ballet, country western, Middle Eastern, classical Indian), martial arts, and team sports (flag football, basketball, volleyball, soccer, softball) and other activities such as fencing, self-defense for women, golf, yoga, and nutrition.

See LPAP in the Courses of Instruction section.

LINGUISTICS

THE SCHOOL OF HUMANITIES

CHAIR

Masayoshi Shibatani

PROFESSOR

Stephen A. Tyler

PROFESSORS EMERITI

James E. Copeland

Philip W. Davis

Sydney M. Lamb

ASSOCIATE PROFESSORS

Michel Achard

Suzanne E. Kemmer

(Undergraduate Adviser)

Nancy Niedzielski

(Graduate Advisor)

Nanxiu Qian

M. Rafael Salaberry

ASSISTANT PROFESSORS

Claire Bowers

(TESOL Program Director)

Katherine Crosswhite

(Speech Sciences Adviser)

Robert Englebretson

(TA Co-ordinator)

LECTURER AND PLAYWRIGHT IN

RESIDENCE

E. Douglas Mitchell

DEGREES OFFERED: BA, MA, PHD

BA IN LINGUISTICS

The department offers both a major program in linguistics and a Certificate of Teaching English to Speakers of Other Languages, which may be earned with or without a Linguistics major. For general university requirements, see Graduation Requirements (pages 14–15). In addition, students must satisfy the distribution requirements and complete no fewer than 60 semester hours for a total of at least 120 semester hours.

Because human language is a multifaceted object of study, linguistics is, by its nature, an interdisciplinary field. The undergraduate major provides both an in-depth grounding in the field as well as cross-disciplinary breadth. Students beginning a linguistics major should take LING 200, which is a prerequisite for many upper-level courses in the department. All majors are required to take at least 9 courses (27 semester hours) in linguistics at the 300 level or above, including 5 core courses as specified below (or otherwise listed in a particular concentration).

Core Courses

LING 300 *Linguistic Analysis*

LING 301 *Phonetics*

LING 304 *Introduction to Syntax* or LING 311 *Phonology*

LING 305 *Historical Linguistics*, LING 315 *Introduction to Semantics*, or LING 416 *Language Universals and Typology*

LING 415 *Sociolinguistics* or LING 490 *Discourse*

In addition, competency in 1 language other than English is required. This requirement may be satisfied by 2 courses in a foreign language at the 200 level or above or equivalent or at the 100 level or above for non-European languages. No more than 1 independent study course may be counted toward the major requirements.

Students may elect either a general linguistics major or one of 5 areas of concentration. Options in the list of core courses that are not used as core courses can count as electives for the general major or for concentrations.

The general linguistics major requires, in addition to 5 core courses and the language requirement, at least 4 advanced linguistics electives (300 level or above).

Majors who plan to pursue graduate training in linguistics are recommended to choose 1 of the areas of concentration below. These students also are urged to apply for admission to the Honors Program by the end of their junior year. The requirements for the various concentrations include additional courses as follows:

- **Language Concentration.** In addition to the basic language competency required of all majors, the language concentration requires an advanced level competency in a different language. This can be satisfied by 2 language courses taught in a language other than English at the 300 level or above, or equivalent. In addition to the 5 core courses, 4 advanced electives (300 level or above) also are required, which should be chosen in consultation with the linguistics major advisor. Courses in the structure or the history of the languages studied are especially appropriate.
- **Cognitive Science Concentration.** This concentration requires, in addition to the 5 core courses, 4 advanced linguistics courses focused on the cognitive aspects of human language, selected from LING 306 *Language, Thought, and Mind*, LING 309 *Psychology of Language*, and LING 315 *Introduction to Semantics*, LING 411 *Neurolinguistics*, and LING 490 *Discourse*; and 2 courses from cognitively-related disciplines (psychology, computer science, anthropology, philosophy) as approved by the linguistics major advisor.
- **Language, Culture, and Society Concentration.** For an in-depth grounding in a particular language and culture, this concentration requires 2 language courses at the 300 level or above. The language may be the same as that used to satisfy the basic language competency. Besides the 5 core courses, the student must take 4 courses selected from LING 313 *Language and Culture*, LING 406 *Cognitive Studies*, LING 415 *Sociolinguistics*, LING 419 *Bilingualism*, LING 421 *Sociolinguistics of Spanish*, LING 490 *Discourse*; and 2 courses in sociocultural studies outside the department approved by the linguistics major advisor. Examples of appropriate courses are ANTH 353 *Cultures of India*, ANTH 361 *Latin American Topics*, PSYC 202 *Introduction to Social Psychology*, HIST 250 *Traditional Chinese Culture*, and SOCI 386 *African Americans in Society*.
- **Second Language Acquisition Concentration.** Two language courses at the 300 level or above are required; the language may be the same as that used to satisfy the basic language competency. In addition to the 5 linguistics core courses, 4 additional courses are required, as follows: LING 340 *Theory and Methods of Teaching ESL*; 1 structure of language course (LING 394 *Structure of English* or other language equivalent such as LING 318 *Structure of French*, LING 370 *Structure of Japanese*, etc., as approved by the linguistics major advisor); and any 2 of the following: LING 309 *Psychology of Language*, LING 313 *Language and Culture*, LING 415 *Sociolinguistics*, LING 418 *The Acquisition of L2 Spanish*, LING 419 *Bilingualism*, LING 420 *Cognition and L2 Acquisition*, LING 422 *The Development of Tense and Aspect in Second Language Learning*, and LING 490 *Discourse*.
- **Speech Sciences Concentration.** This concentration is designed for those who would like to pursue career paths in fields related to speech, language, and hearing. Medical-oriented fields under this rubric include speech pathology and audiology; speech technology fields include speech recognition and speech synthesis. The 5 core courses required for this concentration are LING 300 *Linguistic Analysis*, LING 301 *Phonetics*, LING 311 *Phonology*, LING 415 *Sociolinguistics*, and LING 490 *Discourse*. In addition to the core courses, students must take the 2-unit seminar LING 396 *Professions in the Speech Sciences* and 7 other upper-level courses as outlined below:

For students planning careers in medically-oriented fields, the 7 additional courses must include LING 212 *Speech & Hearing Science*, LING 309 *Psychology of Language*, and LING 411 *Neurolinguistics*. Additionally, 4 courses are chosen as follows:

From linguistics one of the following: LING 428 *Laboratory Phonology*, LING 490 *Discourse*, LING 555 *Seminar in Phonetics*, or LING 409 *Special Topics*, when on a topic deemed appropriate by the speech sciences advisor.

From courses outside the department, 3 of the following:

EDUC 310 *Introduction to Special Education*

PSYC 321 *Developmental Psychology*

PSYC 339 *Statistical Methods*

PSYC 351 *Psychology of Perception*

BIOS 122 *Introduction to Biology*

KINE 301 *Human Physiology*

NEUR 511 *Integrative Neuroscience*

For students planning careers in speech technology, the 7 additional courses will include 4 of the following: LING 304 *Introduction to Syntax*, LING 309 *Psychology of Language*, LING 428 *Laboratory Phonology*, LING 490 *Discourse*, LING 555 *Seminar in Phonetics*, or LING 409 *Special Topics*, when on a topic deemed appropriate by the speech sciences advisor. The remaining 3 requirements should be chosen from the following courses from outside the department:

ELEC 301 *Introduction to Signals*

ELEC 434 *Digital Signal Processing Lab*

MECH 373 *Acoustics*

COMP 200 *Elements of Computer Science* or COMP 210 *Principles of Computing*

Further courses in the medical and the language technology areas will enhance students' preparation for these respective fields. Students contemplating careers in the speech sciences should consult with the speech sciences advisor and faculty in other relevant areas concerning course choice and career planning.

Honors Program. The Linguistics Honors Program provides selected undergraduate majors with the opportunity to conduct supervised research within their area of specialization in the major. Majors planning to pursue graduate training in linguistics or a related field are strongly encouraged to apply, as well as others who wish to add the experience of an intensive, individualized research project to their undergraduate education.

Application to the Honors Program should be made in person to the undergraduate major advisor before the end of the student's junior year. In support of the application, the student should prepare a brief description of the proposed project signed by the faculty member who is to supervise the work (the project supervisor). Acceptance into the program is by agreement of the linguistics faculty. On acceptance, the student will enroll in LING 482 *Honors Project*, with the supervising faculty member named as instructor.

The Honors Program framework is designed to facilitate the development of a mentoring relationship between student and faculty member. Students are thus expected to meet regularly with their project supervisor regarding their progress; the supervisor is responsible for providing research guidance and general support.

With the appropriate completion of major requirements and the honors project or thesis, the student will graduate with departmental honors.

Certificate of Teaching English to Speakers of Other Languages. This program is designed for students who plan to teach English to non-native speakers in the U.S. or abroad. The Certificate of Teaching English to Speakers

of Other Languages (TESOL) supplies undergraduate-level training in applied linguistics and the English language, as well as some practical preparation for English language teaching. It easily can be combined with Linguistics, English, or other majors. To enroll in the program, contact the director of the TESOL Certificate Program, Claire Bownern.

The program consists of 4 required courses and a practicum.

Required Courses

LING 200 *Introduction to the Scientific Study of Language*; LING 340 *Theory and Methods of Teaching ESL*; LING 394 *Structure of the English Language*; and 1 of the following:

LING 205 *Language and Society*; LING 300 *Linguistic Analysis*; LING 306 *Language, Thought, and Mind*; LING 309 *Psychology of Language*; LING 313 *Language and Culture*; or LING 415 *Sociolinguistics*.

Practical Component

The practical component consists of a total of 20 contact hours of language teaching/tutoring experience. This requirement may be filled in a number of ways; see the TESOL information on the linguistics department webpage for further details. On completion of the practicum, a short report on the student's teaching experience should be submitted to the certificate director.

Successful completion of the program must be certified by the director of the TESOL Certificate Program and will be indicated by a certificate of completion, awarded on completion of the Rice BA.

PHD IN LINGUISTICS

The doctoral linguistics program at Rice emphasizes the study of language use and functional/cognitive approaches to linguistic theory. Rice faculty engage in a broad range of research specializations, all of which play an important role for in-depth graduate training. These interrelated areas include cognitive linguistics, language change, sociolinguistics, discourse analysis, language documentation and description, phonetics, laboratory phonology, and typology. Other faculty research interests include phonological theory, acoustic phonetics, speech sciences and technology, syntax, language revitalization, neurolinguistics, forensic linguistics, applied linguistics, and second language acquisition. The program only admits students planning to study for the PhD degree full time. Undergraduate preparation ideally should include language study and course work in linguistics or disciplines related to linguistics, such as anthropology, applied linguistics, speech and hearing sciences, psychology, sociology, or studies of particular languages, although an advanced degree is not required. A master's degree may be earned during progress to the PhD degree. Admission to the program is competitive. Students admitted to the program are generally offered financial support in the form of tuition scholarships and/or stipends for living expenses.

During the 1st year of residence, each entering student works closely with the graduate advisor to choose a plan of study congruent with the demands of the program and the student's interests. Emphasis throughout the program is on a close working relationship with faculty. Students should select areas of specialization that fit well with faculty research interests and activities.

Students with a master's degree in linguistics will progress through the degree program in 4 years; those without in 5. With no prior linguistics background, course work in the first 3 years will include:

- 1 problem-solving course in linguistic analysis (LING 500) to be taken in the 1st year of study
- 2 courses in the area of phonetics/phonology (LING 501 and 511)

- 2 courses in the area of syntactic/semantic analysis (LING 504 and LING 515 or LING 413)
- the 2-course sequence in field methods (LING 407 and LING 408) to be taken normally in the 2nd year of study
- 2 seminars in the department to be taken in the 2nd and/or 3rd year of study
- 5 additional elective courses, including 2 courses in other subfields of linguistics, for those in the 5-year program; 2 additional electives for those in the 4-year program

Prior preparation in linguistics will be assessed with regard to its equivalence to particular Rice courses. Graduate students are required to register for at least 12 hours credit per semester before advancing to candidacy. All students are expected to serve as teaching assistants for 1 course per year during the time they are receiving departmental support; such service is included in the normal course load.

Before advancing to candidacy, students must prepare 2 in-depth research papers. Each paper must represent a different area in the field of linguistics (as determined by the linguistics faculty); a separate committee of 3 members of the faculty reads and referees each paper. The committees are chosen by the student and approved by the student's faculty mentor. In addition, one of the papers must be presented in the departmental colloquium, and it is expected that students submit their work for presentation at relevant professional meetings and publish their work in venues such as conference proceedings and/or journals when possible.

Finally, students must fulfill the departmental language requirement of competency in at least 2 languages other than English. See the department webpage for specific details.

In the course of the first 3 years in the program, the student should work toward establishing a close working relationship with various members of the faculty such that multiple faculty members are familiar with the student's work. During the 1st year, the graduate advisor serves as the student's advisor, but after the 1st year, the student selects a faculty mentor to provide more personalized advising in addition to the general advice of the graduate advisor. After the student's 2nd paper is accepted, a dissertation advisor is selected and a doctoral committee is formed, by mutual agreement of the student and the anticipated committee members. During the 4th year, students present to their committee members a 3rd research paper, called the dissertation prospectus, consisting of a substantial dissertation proposal and a comprehensive bibliography. This prospectus may take the form of a grant proposal to an external funding agency, particularly in the case of proposed fieldwork. On completion of the prospectus, students will submit to an oral qualifying exam to be administered by the dissertation committee. The exam will consist of 2 parts, a general exam demonstrating the student's knowledge of the field and a dissertation prospectus hearing. On completion of this qualifying examination, the student will advance to candidacy.

Following advancement to candidacy, the student works full time toward the completion of the dissertation. The student is expected to consult regularly with the committee members during the data collection and writing process. After a complete draft of the dissertation is submitted, the student defends the dissertation publicly. When the final version of the dissertation is accepted by the doctoral committee and filed with the university and all other requirements are certified as fulfilled, the degree is then granted.

For more in-depth information about the linguistics graduate program and faculty, consult the departmental webpage at <http://www.linguistics.rice.edu/>.

See LING and SANS in the Courses of Instruction section.

MANAGEMENT

THE JESSE H. JONES GRADUATE SCHOOL OF MANAGEMENT

DEAN

William H. Glick

SENIOR ASSOCIATE DEAN OF FACULTY AFFAIRS

George Kanatas

ASSOCIATE DEAN OF DEGREE PROGRAMS

Jeff Fleming

PROFESSORS

Bala G. Dharan

Jennifer M. George

G. Anthony Gorry

George Kanatas

H. Albert Napier

Ronald N. Taylor

Wilfred C. Uecker

Robert A. Westbrook

Gilbert R. Whitaker, Jr.

Edward E. Williams

Duane Windsor

Stephen A. Zeff

RESEARCH PROFESSORS

Robert Bixby

Marc J. Epstein

ASSOCIATE PROFESSORS

Shannon W. Anderson

Richard R. Batsell

Jeff Fleming

Gustavo Grullon

Karen K. Nelson

Barbara Ost diek

Douglas A. Schuler

Seethu P. Seetharaman

D. Brent Smith

Jing Zhou

ASSISTANT PROFESSORS

Sharad Borle

Margaret Cording

Utpal Dholakia

Christopher T. Downing

Haiyang Li

Evgeny Lyandres

Bradley Paye

Andrew Perkins

Richard A. Price III

Francisco J. Roman

Brian R. Roundtree

Siddharth S. Singh

Shane Underwood

Masahiro Watanabe

Carmen B. Weigelt

James P. Weston

Sally K. Widener

Yuhang Xing

Yan Anthea Zhang

SENIOR LECTURERS

Deborah J. Barrett

Pamela A. Kennedy

FULL-TIME LECTURERS

Jill Foote

John Kimball Kehoe

Phaedon Papadopoulos

Elizabeth A. Peters

Gale F. Wiley

ADJUNCT PROFESSORS

David P. Bernard

Marc L. Boom

David Jeffrey Fine

Jerry E. Finger

Robert N. Flatt

John K. Hannan

Terry Hemeyer

Vincent Kaminski

William B. Lee

Leo Linbeck III

Jerlyn Mardis

J. Benton Mayberry

Michael C. Morgan

Robert B. Parke, Jr.

Wayne J. Riley

Armand S. Shapiro

Joan E. Shook

Robert B. Stobaugh

Laurence E. Stuart

Atul Varadhachary

Stephen E. Whitney

Melvyn L. Wolff

LECTURERS

W. Clifford Atherton

John A. Baker

Lovett Baker

Geraldine Castor-Brooks

Shannon E. Connell

E. Scott Crist

Lawrence Hampton

Kenny Kurtzman

Robert Lisnick

James P. Mandel

Gary C. Marfin

Norma Mendoza

David Mueller

Connie L. Merrill

Dennis E. Murphree

Elizabeth O'Sullivan

David C. Skinner

Eric M. Timmreck

V. Richard Viebig, Jr.

Harry Wilkinson

VISITING PROFESSOR

Marcus Wren Dickson

COURTESY APPOINTMENTS

Linda Driskill

Mikki Hebl

David Lane

DEGREES OFFERED: MBA, MBA/MASTER OF ENGINEERING

The Jesse H. Jones Graduate School of Management was established in 1974 through a gift from Houston Endowment, Inc. The school provides its highly select graduate students with unique opportunities for professional training in management. The master of business administration (MBA) program includes elective offerings in accounting, entrepreneurship, finance, international business,

information technology, marketing, operations management, organizational behavior and human resource management, healthcare management, and strategic management and planning.

The MBA from the Jones Graduate School of Management can be obtained via the daytime MBA program, the MBA for Professionals program, or the MBA for Executives program. The Executive and Professional MBA programs are designed for executives and working professionals who do not wish to interrupt their careers while they pursue MBA degrees. The Executive and Professional MBA programs feature the same content and faculty as the traditional 2-year MBA program but have a different delivery format. The MBA for Professionals program meets on Monday and Wednesday evenings. The Executive MBA program meets on alternating Friday and Saturdays.

The Rice MBA is a general management program with no formal specialization tracks; the program offers numerous electives in the various business functional areas. All the MBA program formats are designed to allow the flexibility to take some subset of the electives. Students can choose electives that they feel will best prepare them for their post MBA careers.

A joint MBA/Master of Engineering degree is offered by the Jones Graduate School of Management and the George R. Brown School of Engineering, in any of the departments of engineering or in statistics. This degree prepares students to become managers in organizations requiring a high level of technical expertise and management skills.

A dual MBA/MD offered by the Jones Graduate School of Management and Baylor College of Medicine prepares students to become both physicians and managers in institutions involved in the delivery of high-quality health care, as well as biotechnology-focused industries, health insurance/managed healthcare firms, and pharmaceutical and medical supply and equipment companies.

Although no undergraduate major is offered, undergraduate accounting courses are available.

ADMISSION REQUIREMENTS FOR JONES GRADUATE SCHOOL

For general information, see Admission to Graduate Study (pages 56–57). Applicants to the MBA program must submit scores on the Graduate Management Admission Test (GMAT) rather than the Graduate Record Examination (GRE), and, unless they received an undergraduate degree from a U.S. college or university, foreign nationals whose native language is not English must submit recent scores on the Test of English as a Foreign Language (TOEFL). Admission to the Jones Graduate School is open to students regardless of their undergraduate major, but it is highly selective and limited to those who have performed with distinction in their previous academic work and on the GMAT.

The MBA and MBA for Professionals Program—Although the MBA and MBA for Professionals programs have not established specific prerequisite courses for admission, students may find it beneficial to have a background that includes undergraduate course work in principles of accounting, principles of microeconomics, and mathematics. Because spreadsheet and word-processing software are used extensively in course work, students should have a thorough understanding of these types of software packages before enrolling.

MBA for Executives—In addition to meeting the standards for admission to the other MBA programs, students admitted to the executive program typically have at least 10 years of relevant work experience.

Joint MBA/Master of Engineering Program—To enter the dual degree program, applicants must be accepted by both the Jones Graduate School and the engineering department in which they wish to enroll. The program requires the Jones Graduate School application, three letters of recommendation, and the GRE, rather than the GMAT. Some engineering departments require advanced tests as well.

Dual MBA/MD Program—To enter this dual degree program, applicants must first be accepted by Baylor College of Medicine and apply separately to the Jones Graduate School. The MCAT is accepted rather than the GMAT. Two years of medical school are required before starting MBA classes.

DEGREE REQUIREMENTS FOR THE MBA PROGRAM

The MBA Program requires the completion 60 credits of course work over a two year period. Student must register for 15 credits of course work in all four semester of residence and are not allowed to take more than 18 credits in any semester. The first year of the program is dedicated to core curriculum coursework; however, students have the option of taking one elective during the second semester of the first year. During the second semester of the first year, students participate in a team based Action Learning Project (ALP) in which they work at a company to solve a specific business problem. This project is the first year capstone learning activity; it allows students to apply and integrate all the management principles learned throughout the first year program in a practical setting. The second year of the program is dedicated to elective course work.

Areas of Interest—There are no formal elective concentrations in the MBA program. Students may choose one or more areas of interest from among the following: accounting, entrepreneurship, finance, general management, international business, information technology, marketing, operations management, organizational behavior and human resource management, healthcare management, and strategic management and planning. The MBA program director and individual faculty members offer students advice on course selection. Students may also take upper-level or graduate courses from other departments at Rice outside the Jones Graduate School of Management with permission from the Director of MBA Program.

All registration and elective selection via drop/add is completed on-line through ESTHER (<http://esther.rice.edu>) and is the responsibility of the student to monitor and maintain his or her schedule and academic record. All schedule changes require the approval of the MBA program assistant director or a designee. The school, which must approve all courses, monitors the student registration process to ensure the correct sequence of required first-year courses for each entering class.

Waivers and Transfers of Credit—At its sole discretion, the school may allow students to transfer up to a maximum of 6 credits. This does not necessarily reduce the residence requirement, but it does make additional elective courses available. Students otherwise must follow the prescribed curriculum of study and are not allowed to waive any core requirements.

DEGREE REQUIREMENTS FOR THE MBA FOR PROFESSIONALS PROGRAM

The MBA for Professionals degree requires completion of 13 terms and 9 intensive learning experience and workshop classes totaling 57 credits. The program is a lock-step progression in which students take required courses

in sequence; students take eight elective courses in their second year in order to fulfill their graduation requirements.

Areas of Interest—There are no formal elective concentrations in the MBA for Professionals program. Students may choose one or more areas of interest from among the following: accounting, entrepreneurship, finance, general management, international business, information technology, marketing, operations management, organizational behavior and human resource management, healthcare management, and strategic management and planning. The MBA program director and individual faculty members offer students advice on course selection.

All registration and elective selection via drop/add is completed on-line through ESTHER (<http://esther.rice.edu>) and is the responsibility of the student to monitor and maintain his or her schedule and academic record. All schedule and changes require the approval of the MBA Program Office. The school, which must approve all courses, monitors the student registration process to ensure the correct sequence of required first-year courses for each entering class.

DEGREE REQUIREMENTS FOR THE MBA FOR EXECUTIVES PROGRAM

This degree requires completion of seven terms and five intensive learning weekends totaling 57 credit hours. Students take the required 1st year courses in lock-step progression and choose nine electives in the second year for a total program time of 22 months.

Areas of Interest—There are no formal elective concentrations in the MBA for Executives program. Students may choose one or more areas of interest from among the following: accounting, entrepreneurship, finance, general management, international business, information technology, marketing, operations management, organizational behavior and human resource management, healthcare management, and strategic management and planning. The MBA for Executives program director and individual faculty members offer students advice on course selection.

DEGREE REQUIREMENTS FOR JOINT MBA/MASTER OF ENGINEERING

Students may earn this nonthesis engineering degree in the fields of chemical engineering, civil engineering, computational and applied mathematics, computer science, electrical and computer engineering, environmental science and engineering, mechanical engineering and materials science, and statistics. Ordinarily, the engineering degree takes 1 academic year to complete, whereas the MBA requires 2. Joint-degree candidates, however, can fulfill requirements for both degrees in 2 academic years.

For the joint MBA/master of engineering degree, students must complete:

- At least 2 academic years in residence at Rice
- 63 semester hours in approved course work:
 - 24 hours in an engineering discipline
 - 39 hours in business administration

Students plan their course schedules in consultation with the engineering department in which they are enrolled and with the MBA program director.

DEGREE REQUIREMENTS FOR THE DUAL MBA/MD PROGRAM

Students may earn both MBA and MD degrees in 5 years. They divide their time as follows:

- Years 1 and 2—medical training at Baylor College of Medicine
- Year 3—1st year MBA core courses at Rice, plus a 3 credit healthcare management course in the spring semester. MBA/MD students are required to fill only one custom core class requirement.
- Year 4—MBA courses at Rice, 3 MBA elective credits and 12 credits of healthcare electives during the fall semester, and medical training at Baylor College of Medicine during the spring semester.

Students use the summer between the 3rd and 4th years to perform healthcare research programs or externships. Students receive their MBA degree from Rice after they have completed 45 hours of approved management course work; they receive their MD degree after they have completed the requirements specified by Baylor College of Medicine.

ACADEMIC AND PROFESSIONAL STANDARDS

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MBA degree program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

Academic Standards—A minimum cumulative grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university but outside the Jones Graduate School) are counted in the cumulative grade point average calculation.

Students with a cumulative grade point average lower than 3.00 at the end of any semester will be notified of dismissal and may no longer register for courses. A student who has been notified of dismissal may appeal to the Academic Standards Committee of the Jones Graduate School. The committee will decide, based on the circumstances of the appeal, whether the student (1) may resume studies on probation, (2) is to be suspended for 1 semester or an academic year, or (3) is to be dismissed from the MBA program.

Students proposing to return after a period of academic suspension must apply to the Academic Standards Committee and receive permission to be readmitted.

Only grades of C and higher are counted for credit toward graduation. If students receive a grade lower than C in a course required for graduation, they must repeat the course. If students receive a grade lower than C in an elective course, they need not repeat the specific course, but they must make up the hours.

Students may retake a failed course only once and then only if their cumulative grade point average is 3.00 or higher or if they have received the permission of the Academic Standards Committee to do so. Students who fail a course twice will be notified of dismissal. (Students may not take any course for which the failed course is a prerequisite until they pass the prerequisite course.)

Students on academic probation cannot be candidates for student offices, cannot graduate or drop courses, and must complete all future courses with a grade of C or above. Students are removed from probation only upon achieving a cumulative grade point average of at least 3.00 at the end of the following semester of work.

Students who have completed the required number of hours for the MBA degree, the joint MBA/master of engineering degrees or the joint MBA/MD degree, but who have a cumulative grade point average lower than 3.00, are dismissed without graduation. If, in an appeal to the Academic Standards Committee, a student can substantiate a claim of extenuating circumstances, i.e., those beyond the student's control, the student will be permitted to take additional course work at the university within the next year to raise his or her grade point average to 3.00.

Professional Standards—MBA students are held to the high standards of professional conduct expected of managers—standards substantially exceeding those expected of them simply as students. Students may be dismissed or suspended for failure to meet professional standards, as defined in the University Code of Conduct. The dean may place a student on disciplinary probation for unacceptable conduct, giving oral and written notice that future misconduct will lead to filing of specific charges. (This probationary notice, however, is not required as a precondition for filing specific charges.)

ACADEMIC REGULATIONS

Grading Policy

For All Courses:

- The grade of A+ should be given only as an exceptional grade reflecting extraordinary achievement by a student.
- Only grades of C and higher are counted for credit toward graduation. If students receive a grade lower than C in a (core) course required for graduation, they must repeat the course. If students receive a grade lower than C in an elective course, they need not repeat the specific course, but they must make up the hours.
- Grades are considered final and are rarely, if ever, changed for any reason other than calculation errors.
- Jones School students may not take courses pass/fail to count toward their degree requirements.
- Jones School students may audit courses with departmental approval. The courses will not count toward the MBA but will appear on the transcript.

For Core Courses:

- No more than half of all grades assigned by an instructor may be an A– or above.
- A course GPA (combining multiple sections where necessary) between 3.30 and 3.50 should be used as a “target” for assigning grades.
- Instructors in multi-section courses should coordinate the assignment of final grades such that they reflect a consistent grading philosophy for the overall course.

For Elective Courses:

- Regardless of class size, instructors “target” the course GPA (combining multiple sections where necessary) to fall between 3.50 and 3.80.
- To the extent that such course exists, instructors in multi-section electives should coordinate the assignment of final grades such that grades reflect a consistent grading philosophy for the overall course.

GUIDELINES FOR APPEALING ACADEMIC DISMISSAL

The Process—A student who wishes to appeal a dismissal should address the following issues in a letter to the Academic Standards Committee. The student

must send the letter to the chairman of the Academic Standards Committee. The following questions should be answered in the appeal letter.

1. What circumstances led to your academic performance last semester and to what degree were those circumstances beyond your control?
2. If your performance in a particular course(s) last semester was below par, describe any circumstances specific to that course that explain your performance.
3. Do you expect the circumstances that created the problems for you last semester to change next semester? If so, how?

You may include any other information that you deem relevant in your appeal letter.

Timing—Timing is critical in the appeals process because classes start immediately after the grades are distributed in January. The student must inform the director of the MBA/EMBA/MBAP program (by email or written note) immediately of the intention to appeal. The appeal letter to the committee must be filed expediently, within or sooner than the 1st week of classes. If a student plans to appeal, he/she should attend classes in January without registering. It is important to keep up in his/her studies during the appeal process. If his/her appeal is accepted, the student may register later with a letter from the MBA program office.

Grades are considered final and are rarely changed for any reason other than calculation errors.

Appeals—Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School, who may seek guidance from the Dean's Advisory Council. All decisions rendered by the dean are final.

Confidentiality—The Family Educational Rights and Privacy Act of 1974 and amendments govern the records of actions related to appeals.

GRADE APPEAL PROCESS

The procedure below outlines the process by which a student may appeal a grade in a course.

1. The student should 1st pursue any grading question with the professor following whatever formal or informal process the professor has outlined for the course.
2. If the matter is not resolved in step 1 above, the student must file a written appeal to the professor and send a copy to the director of the MBA/EMBA/MBAP program. This written appeal must be filed no later than 45 days after the last day of finals for the term (mini-semester) in which the course was offered.
3. The professor must schedule a meeting with the student within 2 weeks of receiving the written appeal to further discuss the appeal with the student. Notice of the appeal time and date will be provided by the professor to the director of the MBA/EMBA/MBAP program.
4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Dean's Advisory Committee by sending a written notice describing the grounds for the appeal within 2 weeks of the date of the scheduled meeting in step 3.
5. The Dean's Advisory Committee will seek out information on the appeal from the professor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Dean's Advisory Committee

will be rendered within 6 weeks of receiving a written notice of appeal (step 4).

6. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.
7. All decisions rendered by the Dean's Advisory Committee are final.
8. The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

ALP GRADE APPEAL POLICY FOR INDIVIDUAL STUDENT

The procedure below outlines the process by which an individual student may appeal a grade in the ALP course.

1. The student must send a letter of intent to appeal the grade to the director of ALP. This written appeal must be filed no later than 30 days after the last day of term 4. A copy of the letter must be sent to the director of the MBA program.
2. The director of ALP must schedule a meeting with the student and director of the MBA program by the end of term 1 during the following year to discuss the appeal with the student further. The purpose of the meeting is to review with the student the basis for the individual grade. The director of ALP will provide the meeting time to the director of the MBA program.
3. Up until this time, all information relevant to the case is confidential. If the student desires to talk with the ALP faculty or ALP team members about the matter, this will require the student to waive confidentiality with respect to the matter of the downgrade status. The student must notify the director of ALP about his/her preference to waive confidentiality. Upon receiving the request to waive confidentiality from the student, the director of ALP will apprise all related parties that an appeal is under way, that they are not obligated to discuss the matter with the appealing student, and that their confidential peer evaluations have not been shared with the appealing student. The student must wait for permission from the director of ALP before contacting team members and/or faculty liaisons.
4. If step 2 does not resolve the issue to the satisfaction of both parties, the student may appeal to the director of ALP by sending a written notice describing the grounds for the appeal within 2 weeks of the date of the scheduled meeting in step 2. A copy of the letter must be sent to the director of the MBA program. The director of ALP will render a decision within 3 weeks of receiving the written notice.
5. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Dean's Advisory Committee by sending a written notice describing the grounds for the appeal within 2 weeks of the decision rendered by the director of ALP in step 3. A copy of the letter must be sent to the director of ALP and the director of the MBA program.
6. The Dean's Advisory Committee will seek out information on the appeal from the professor and the student and at its discretion hold a hearing to further consider the matter. The decision of the Dean's Advisory Committee will be rendered within 6 weeks of receiving a written notice of appeal (step 4).
7. All decisions rendered by the Dean's Advisory Committee are final.

8. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.
9. The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

ALP GRADE APPEAL POLICY FOR STUDENT TEAM

The procedure below outlines the process by which an ALP student team may appeal a grade in the ALP course.

1. The student team must send a letter of intent to appeal the grade to all members of the faculty team. This written appeal must be filed no later than 30 days after the last day of term 4. All team members must sign the letter. A copy of the letter must be sent to the director of ALP and to the director of the MBA program.
2. The faculty team must schedule a meeting with the student team by the end of term 1 during the following year to further discuss the appeal with the student team. The professors will provide the meeting time to the director of ALP and to the director of the MBA program.
3. If the matter is not resolved in step 2 above, the student team must file a written appeal to the director of ALP within 2 weeks of the date of the scheduled meeting in step 2. All team members must sign the letter. The director of ALP must schedule a meeting with the student team within 2 weeks of receiving the written appeal to further discuss the appeal with the student team. The director of ALP will provide the meeting date to the director of the MBA program.
4. If step 3 does not resolve the issue to the satisfaction of both parties, the student team may appeal to the Dean's Advisory Committee by sending a written notice describing the grounds for the appeal within 2 weeks of the date of the scheduled meeting in step 3. All team members must sign the letter. A copy of the letter must be sent to the director of ALP and to the director of the MBA program.
5. The Dean's Advisory Committee will seek out information on the appeal from the professors, the director of ALP, and the student team and, at its discretion, hold a hearing to further consider the matter. The decision of the Dean's Advisory Committee will be rendered within 6 weeks of receiving a written notice of appeal (step 4). A copy of the decision must be sent to the director of ALP and to the director of the MBA program.
6. All decisions rendered by the Dean's Advisory Committee are final.
7. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.
8. The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

DROP/ADD POLICY AND PROCEDURES

Due to the unique term schedule by which the Jones School abides, MBA students have special procedures by which they follow to make schedule changes. The MBA Program Office has implemented an add/drop policy which allows students the opportunity to add/drop elective courses at various times throughout the semester. Below are the procedures for adding or dropping a course and students should contact the Assistant Director of the MBA Program for assistance.

All schedule changes must be approved by the Assistant Director of MBA Program prior to the add/drop deadline (either via email or in person) and before the student makes any schedule changes on ESTHER (<http://esther.rice.edu/>). All class rosters are updated in the MBA Program Office and sent to professors for enrollment counts and attendance records.

If student is taking a 1.5 CREDIT course:

1. A student may add/drop a class, including section changes for 2nd year core courses, with permission from the Assistant Director of MBA Program by the deadline for the 1.5 credit drop/add period for the appropriate term.
2. A student must attend the 1st class, and may not miss a class during the 1st week.
3. A student may not add or drop a course after the deadline (see add/drop deadlines below for the 2006–2007 academic year).

If student is taking a 3 credit course:

1. A student may add/drop a class, including section changes for 2nd year core courses, with permission from the Assistant Director of MBA Program by the deadline for the 3.0 credit drop/add period.
2. A student must attend the 1st class and may not miss a class during the 1st week.
3. A student may not add or drop a course after the deadline.

2006–07 ADD/DROP DEADLINES

Fall 2006

Add/Drop Period	Term(s)	Credits
May 1–September 22, 2006	MBA Term I & II	3.0
May 1–September 8, 2006	MBA Term I	1.5
May 1–November 3, 2006	MBA Term II	1.5

Spring 2006

Add/Drop Period	Term(s)	Credits
November 27–February 2, 2007	MBA Term III & IV	3.0
November 27–January 22, 2007	MBA Term III	1.5
November 27–March 23, 2007	MBA Term IV	1.5

All schedule changes must be submitted and approved by the Assistant Director of MBA Program no later than 5 PM of the add/drop deadline.

INDEPENDENT STUDY

Minimum Hours Requirement—Each 1-unit credit for independent study should contain approximately as much time content as a 1-credit course at JGSM, which is 12 hours of class time, plus an average of at least 24–36 outside-class hours, for a minimum total of 36–48 hours of work. Independent study projects can be accommodated in increments of 1, 1.5, 2, or 3-unit independent study; 3-unit independent study projects should be less frequent. Credits will be apportioned based on the previously discussed ratio. Occasionally, a group independent study project may arise, though most independent studies will be undertaken by individual students.

The number of credits for an independent study should be negotiated at the beginning of a project. Increases to the number of project credit hours after the project overview has been filed with the MBA program office must be approved

by the Academic Standards Committee. The committee will rely on input from sponsoring faculty in making its decision about ex post credit increases. Requests to increase the number of project credit hours must be made before the end of the 2nd week of classes in the term in which the project begins, except when a student is in their last semester, in which case such requests must be made before the end of the 2nd week of the semester.

Restrictions—No student may take more than 3 credit hours of independent study during the course of the degree program without the approval of the Academic Committee. If an independent study is proposed that would cause a student to exceed the 3 credit limit, the Academic Standards Committee will select 2 faculty members, other than the faculty member who will supervise the project, within the area most closely related to the study's academic content to review and approve the study. Independent study exceeding 3 credits in total should consider current policies restricting use of independent study as well as the incremental value of additional independent study in light of past independent studies. If the study does not align with any of the JGSM academic groups, the Academic Standards Committee will perform the review and make the final approval decision.

Independent study projects are for academic credit, not for hire. Students may not earn credit for paid research assistance.

Faculty Sponsorship—Independent study projects normally are sponsored only by full-time JGSM faculty. Students wishing for sponsorship by a part-time faculty member must submit a project overview to the Academic Standards Committee and obtain the committee's approval before the term(s) in which the project is to begin.

Common Requirements—The goal of independent study projects is to advance or deepen a student's knowledge or competency in a business discipline or activity.

To facilitate these goals, independent study projects generally fall into two broad categories: (1) directed reading and study resulting in a research paper or (2) an experiential or hands-on project resulting in an outcome such as an empirical analysis or a webpage/site with an executive summary of the "deliverable."

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, JGSM would like to ensure relatively equal workloads per unit of independent study credit and some common requirements between independent study projects. To that end, students and/or sponsoring faculty should:

1. Prepare and submit to the MBA program office an overview of the independent study project with number of project credits, anticipated final results, and a broad timeline of anticipated project milestones.
2. Meet to discuss the project, after the initial agreement on the project scope, at least once every 2–3 weeks.
3. Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, a completed webpage, computer program, survey results, empirical analyses, etc.) together with an executive summary of the project (in the case of experiential projects).
4. File a copy of each student's final paper, or executive summary, with the MBA program office.

Applications—Independent study applications are available for interested students to pick up in the MBA program office. Complete and approved applications are due to the MBA program associate by the 1st week of the term in which the project will be completed. The student will be registered for

MGMT 700 independent study for the appropriate credit amount, only when the MBA program associate sends the approved application information to the registrar for processing.

CLASS ATTENDANCE POLICY

Students are expected to be in class on the first day of each term. The faculty reserves the right to exclude students from their courses who do not show up on the first day. For special circumstances, see faculty and/or director of MBA program immediately.

WITHDRAWAL POLICY

A Jones School student may voluntarily withdraw from school at any time. Rice University applies a sliding scale to tuition and fees, so early action to withdraw saves money.

JONES SCHOOL STUDENT HANDBOOK

Generally, the Jones School adheres to the academic regulations of Rice University. However, the Jones School has unique policies and procedures that vary from the Office of Graduate Studies regarding, but not limited to, leave of absence, withdrawals and readmission, drop/add, academic discipline, dismissal, procedures for resolution of problems, and appeal of academic regulations. All Jones School students are responsible for adhering to policies and procedures listed in the *Jones School Student Handbook* given to students during preterm. A copy of the handbook also may be obtained from the MBA program office.

FINANCIAL AID

Financial assistance by the Jones Graduate School is awarded only for a given semester or year. Continuation of assistance depends on satisfactory academic performance, professional behavior, and availability of funds. Academic or disciplinary probation, suspension, or more than 3 grades below B- result in the removal of all forms of school financial assistance, whether scholarship, loan, or employment. Scholarships are awarded for a combination of need and academic merit.

See ACCO and MGMT in the Courses of Instruction section.

MANAGERIAL STUDIES

THE SCHOOL OF SOCIAL SCIENCES

PROGRAM DIRECTOR

Richard Boylan

DEGREE OFFERED: BA

The major in managerial studies is an interdepartmental, nonprofessional program designed to provide undergraduates with an understanding of the environment in which businesses and other organizations exist today and of some of the tools employed by management in the commitment of its financial and human resources. All students taking the managerial studies major also must complete at least 1 of the established departmental or interdepartmental majors, other than an area major. Managerial studies is not the equivalent of an undergraduate business major at other universities.

DEGREE REQUIREMENTS FOR BA IN MANAGERIAL STUDIES

For general university requirements, see Graduation Requirements (pages 14–15). For the BA degree, students majoring in managerial studies must complete the following 10 core courses in addition to satisfying all the requirements for their 2nd departmental or interdepartmental major:

ACCO 305 *Introduction to Accounting*

ECON 211 *Principles of Economics I*
(microeconomics)

ECON 448 *Corporation Finance* or ENGI 303
Engineering Economics and Management

*MANA 404 *Management Communications in*
a Consulting Simulation

PSYC 101 *Introduction to Psychology*

PSYC 231 *Industrial and Organizational*
Psychology

**STAT 280 *Elementary Applied Statistics*

***STAT 385 *Methods for Data Analysis and*
System Optimization

2 courses from the following:

ACCO 406 *Management Accounting*

ECON 355 *Financial Markets and Institutions*

ECON 358/POLI 358 *Organizational Design*

ECON 370 *Microeconomics Theory*

ECON 421 *International Finance*

ECON 435 *Industrial Organization*

ECON 437 *Energy Economics*

ECON 438 *Business, Law, and Economics*

ECON 439 *Torts, Property, and Contracts*

POLI 335 *Political Environment of Business*

POLI 338 *Policy Analysis*

STAT 420 *Statistical Process Control and*
Experimental Design

* MANA 404 is a capstone course that may not be taken until 8 of the 10 other required courses in the major have been completed.

** Psychology and sociology majors may satisfy this requirement with PSYC 339/STAT 339 or SOCI 398, respectively. Students with a calculus background should take STAT 305, STAT 310/ECON 382, or STAT 331/ELEC 331.

*** or CAAM 378, ECON/STAT 400, STAT 410, 421, 486.

Honors Program—To apply for admission to the honors program, students must have completed 8 of the regular managerial studies courses and have a B+ (3.33) average in those courses. All applications must be approved by the director of managerial studies.

The Honors Program consists of taking 2 additional courses from:

MANA 497/498 *Independent Research*

ECON 440 *Risk, Uncertainty, and Information*

ECON 445 *Managerial Economics*

ECON 449 *Basics of Financial Engineering*

STAT 486 *Methods in Computational Finance*

I: Market Models

STAT 421 *Methods in Computational Finance*

II: Time Series

MANA 497/498 are offered in collaboration with faculty in the Jesse H. Jones Graduate School of Management. Admission to these courses must be approved by a participating faculty member. A list of participating faculty and their research interests is available from the director of managerial studies.

For more information, students should consult the program director in 268 Baker Hall.

See MANA in the Courses of Instruction section.

MATHEMATICS

THE WIESS SCHOOL OF NATURAL SCIENCES

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Robin Forman

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ASSISTANT PROFESSORS

Alexander Bufetor

Shelly Harvey

ASSOCIATE PROFESSORS

Zhiyong Gao

INSTRUCTORS

Daniel Cole

Sabin Cautis

Eric Chesebro

Keiko Kawamura

Christopher Rasmussen

Rolf Rhyam

Maggy Tomova

Oliver Wittenberg

DEGREES OFFERED: BA, MA, PHD

The program in mathematics provides undergraduates with a spectrum of choices, from nontheoretical treatments of calculus and courses in modern algebra, combinatorics, elementary number theory, and projective geometry to a broad variety of sophisticated mathematics, including real and complex analysis, differential geometry, abstract algebra, algebraic and geometric topology, algebraic geometry, and partial differential equations.

Faculty research interests range from differential geometry, ergodic theory, group representation, partial differential equations, and probability to real analysis, mathematical physics, complex variables, algebraic geometry, combinatorics, geometric topology, and algebraic topology.

DEGREE REQUIREMENTS FOR BA IN MATHEMATICS

For general university requirements, see Graduation Requirements (pages 14–15). Students majoring in mathematics may choose between the regular math major and the double major. Regular math majors must complete:

- MATH 101 and 102 *Single Variable Calculus I and II*
- MATH 211 *Ordinary Differential Equations and Linear Algebra* and MATH 212 *Multivariable Calculus* or MATH 221 and 222 *Honors Calculus III and IV*
- At least 24 semester hours (8 courses) in departmental courses at the 300 level or above (in many instances, the math department will waive the 100- and 200-level courses for a math major)

The requirements for the double major are the same except that students may substitute approved mathematics-related courses for up to 9 of the 24 hours required at the 300 level or above.

Students receive advanced placement credit for MATH 101 by achieving a score of 4 or 5 on the AP AB-level test and for MATH 101 and 102 by achieving a score of 4 or 5 on the BC-level test. Students who have had calculus but have not taken the AP test may petition the department for a waiver of the calculus requirements. Entering students should enroll in the most advanced course commensurate

with their background; advice is available from the mathematics faculty during Orientation Week.

DEGREE REQUIREMENTS FOR MA AND PHD IN MATHEMATICS

Admission to graduate study in mathematics is granted to a limited number of students who have indicated an ability for advanced and original work. Normally, students take 1 or 2 years after the BA degree to obtain an MA degree, and they take 4 or 5 years to obtain a PhD. An MA is not a prerequisite for the PhD. For general university requirements, see Graduate Degrees (pages 57–58).

A number of graduate scholarships and fellowships are available, awarded on the basis of merit. As part of the graduate education in mathematics, students also engage in teaching or other instructional duties, generally for no more than 6 hours a week.

MA Program—Candidates for the MA in mathematics must:

- Complete with a grade of B or better a course of study approved by the department (students may transfer credits from another university only with the approval of both the department and the University Graduate Council)
- Perform satisfactorily on an examination in at least 1 approved foreign language (French, German, or Russian)
- Either complete all requirements for qualification as a candidate for the PhD (see below) or present and provide an oral defense of an original thesis acceptable to the department

PhD Program—Candidates for the PhD in mathematics must:

- Complete with a grade of B or better a course of study approved by the department (students may transfer credits from another university only with the approval of both the department and the University Graduate Council)
- Perform satisfactorily on qualifying examinations (see below)
- Perform satisfactorily on examinations in 1 approved foreign language (French, German, or Russian)
- Write an original thesis acceptable to the department
- Perform satisfactorily on a final oral examination on the thesis

Qualifying Examinations—The qualifying examinations in mathematics consist of the general examinations and the advanced oral examination.

To complete the **general examinations**, students must take exams, 1 each in algebra, analysis, and topology. Exams are offered every August and January. First-year students may take any combination of exams at any time. After 2 semesters of study, students must attempt to pass all remaining exams at each offering. Students must perform satisfactorily on all 3 by the start of their 5th semester. Students may take an exam several times.

To complete the **advanced oral examination**, students must select a special field (e.g., homotopy theory, several complex variables, or group theory) and submit it to the department graduate committee for approval. The committee schedules an advanced examination in the selected field, normally 6 to 9 months after the student completes the general examinations. While students failing the advanced examination may, with the approval of the committee, retake it on the same or possibly on a different topic, they generally are not allowed to take the advanced examination more than twice.

See MATH in the Courses of Instruction section.

MECHANICAL ENGINEERING AND MATERIALS SCIENCE

THE GEORGE R. BROWN SCHOOL OF ENGINEERING

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ADJUNCT ASSOCIATE PROFESSORS

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Aladin Boriek

Michael Massimino

ADJUNCT ASSISTANT PROFESSOR

James B. Dabney

LECTURERS

John J. Bertin

Robert Cunningham

Sam Grice

Peter J. Loos

David M. McStravick

DEGREES OFFERED: BA, BSME, BSMS, MME, MMS, MS, PHD

Studies in mechanical engineering may lead to specialization in 1 of several areas, including mechanics, computational mechanics, stochastic mechanics, fluid dynamics, heat transfer, dynamics and control, robotics, biomedical systems, and aerospace sciences. Studies in materials science may lead to specialization in 1 of several areas, including nanotechnology, metals physics, statistical mechanics, metallic solid thermodynamics, materials chemistry, aspects of composites, coatings and thin films, and interface science.

The graduate program offers professional degrees in both materials science and engineering, which is based on undergraduate preparation in a number of related fields, and mechanical engineering, which permits specialization in the areas previously mentioned. Graduate students also may pursue research degrees. Faculty research areas are indicated in the previous paragraph. A joint MBA/Master of Engineering degree is available in conjunction with the Jesse H. Jones Graduate School of Management. Also, a combined MD and advanced research degree for research careers in medicine is available with Baylor College of Medicine.

The graduate program collaborates with other departments in its comprehensive educational and research activities. The Department of Computational and

Applied Mathematics supports research in applied analysis and computational mathematics. Work on expert systems and robotics is done in cooperation with the Departments of Electrical and Computer Engineering and Computer Science. Computer graphics research involves the cooperation of the Department of Computer Science and the School of Architecture. The campus-wide Rice Quantum Institute also is active in the research of electronic materials and other aspects of materials science. Finally, biomechanics and biomaterials research involves several institutions in the Texas Medical Center.

DEGREE REQUIREMENTS FOR BA, BSME IN MECHANICAL ENGINEERING OR BA, AND BSMS IN MATERIALS SCIENCE AND ENGINEERING

For general university requirements, see Graduation Requirements (pages 14–15). The BA program in either mechanical engineering or materials science and engineering is highly flexible, involves less technical content than the BS, and allows students greater freedom to pursue areas of interest outside of engineering.

The 2 BS programs prepare students for the professional practice of engineering. During their senior year, mechanical engineering students in the BS program take courses in design application while completing a major design project, and materials science and engineering students in the BS program work on a design problem in an industrial setting. The BSME program is accredited by the Accreditation Board for Engineering and Technology (ABET). Departmental goals and objectives are available at <http://mems.rice.edu/undergraduate/goals.html>.

BSME Program—Lists of representative undergraduate courses and the usual order in which students take them are available from the department for either the BA or BS programs in both mechanical engineering and materials science and engineering. The BSME degree contains a core of required courses and selected electives from 1 of 6 specialization areas. The requirements (for a total of 132 hours) are:

Basic Mathematics and Science (30 hours)

CHEM 121–122 *General Chemistry*
MATH 101 *Single Variable Calculus I*
MATH 102 *Single Variable Calculus II*
MATH 211 *Ordinary Differential Equations
and Linear Algebra*
MATH 212 *Multivariable Calculus*
MSCI 301 *Materials Science*
PHYS 101 *Mechanics*
PHYS 102 *Electricity and Magnetism*

Computational and Applied Mathematics (9 hours)

CAAM 210 *Engineering Computation*
CAAM 335 *Matrix Analysis*
CAAM 336 *Differential Equations in Science
and Engineering*

Senior Design (7 hours)

MECH 407 *Mechanical Design Project I*
MECH 408 *Mechanical Design Project II*

Labs (3 hours)

MECH 331 *Mechanics Lab*
MECH 332 *Thermo/Fluids Lab*
MECH 431 *Senior Lab*

Mechanical Engineering (32 hours)

MECH 200 *Classical Thermodynamics*
MECH 211 *Engineering Mechanics*
MECH 311 *Mechanics-Deformable Solids*
MECH 340 *Industrial Process Lab*
MECH 343 *Modeling of Dynamic Systems*
MECH 371 *Fluid Mechanics I*
MECH 401 *Machine Design*
MECH 412 *Vibrations*
MECH 420 *Fundamentals of Control Systems*
MECH 481 *Heat Transfer*

Limited Electives: 3 hours in any 300-level or higher STAT course

Distribution Electives (24 hours)

Free Electives (15 hours)

Specialization Area Options—The specialization area can be 1 of the following 5 clusters. Students must take at least 2 of the following required cluster courses for their selected cluster and 2 from the departmental list of the suggested cluster elective courses, for a total of not less than 12 hours. The cluster advisors will maintain updated lists of electives in the department. The choices for the required cluster courses are:

1. **Biomechanics**
BIOE 372 *Introduction to Biomechanics*
MECH 380 *Tissue Mechanics*
2. **Computational engineering**
MECH 417 *Finite Element Analysis*
MECH 454 *Finite Elements in Fluids*
3. **Fluid mechanics and thermal science**
MECH 372 *Fluid Mechanics, II*
MECH 471 *Application of Thermodynamics*
4. **Solid Mechanics and Materials**
CEVE 400 *Mechanics of Solids II*
MSCI 402 *Mechanical Properties of Materials*
5. **System dynamics and control**
MECH 498 *Introduction to Robotics*
MECH 411 *Dynamics and Control of Mechanical Systems*
or MECH 488 *Design of Mechanical Systems*
6. **General mechanical engineering**
Any 4 required courses listed above may be taken to define a general cluster.

BA in Mechanical Engineering Program—Students seeking the BA degree with a major in mechanical engineering must complete 120 hours with at least 66 semester hours in courses specified by the department, along with 24 hours of university distribution electives and 30 hours of free electives. Lists of courses, including general university requirements and the usual order in which students take them, are available from the department. The BA program mirrors the BSME program in the freshman and sophomore years with the exceptions that MECH 340 and MECH 331 are not required. Specific major requirements are completed in the junior and senior years, along with electives. A summary appears below:

Freshman Year

Same as BS with 24 major and 9 elective hours for 33 hours.

Sophomore Year

Same as BS (except MECH 340 and 331 are not required) with 18 major and 15 elective hours for 33 hours.

Junior and Senior Years

25 major and 30 electives for 55 hours. The following courses are required in junior and senior years:

CAAM 335 <i>Matrix Analysis</i> (3)	MECH 401 <i>Machine Design</i> (3)
CAAM 336 <i>Differential Equations in Science and Engineering</i> (3)	MECH 412 <i>Vibrations</i> (3)
MECH 343 <i>Modeling of Dynamic Systems</i> (4)	MECH 420 <i>Fundamentals of Control Systems</i> (3)
MECH 371 <i>Fluid Mechanics I</i> (3)	MECH 481 <i>Heat Transfer</i> (3)

BA in Materials Science and Engineering Program—Students seeking the BA degree with a major in materials science and engineering must complete at least 52 hours in courses specified by the department plus additional hours for a total of 120 hours at graduation.

BSMS Program—Students seeking the BSMS must complete at least 91 semester hours in courses specified by the department within the total requirements of 134 hours. Basic departmental course requirements for the BSMS are as follows:

CHEM 121–122 *General Chemistry*
 MATH 101 and 102 *Single Variable Calculus I and II*
 MATH 211 *Ordinary Differential Equations and Linear Algebra*
 MATH 212 *Multivariable Calculus*
 MECH 211 *Engineering Mechanics*
 MSCI 301 *Materials Science*
 PHYS 101 *Mechanics*
 PHYS 102 *Electricity and Magnetism*

Specific requirements

CAAM 210 *Introduction to Engineering Computation*
 CAAM 335 *Matrix Analysis*
 CEVE 300 *Mechanics of Solids*
 ELEC 241 *Fundamentals of Electrical Engineering I* (or ELEC 243 *Introduction to Electronics*)
 MSCI 301 *Materials Science*
 MSCI 303 *Materials Science Junior Lab*
 MSCI 311 *Introduction to Design*
 MSCI 401 *Thermodynamics and Transport*

Phenomena in Materials Science
 MSCI 402 *Mechanical Properties of Materials*
 MSCI 404 *Materials Engineering and Design*
 MSCI 406 *Physical Properties of Solids* (or MSCI 415 *Ceramics and Glasses*)
 MSCI 411 *Metallography and Phase Relations* (or MSCI 415 *Ceramics and Glasses*)
 MSCI 500/501 *Materials Science Seminar*
 MSCI 535 *Crystallography and Diffraction*
 MSCI 537 *Materials Science Senior Lab*
 MSCI 594 *Properties of Polymers*

1 course from the following

PHYS 201 *Waves and Optics*
 CHEM 211 *Organic Chemistry*
 CHEM 311 *Physical Chemistry*

Electives

1 approved science elective (at the 200 level or higher)
 1 approved engineering science elective (not MSCI)
 1 approved technical elective

DEGREE REQUIREMENTS FOR MME, MMS, MS, AND PHD IN MECHANICAL ENGINEERING OR MATERIALS SCIENCE AND ENGINEERING

Professional Degree Programs—The professional degrees offered by this department, the Master of Mechanical Engineering (MME) and the Master of Materials Science (MMS), involve a 5th year of specialized study, which is integrated with the four undergraduate years leading to either the BA or the BS degree in the same areas of interest. The professional degree programs are open to students who have shown academic excellence in their undergraduate studies.

For general university requirements, see Graduate Degrees (pages 57–58). For both the MME and MMS degrees, students must complete 30 semester hours of course work. Lists of suggested courses are available from the department. Students should develop a specific plan of study based on their particular interests.

Research Degree Programs—The programs leading to the MS and PhD degrees are open to students who have demonstrated outstanding performance in their undergraduate studies. The granting of a graduate research degree presupposes academic work of superior quality and a demonstrated ability to do original research.

For general university requirements, see Graduate Degrees (pages 57–58). Course requirements for the research degrees vary, depending on the extent of individual undergraduate preparation as well as each student's performance in graduate courses and on qualifying examinations. For both the MS and PhD degrees, students must present a thesis that comprises an original contribution to knowledge and defend it in a public oral examination.

Each graduate student is expected to render research and/or instructional assistance to the department not to exceed 10 hours per week. Graduate student

work assignments will be made by the department chair at the beginning of each semester.

All graduate students (except professional masters students [MME/MMS]) must attend at least 75% of the MEMS seminars. See the MEMS website at <http://mems.rice.edu/graduate/gradregulations.html> for details.

I. REQUIREMENTS FOR THE PROFESSIONAL MASTERS DEGREES (MME AND MMS)

Students are expected to complete 30 semester hours of courses approved by the department (a 1-semester course is usually 3 semester hours credit). Specific courses to be taken depend on each student's field of study. Students must discuss their individual degree plans and programs of study with their advisors. Please see the MEMS department website at <http://mems.rice.edu/graduate/gradregulations.html> for details.

Degree At Entrance	4-year BS	4-year BA
Minimum graduate level semester hours required (course work)	30	30

See pages 14–15 for total semester hours required by Rice University.

II. REQUIREMENTS FOR THE MS DEGREE

Full-time students seeking the MS degree are expected to complete all the requirements for the degree within 2 calendar years following entrance into the program. Continuation in the program beyond this time limit will require special approval of the department.

All entering graduate students pursuing a thesis degree program will be subject to a preliminary evaluation of their candidacy for the highest degree program they intend to pursue. The evaluation will be conducted by the end of the 2nd semester of enrollment in the graduate program in the MEMS department.

Each candidate for the MS degree must complete a thesis demonstrating ability in research of a fundamental nature (analytical or experimental). It is expected that the research will be of sufficient importance and quality that positive results would lead to publication. The examination will be conducted by a committee consisting of at least 3 members. Two, including the committee chair, must be members of the department.

The minimum semester hours of course work (a 1-semester course is usually 3 semester hours credit) required for the MS degree are tabulated below as a function of the degree held on entrance into the program. Research and thesis hours do not count towards these course requirements. In all cases, a student's specific course of study is formulated in consultation with the departmental advisor (thesis director) and must be approved by the department. Please see the MEMS Department website at <http://mems.rice.edu/graduate/gradregulations.html> for details.

Degree At Entrance	5-year	4-year BS	4-year BA
Minimum graduate level semester hours required (course work)	12	24	30

See pages 14–15 for total semester hours required by Rice University.

III. REQUIREMENTS FOR THE PHD DEGREE

Full-time students seeking the PhD degree are expected to complete all the requirements for the degree within 5 calendar years following entrance into the program. Continuation in the program beyond this time limit will require special approval of the department.

All entering graduate students pursuing a thesis degree program will be subject to a preliminary evaluation of their candidacy for the highest degree program they intend to pursue. The evaluation will be conducted by the end of the 2nd semester of enrollment in the graduate program in the MEMS department. Students pursuing a PhD degree in materials science will be examined in 4 areas: 1) thermodynamics and kinetics; 2) structures, crystallography, and diffraction; 3) mechanical properties; and 4) electrical, optical, and magnetic properties.

By the end of the 3rd year of enrollment in the graduate program in the MEMS department, the student must pass an oral qualifying examination.

Each candidate for the PhD must complete a thesis that constitutes an original contribution to scientific knowledge (analytical or experimental). It is expected that the research will be of sufficient importance and quality that positive results would lead to publication. On completion of the thesis, each candidate for the PhD degree must pass a final public oral examination. The examination will be conducted by a committee consisting of at least 3 members. Two, including the committee chair, must be members of the department. One member must be from another department within the university.

The minimum semester hours of course work (a 1-semester course is usually 3 semester hours credit) required are tabulated below as a function of the degree held on entrance into the program. In all cases, a student's course of study is formulated in consultation with the thesis director and must be approved by the department. Please see the MEMS department website at <http://mems.rice.edu/graduate/gradregulations.html> for details.

Degree At Entrance	MS	5-year	BS	BA
Minimum graduate level semester hours required (course work)	24	30	48	54

See pages. 14–15 for total semester hours required by Rice University.

See MECH and MSCI in the Courses of Instruction section.

MEDIEVAL STUDIES

THE SCHOOL OF HUMANITIES

DIRECTOR AND ADVISOR

Jane Chance

PROFESSORS

Jane Chance

Michael Maas

Donald Ray Morrison

Deborah Nelson-Campbell

ASSOCIATE PROFESSORS

Eva Haverkamp

Linda E. Neagley

Nanxiu Qian

Carol E. Quillen

Paula Sanders

Sarah Westphal

ASSISTANT PROFESSORS

David Cook

Scott McGill

LECTURER AND PLAYWRIGHT IN RESIDENCE

E. Douglas Mitchell

DEGREE OFFERED: BA

This interdisciplinary major enables students to compare medieval cultures, noting both their differences and their common traditions, in the period between 500 and 1500 AD. The program combines a broad background in various aspects of medieval culture with more specialized study in a selected field. These fields of emphasis include art history, history, medieval literature (English, French, or Latin), music, philosophy, or religion.

DEGREE REQUIREMENTS FOR BA IN MEDIEVAL STUDIES

For general university requirements, see Graduation Requirements in this publication. Students majoring in medieval studies must complete at least 30 semester hours (10 courses); the minimum for double majors is 30 hours. All majors must complete five (5) of these medieval studies courses at the 300 or 400 level.

Required and recommended courses include the following:

A minimum of 30 semester hours (10 semester courses), of which at least 5 courses must be at the 300/400 level. Double majors must complete a minimum of 24 semester hours.

One course in medieval literature or medieval art or medieval music.

Frequently taught courses:

- MDST 222 *Medieval and Renaissance Eras*
- MDST 310 *Dante*
- MDST 313 *Beowulf*
- MDST 316 *Chaucer*
- MDST 317 *Arthurian Literature*
- MDST 330 *Early Medieval Art*
- MDST 331 *Gothic Art and Architecture in Northern Europe, 1140–1300*
- MDST 332 *Late Gothic Art and Architecture in Northern Europe, 1300–1500*

- MDST 335 *Mapping German Culture: Courtship, Love, and Marriage in the Age of Chivalry*
- MDST 368 *Mythologies*
- MDST 370 *Introduction to Traditional Chinese Poetry*
- MDST 375 *Introduction to Classical Chinese Literature*
- MDST 379 *Women in Chinese Literature*
- MDST 404 *Beginnings in the Language and Literature of France*
- MDST 425 *Courtly Love in Medieval France*
- MDST 429 *Music in the Middle Ages*
- HIST 359/RELI 358 *Humor and Entertainment in Islamic Societies*

One of the following courses

- MDST 201 *History of Philosophy I*
- MDST 257 *Jews and Christians in Medieval Europe*
- MDST 382 *Classical Islamic Culture* or MDST 281 *Pre-Modern Middle East History*

Two semesters of foreign language study, determined in consultation with the medieval studies advisor.

Three courses (at least 2 at the 300 or 400 level) in the student's chosen field of emphasis—one of these may be a directed reading course.

For single majors, 3 additional courses in the medieval period, 1 of which may be a senior thesis (1 semester) on a topic in the student's field of emphasis; for double majors, 1 additional course in the medieval period.

Students work out their programs of study in consultation with the program director. Those contemplating graduate work in medieval studies should study at least one foreign language in some depth (as most graduate schools require a reading knowledge of French and German for the PhD).

Students may select from among the following to fulfill the course requirements for the major in medieval studies.

Please note that not all courses listed below will be offered during the academic year. For a current list of courses that will be offered in fall 2005 and spring 2006, please visit the Medieval Studies website at <http://medieval.rice.edu>.

Classical Studies

- MDST 101 *Elementary Latin I*
- MDST 102 *Elementary Latin II*
- MDST 211 *Intermediate Latin I*
- MDST 212 *Intermediate Latin II*

English

- MDST 300 *Medieval Women Writers*
- MDST 310 *Dante in Translation*
- MDST 311 *Old English*
- MDST 313 *Beowulf*
- MDST 315 *Medieval Culture through Film*
- MDST 316 *Chaucer*
- MDST 317 *Arthurian Literature through Film*
- MDST 318 *J. R. R. Tolkien*
- MDST 320 *Directed Readings in Medieval Studies*

- MDST 368 *Mythologies*

French Studies

- MDST 404 *Beginnings of Language and Literature*
- MDST 410 *The Literary and Historical Image of the Medieval Woman*
- MDST 425 *Courtly Love in Medieval France*
- MDST 436 *Literature and Culture of the Middle Ages*

German Studies

- MDST 126 *Freshman Seminar: The Legend of King Arthur in the Middle Ages*
- MDST 330 *Mapping German Culture: Courtship, Love and Marriage in the Age of Chivalry*
- MDST 402 *Middle High German*

History of Art

- MDST 104 *Case Studies in Ancient and Medieval Architecture*
- MDST 108 *Art in Context: Late Medieval and Renaissance Culture*
- MDST 111 *Introduction to the History of Western Art I: Prehistoric to Gothic*
- MDST 230 *Medieval Art and Literature*
- MDST 330 *Early Medieval Art*
- MDST 331 *Gothic Art and Architecture in Northern Europe, 1140–1300*
- MDST 332 *Late Gothic Art & Architecture in Northern Europe, 1300–1500*
- MDST 431 *Architecture of the Gothic Cathedral from the Middle Ages to the 20th Century*
- MDST 434 *From Beowulf to the Bayeux Tapestry*
- MDST 440 *Jan van Eyck: Problems of Interpretation*
- MDST 451 *Bosch and Bruegel*

History

- MDST 202 *Introduction to Medieval Civilization I: The Early Middle Ages*
- MDST 203 *Introduction to Medieval Civilization II: The High Middle Ages*
- MDST 223 *Medieval Empires*
- MDST 257 *Jews and Christians in Medieval Europe*
- MDST 281 *Pre-Modern Middle East History: The Middle East from the Prophet Muhammad to Sulayman the Magnificent*
- MDST 308 *The World of Late Antiquity*
- MDST 321 *Directed Readings in Medieval History*
- MDST 323 *Medieval Empires* (enriched version)
- MDST 345 *Renaissance Europe*

- MDST 357 *Jews and Christians in Medieval Europe* (enriched version)
- MDST 358 *European Intellectual History from Augustine to Descartes*
- MDST 382 *Classical Islamic Cultures*
- MDST 385 *Christians and Jews in the Medieval Islamic World*
- MDST 438 *Women and Gender in Medieval Islamic Societies*
- MDST 444 *Memory and Commemoration in the Middle Ages*
- MDST 446 *Medieval Women*
- MDST 447 *The Age of the Crusades*
- MDST 488 *Topics in Medieval History*

Linguistics

- MDST 311 *Old English*
- MDST 370 *Introduction to Traditional Chinese Poetry*
- MDST 375 *Introduction to Chinese Literature*
- MDST 379 *Women in Chinese Literature*

Music

- MDST 222 *Medieval and Renaissance Eras*
- MDST 427 *Topics in Early Music*
- MDST 429 *Music of the Middle Ages*
- MDST 456 *Collegium*
- MDST 486 *Illuminated Music Manuscripts*

Philosophy

- MDST 201 *History of Philosophy I*
- MDST 301 *Ancient and Medieval Philosophy*
- MDST 481 *Seminar in Ancient and Medieval Philosophy*

See MDST in the Courses of Instruction section.

MILITARY SCIENCE

CHAIR AND PROFESSOR

Lieutenant Colonel Anthony Landry

ASSISTANT PROFESSORS

Major Tracy Hankins

Lieutenant Colonel (R) Wendell Harris

Master Sergeant Michael Kelley

Master Sergeant Robert Mullins

DEGREES OFFERED: NONE

The goal of the U.S. Army ROTC program is to develop technically competent, physically fit, and highly motivated men and women for positions of responsibility as commissioned officers in the active army, the army reserve, and the National Guard. Upon completion of the curriculum, students will have an understanding of the fundamental concepts and principles of the military as an art and as a science. The leadership and managerial experience gained through ROTC provides great benefit for students in both their civilian endeavors and in their military careers.

DEGREE REQUIREMENTS

Rice does not offer a bachelor's in military science. However, interested students can obtain a degree in any of the other programs offered by Rice. Credit for courses in military science may be obtained by attending courses at the University of Houston. The financial aid available to a ROTC student may be used for Rice courses as well as the University of Houston ROTC courses.

For general university requirements, see Graduation Requirements (pages 14–15). For requirements for a specific degree program, see the pages for that degree program. For more information on the Army ROTC program in particular, contact the military science department at the University of Houston by calling 713-743-3875.

Statutory Authority—General statutory authority for establishment and operation of the ROTC program, including the scholarship program, is contained in Title 10, United States Code, Chapter 103 (Sec. 2102–2111). Specific rules and procedures are found in U.S. Army Regulation 145–1.

Course Credit—ROTC classes may be taken for elective credit toward any degree plan at the University of Houston or Rice University. Freshman- and sophomore-level classes are open to all students, regardless of age or physical condition. *No military obligation is incurred as a result of enrollment in these courses.* Junior- and senior-level courses are more restrictive and do require a military obligation. ROTC scholarship students also incur a military obligation.

Four-Year Program—The 4-year program is divided into 2 courses: the basic course, which is normally attended by students during their freshman- and sophomore years; and the advanced course, attended during the junior and senior years. Advanced course students attend a 6-week paid advanced camp in Fort Lewis, Washington, normally between their junior and senior years.

The Basic Course—The basic course consists of 4 semesters of military science, which include MILI 121, MILI 122, MILI 201, and MILI 202. These freshman- and sophomore-level classes are open to all students without obligation.

The Advanced Course—Students entering the advanced course must enter into a contract to pursue and accept a commission in the active army, the Army Reserve, or the National Guard. To be considered for contracting into the advanced course, the student must be a full-time student in a course of instruction that leads to a degree in a recognized academic field, have a minimum of 2 years of academic work remaining in a curriculum leading to a baccalaureate or advanced degree, be under age 30 when commissioned, and pass a physical and medical examination.

2-Year Program—The 2-year program is designed for students who did not take the basic course but otherwise are eligible to enroll in the advanced course. This program allows students completing their sophomore year to attend a 4-week Leader's Training Course during June and July at Fort Knox, Kentucky, in lieu of taking the 1st 2 years of ROTC. *There is no military obligation for attending Leader's Training Course.* The army provides transportation, room, and board. Students are paid approximately \$500 for the 4-week period.

Laboratory Requirements—A military science laboratory is required for students enrolling in MILI 121, MILI 122, MILI 201, MILI 202, MILI 301, MILI 302, MILI 401, and MILI 402. This laboratory provides hands-on opportunities for marksmanship training, rappelling, drill and ceremonies, communications training, and other activities.

Veterans—Veterans who have served on active duty or in the Army Reserve or National Guard also are eligible for the ROTC program. Although veterans are not required to take the basic course, they are encouraged to do so. All students, including veterans, must have a minimum of 54 credit hours prior to enrolling in the advanced course.

National Guard and Army Reserve Members—Students enrolled in ROTC may also be members of the Army Reserve/National Guard. Through the Simultaneous Membership Program (SMP), those students enrolled in the advanced course will be placed in a leadership position as a cadet and will receive pay and entitlements from the National Guard or Army Reserve in the pay grade of Sergeant (E-5).

Financial Assistance—The United States Army offers, on a competitive nationwide basis, 4-, 3-, and 2-year scholarships. The scholarships cover up to \$20,000 of tuition. Recipients also receive benefits for educational fees (to include lab fees), a book allowance, and a subsistence allowance ranging from \$300 to \$500 per month. Applicants must be U.S. citizens and must be under age 27 on the anticipated graduation date. Applications are available from the military science department. Veteran applicants can extend the age limit up to a maximum of 3 years, based on prior active duty service.

Other Financial Aid—All students enrolled in the advanced course will receive a subsistence allowance of \$400 per month junior year and \$500 per month senior year. For more information, contact the military science department. GI Bill recipients still retain benefits.

Tuition—Members of the Army or the Army Reserve, National Guard, Texas State Guard, or other reserve forces may be exempted from the nonresident tuition fee and other fees and charges.

Special Training—Basic- and advanced-course students may volunteer for and may attend the U.S. Army Airborne and Air Assault courses during June, July,

and August. Cadet Troop Leadership Training positions also are available to Advanced-course cadets during the summer months.

Miscellaneous—All participating cadets are eligible for our internal scholarships provided by our alumni and sponsors of the program.

The Corps of Cadets sponsors an annual military ball in addition to other social events throughout the school year. The Department of Military Science sponsors extracurricular activities such as the University of Houston Color Guard and the Ranger Challenge Team.

Minor in Military Science—To qualify for a minor in military science, students must complete a minimum of 18 semester hours of course work, of which 12 must be advanced. Nine semester hours must be completed in residence, of which 6 must be advanced. Students also must attend advanced camp. Students must attain a 3.0 grade point average or higher in military science courses attempted at this university. Students may receive credit for 100- and 200-level courses based on prior military training, completion of ROTC Basic Camp, completion of JROTC training, or completion of 1 year at a service academy.

See MILI in the Courses of Instruction section (these are University of Houston listings).

MUSIC

THE SHEPHERD SCHOOL OF MUSIC

DEAN

Robert Yekovich

PROFESSORS

Robert Atherholt

Richard Bado

Richard Brown

Leone Buyse

Marcia J. Citron

James Dunham

Paul V. H. Ellison

Norman Fischer

Kenneth Goldsmith

Arthur Gottschalk

Lynn Harrell

Clyde Holloway

Thomas I. Jaber

Benjamin C. Kamins

Kathleen Kaun

Stephen King

Richard Lavenda

Cho-Liang Lin

Sergiu Luca

Susanne Mentzer

Jon Kimura Parker

Larry Rachleff

Robert Roux

Marie Speziale

William VerMeulen

Michael Webster

Kathleen Winkler

ASSOCIATE PROFESSORS

Walter B. Bailey

Anthony K. Brandt

David Ferris

Pierre Jalbert

David E. Kirk

Thomas LeGrand

Paula Page

Timothy Pitts

Brinton Smith

David L. Waters

ASSISTANT PROFESSORS

Karim Al-Zand

Gregory Barnett

Shih-Hui Chen

Peter V. Loewen

Kurt Stallmann

INSTRUCTOR

Joan DerHovespian

ARTIST TEACHERS

Brian Connelly

Jan de Chambrier

Debra Dickinson

Jeanne Kierman Fischer

Michael Franciosi

Christopher French

Hans Graf

Sohyoung Park

Janet Rarick

C. Dean Shank Jr.

LECTURERS

Nancy Gisbrecht Bailey

Rachel Buchman

Susan Dunn

Phillip Kloeckner

Virginia Nance

Sylvia Ouellette

Robert Simpson

ADJUNCT PROFESSORS

David B. Rosenfield

C. Richard Stasney

ADJUNCT LECTURER

Pieter A. Visser

DEGREES OFFERED: BA, BMUS, BMUS/MMUS, MMUS, DMA

At the undergraduate level, the Shepherd School of Music offers both professional training and a broad liberal arts curriculum. Degree programs include a BA degree in music and a BMus degree in performance, composition, music history, and music theory. Acceptance into a 5-year honors program leads to the simultaneous awarding of the BMus and MMus degrees.

At the graduate level, the school offers professional music training for qualified students who concentrate on music composition, performance, or research that is supported by lab or performing ensembles. This training includes theory

and history seminars. Advanced degree programs include a MMus degree in composition, choral and instrumental conducting, historical musicology, performance, and music theory and a DMA degree in composition and selected areas of performance.

REQUIREMENTS FOR ALL MUSIC MAJORS

For general university requirements, see Graduation Requirements (pages 14–15). All students majoring in music must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees. Students in the BA program who wish to continue taking private lessons beyond the required four semesters of instrumental or vocal study must obtain permission from the dean of the Shepherd School.

Examinations—At the end of each semester, a jury examination in applied music is given over the material studied during the semester. All degree candidates except BA students must demonstrate keyboard proficiency by examination. If students have little or no knowledge of the keyboard, they should enroll in secondary piano at the beginning of their first semester and continue study until they can meet the examination requirements.

Performance—Students are expected to perform frequently during their residence at Rice. Performance majors must present at least 2 full recitals. Composition and conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all music majors must participate in the school's conducted ensembles as assigned.

DEGREE REQUIREMENTS FOR BA IN MUSIC, BMUS, AND BMUS/MMUS

Admission—An audition, either in person or on tape, is required of each undergraduate applicant. The Shepherd School faculty and the university's Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities also must provide an audition, personal or taped, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

BA and BMus Program—For general university requirements, see Graduation Requirements (pages 14–15).

For either bachelor's degree, students majoring in music must have a total of at least 120 semester hours at graduation. The complete curriculum for each major in music is available in the *Shepherd School Student Handbook* or in the undergraduate music office on the second floor of Alice Pratt Brown Hall. While the number of required hours vary according to major area, all music students must take the following core courses (those in the BA program are not required to take MUSI 331, 332, and 431).

- *Music Theory*: MUSI 211, 212, 311, 312, and a theory elective chosen from MUSI 416, 512, 513, or 613.
- *Music History*: MUSI 222, 321, 322, and 421.

- *Aural Skills and Performance Techniques*: MUSI 231, 232, 331, 332, and 431.

BMus/MMus Honors Program—The same general university requirements apply, but students seeking the combined BMus/MMus degree must complete a total of at least 150 semester hours by graduation. The number of required hours varies according to major area.

The 1st 5 semesters of course work in this program parallel the core curriculum of the bachelor's degrees. The sixth semester is a transitional semester during which students qualify for admission to the combined program. For further information, including application procedures, see the *Shepherd School Student Handbook*.

DEGREE REQUIREMENTS FOR MMUS AND DMA IN MUSIC

Admission—For instrumental, voice, and conducting applicants, an audition is required. Composition majors must submit portfolios, and musicology and theory majors must provide samples of their written work. The Graduate Record Examination (GRE) is required of graduate applicants in musicology and theory. Musicology applicants also must complete the advanced music tests.

Requirements—For general university requirements, see Graduate Degrees (pages 57–58). For the MMus degree, candidates must complete at least 2 semesters of full-time study at Rice. Semester hour minimums for the MMus degree vary according to major area. For the DMA, candidates must complete a total of 90 hours beyond the bachelor's degree, attending Rice full time for at least 4 semesters after receiving their MMus degree.

Thesis—A thesis is required of both music history and music theory majors. In lieu of a thesis, composition majors must produce an original work of extended scope, and conducting majors must present an extended composition or project.

ACADEMIC STANDARDS

Curriculum and Degree Requirements—Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy—All music students must achieve at least a B– in course work in their major applied area. Students who receive a C+ or lower in their major applied area are placed on music probation. Music probation signifies that the work of the student has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. While on probation, they may not be absent from class except for extraordinary reasons, and they may not represent the school in any public function that is not directly part of a degree program. After receiving a second C+ or lower in their major area, whether in consecutive semesters or not, students are discontinued as music majors.

Leaves of Absence and Voluntary Withdrawal—Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the 1st day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

OTHER MUSICAL OPPORTUNITIES

For Nonmajors—Students who are not music majors may take the following courses designed for the general student (other music courses require the permission of the instructor and the approval of the dean of the Shepherd School).

- MUSI 111 *Musical Lives*
- MUSI 112 *Great Literature in Great Music*
- MUSI 117/118 *Fundamentals of Music I and II*
- MUSI 317/318 *Theory for Nonmajors I and II*
- MUSI 327/328 *Music Literature for Nonmajors I and II*
- MUSI 334/335 *Campanile Orchestra and Rice Chorale*
- MUSI 141–197 for individual instruction in all instruments
- MUSI 340 *Concert Band*
- MUSI 342 *Jazz Ensemble*
- MUSI 345 *Jazz Improvisation*
- MUSI 415 *Band Arranging*

Lectures and Performances—A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Texas Opera Theater, Houston Ballet, Houston Oratorio Society, Da Camera, Context, and Houston Friends of Music, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

See MUSI in the Courses of Instruction section.

NANOSCALE PHYSICS

THE WIESS SCHOOL OF NATURAL SCIENCES

DIRECTOR

F. Barry Dunning

PROFESSORS

Andrew R. Barron

Neal F. Lane

ASSOCIATE PROFESSOR

Vicki L. Colvin

ASSISTANT PROFESSORS

Jason H. Hafner

Thomas C. Killian

Douglas A. Natelson

Frank R. Toffoletto

FACULTY FELLOW

Kristen M. Kulinowski

DEGREES OFFERED: MS

Rice University introduced a professional master's degree in nanoscale physics in fall 2002. This program combines a strong component in quantum theory, which governs the behavior of systems at the nanoscale, with the study of practical nano- and mesoscale devices. The program provides the student with the knowledge required to successfully navigate the emerging field of nanotechnology. New courses cover cutting-edge areas such as quantum behavior of nanostructures, quantum nanotechnology, nanoscale imaging, and the fabrication of nanostructures. In addition, a year-long course in methods of experimental physics ensures that students obtain the advanced practical skills valuable to industry.

The nanoscale physics degree is 1 of 3 tracks in the new Professional Master's Program at Rice housed in the Wiess School of Natural Sciences. These master's degrees are designed for students seeking to gain further scientific core expertise coupled with enhanced management and communication skills. These degrees instill a level of scholastic proficiency that exceeds that of the bachelor's level and creates the cross-functional aptitudes needed in modern industry. This will allow students to move more easily into management careers in consulting or research and development, design, and marketing of new science-based products.

DEGREE REQUIREMENTS FOR THE MS IN NANOSCALE PHYSICS

In addition to the core science courses, students are required to complete a 3- to 6-month internship and take a set of cohort courses focusing on business and communication. At the conclusion of the internship, students must present a summary of the internship project in both oral and written form as part of the Professional Master's Seminar.

Part-time students who already work in their area of study may fulfill the internship requirement by working on an approved project with their current employer. Certain course requirements may be waived based upon prior graduate coursework or industrial experience. For general university requirements for graduate study, see pages 64–70 and see also Professional Degrees, page 58.

ADMISSION

Admission to graduate study in nanoscale physics is open to qualified students holding a bachelor's degree in physics, electrical engineering, or a related field that includes intermediate level work in mathematics, electrodynamics, and quantum physics. Department faculty evaluate the previous academic record and credentials of each applicant individually.

Science core courses:

PHYS 533 *Nanostructures and Nanotechnology I* (F)

PHYS 539 *Characterization and Fabrication at the Nanoscale* (F)

PHYS 537 *Methods of Experimental Physics I* (F)

PHYS 534 *Nanostructures and Nanotechnology II* (S)

PHYS 538 *Methods of Experimental Physics II* (S)

PHYS 416 *Computational Physics* (S)

Cohort courses:

NSCI 501 *Professional Master's Seminar* (F, S)
[required for 2 semesters]

NSCI 511 *Policy and Ethics* (S)

NSCI 512 *Professional Master's Project* (F, S)

NSCI 610 *Management in Science and Engineering* (F)

NSCI 625 *New Venture Creation for Science and Engineering*

INTERNSHIP

An internship may be conducted under the guidance of a host company, government agency, or national laboratory. A summary of the internship project is required in both oral and written form as part of the Professional Master's Project.

ELECTIVE COURSES

Note: Each of these electives is not offered every year, and some courses may have prerequisites or require instructor permission.

Students will choose four elective courses, 2 of which must be science or engineering 500 level or above. Recommended courses include, but are not limited to, the following:

CAAM 378 *Introduction to Operations Research* (F)

CENG 630 *Chemical Engineering of Nanostructured Materials* (S)

CHEM 533 *Nanoscale Chemistry*

CHEM 547 *Supramolecular Chemistry* (F)

CHEM 630 *Molecular Spectroscopy and Group Theory* (F)

ELEC 561 *Topics in Semiconductor Manufacturing* (S)

ELEC 562 *Submicrometer and Nanometer Device Technology* (S)

ELEC 565 *Topics in Semiconductor Nanostructures* (F)

ELEC 568 *Laser Spectroscopy* (F)

ELEC 603 *Nano-optics and Nanophotonics* (F)

ELEC 685 *Fundamentals of Medical Imaging* (F)

ENGI 303 *Engineering Economics and Management* (S)

MGMT 617 *Managerial Decision Making* (S)

MGMT 636 *Systems Analysis and Database Design*

MGMT 661 *International Business Law* (F)

MGMT 674 *Production and Operations Management* (F)

MGMT 676 *Project Management/Project Finance* (S)

MGMT 721 *General Business Law* (S)

MGMT 751 *New Venture Creation in Science and Engineering* (S)

PHYS 569 *Ultrafast Optical Phenomena* (S)

**PROFESSIONAL SCIENCE MASTER'S 5TH YEAR DEGREE
OPTION FOR RICE UNDERGRADUATES**

Rice students have an option to achieve the MS in nanoscale physics by adding an additional 5th year to the 4 undergraduate years of science studies. Advanced Rice students in good standing apply during their junior year, then start taking required core courses of the nanoscale physics program during their senior year. A plan of study based on their particular focus area will need to be approved by the track director and the PSM coordinator.

NAVAL SCIENCE

CHAIR

Larry J. Watson

ASSOCIATE PROFESSOR

Antonio J. Cerrillo

ASSISTANT PROFESSORS

Domenic P. Carlucci

Mark Schouten

Jonathan Lentz

DEGREES OFFERED: NONE

Students enroll in the Navy Reserve Officers' Training Corps (ROTC) program as scholarship or nonscholarship students. Sophomores may apply for the optional 2-year program. The Department of Naval Science is administered by a senior U.S. Navy officer, assisted by officers and enlisted personnel of the U.S. Navy and Marine Corps.

DEGREE REQUIREMENTS

Rice does not offer a bachelor's in naval science. However, interested students can obtain a degree in any of the other programs offered by Rice. Credit for courses in naval science may be obtained. Financial aid may be available to a Navy ROTC student.

For university requirements for a specific degree, see Graduation Requirements and the section pertaining to that degree. Program requirements differ slightly depending on the student's scholarship status.

Scholarship Navy ROTC students are appointed midshipmen, U.S. Naval Reserve, on a nationwide competitive basis. They receive stipend pay of \$250–\$400 per month for a maximum of 4 academic years, with all tuition, fees, and equipment paid for by the Navy. Additionally, students receive \$375 per semester for books. Midshipmen must complete the prescribed naval science courses and participate in drills and 3 summer cruises. After graduating with a bachelor's degree, they accept a commission as an ensign in the U.S. Navy or as a 2nd lieutenant in the U.S. Marine Corps.

Nonscholarship Navy ROTC students enter into a mutual contract with the Secretary of the Navy to take naval science courses and to participate in drills and 1 summer training cruise. On a competitive basis, students may apply to continue in the Navy ROTC program through their junior and senior years. The U.S. Navy pays these continuing students \$300–\$400 per month during their junior and senior years, offering them a commission in the U.S. Navy or Marine Corps upon graduation. The program chair may recommend nonscholarship students, on a local competitive basis, for scholarship status.

2-Year Program Option—In their sophomore year (junior year for 5-year Rice students), students may apply for the 2-year Navy ROTC program, competing nationwide for available scholarships. If selected, they attend the 6-week Naval Science Institute (NSI) at Newport, Rhode Island, during July and August. NSI provides students with course mate-

rial and training normally covered during the 1st 2 years of the regular Navy ROTC program. Successful completion of NSI qualifies students for enrollment in the advanced Navy ROTC program on an equal footing with the 4-year students. Usually about 15 percent of the nonscholarship students finishing NSI are offered 2-year Navy ROTC scholarships. Additional scholarships occasionally may be awarded to others upon the recommendation of the program chair.

U.S. Marine Corps Option Program—Navy ROTC students, either scholarship or nonscholarship, may apply for the U.S. Marine Corps program. Students selected for that program are referred to as “Marine Corps option students” and complete Evolution of Warfare and Amphibious Operations classes during their junior and senior years.

See NAVA in the Courses of Instruction section.

NEUROSCIENCES

THE SCHOOL OF SOCIAL SCIENCES

DIRECTOR

TBN

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Don H. Johnson

Randi C. Martin

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Devika Subramanian

Moshe Y. Vardi

Rick K. Wilson

PROFESSOR EMERITUS

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ASSOCIATE PROFESSOR

Tony Ro

ASSISTANT PROFESSORS

Darcy Burgund

Denise Chen

Mary E. Lane

Jessica M. Logan

Robert Raphael

Tatiana I. Schnur

DEGREES OFFERED: NONE

In the 1999–2000 academic year, Rice University began offering a new set of courses in the area of neuroscience to supplement a set of courses already offered by various departments in closely allied areas. These courses, which carry the designation NEUR, are offered in part by faculty associated with the Division of Neurosciences at Baylor College of Medicine, in part by faculty at the University of Texas Medical School at Houston, and in part by faculty at Rice in several different departments (including biochemistry and cell biology, computer science, electrical and computer engineering, linguistics, and psychology.) They are intended primarily for Rice graduate students but, with permission, are available to advanced undergraduates. Some of these classes are taught at the nearby Texas Medical Center campus and some are taught according to Baylor's or UT's academic calendars, which are different from Rice's. For further information on what courses are available and for instructions on how to apply to enter these classes, consult Rice's neuroscience website at <http://www.ruf.rice.edu/~neurosci/>.

See NEUR in the Courses of Instruction section.

PHILOSOPHY

THE SCHOOL OF HUMANITIES

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Mark Kulstad

Donald Ray Morrison

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Hanoch Sheinman

ADJUNCT PROFESSOR

Laurence McCullough

VISITING PROFESSOR

Pierre Pellegrin

POSTDOCTORAL FELLOW

Pei Koay

DEGREES OFFERED: BA, MA, PHD

Philosophy is best described as the attempt to think clearly and deeply about the fundamental questions that arise for us as human beings. What is the nature of knowledge (epistemology)? How are we to distinguish between what really is and what only seems to be (metaphysics)? What is the right thing to do (ethics)? Is there any meaning to existence? To study the history of philosophy is to study the best, most enduring answers that have been given to these questions in the past. Because every other field of study adopts some stance toward these questions, though often implicitly, philosophical issues arise in the natural and social sciences, history, linguistics, literature, art, and so on. Special courses in philosophy deal with each of these. Characteristic of philosophy are commitments to the construction and evaluation of arguments, to expressing thoughts clearly and precisely, and to defending one's ideas and evaluating the ideas of others. The study of philosophy thus provides resources for critical participation in all realms of human endeavor.

The graduate program trains students to teach and pursue research in the main areas of department concentration: ethics (especially bioethics) and social and political philosophy, history of philosophy, continental philosophy, and core portions of contemporary analytic philosophy.

DEGREE REQUIREMENTS FOR BA IN PHILOSOPHY

For general university requirements, see Graduation Requirements (pages 14–15). Students majoring in philosophy must complete 30 semester hours (10 3-hour departmental courses); at least 18 hours (6 courses) must be at the 300 level or above. A double major must complete 27 hours (9 3-hour departmental courses) with all other requirements remaining the same.

Majors must take the following courses:

- PHIL 201 *History of Philosophy I*
- PHIL 202 *History of Philosophy II*
- Either PHIL 106 *Logic* or PHIL 305 *Mathematical Logic*

In addition, majors must take at least 1 course from each of the following area lists:

HistoryPHIL 301 *Ancient and Medieval Philosophy*PHIL 302 *Modern Philosophy*PHIL 308 *Continental Philosophy*PHIL 321 *Kant and 19th Century Philosophy***Core Analytic**PHIL 303 *Theory of Knowledge*PHIL 304 *Metaphysics*PHIL 312 *Philosophy of Mind*PHIL 313 *Philosophy of Science*PHIL 353 *Philosophy of Language***Value Theory**PHIL 306 *Ethics*PHIL 307 *Social & Political Philosophy*PHIL 326 *History of Ethics*PHIL 327 *History of Social & Political Philosophy***HONORS PROGRAM IN PHILOSOPHY:**

Qualified majors may apply before their senior year for directed honors research writing during both semesters of the senior year. Each semester will require 3 credit hours; these 6 hours are in addition to the course hours required for the major.

To qualify for the program, students will be required to have an approved research proposal and the agreement of a faculty member to serve as advisor for that project. Applicants also normally will be required to have at least a 3.5 GPA in philosophy courses and to have completed at least 2 upper level courses in the distribution area of the proposed research. (See the major requirements for the definition of the distribution areas.) Applications should be submitted to the undergraduate advisor (UGA) and will be evaluated by the department.

Students who are considering applying to the honors program should consult the UGA and potential advisors as early as possible. Normally students will apply before preregistration in the second semester of their junior year and will spend time during the following summer reading from a list they have developed with their advisor. The thesis normally will be between 7,500 and 15,000 words (approximately 30–60 pages) in length. Students will enroll in either PHIL 411 and 412 or HONS 470 and 471. Students who are accepted by the Rice University Scholars Program will be granted departmental honors for their work in that program if they meet the requirements in this statement. Note that acceptance into the departmental honors program is a separate process from acceptance in RUSP, as is the evaluation for departmental honors.

The thesis must be completed by April 1. Once the advisor and another reader chosen by the department have read and evaluated the thesis, the final decision on honors will be made by the entire faculty. Completion of the major with at least a 3.5 GPA in all philosophy courses is required for departmental honors. The grade for the paper applies to the full 6 hours. Students who miss the thesis deadline but meet the university deadline for the semester will receive a grade and credit for completed work, but no honors. Students whose thesis is not awarded honors will receive a grade and credit for completed work, but no honors.

DEGREE REQUIREMENTS FOR MA AND PHD IN PHILOSOPHY

For general university requirements, see Graduate Degrees (pages 57–58). Students have the additional option of applying for a doctoral program specializing in bioethics (see below).

For the **MA** in philosophy, candidates must:

- Complete with high standing at least 30 semester hours in advanced courses approved by the department
- Complete a written thesis on a subject approved by the department
- Perform satisfactorily on a final oral examination (not limited to the student's special field of study)

For the **PhD** in philosophy, candidates must:

- Complete with high standing 42 hours of course work approved by the department (including logic)
- Demonstrate competence in logic
- Pass a qualifying examination
- Perform satisfactorily on an oral defense of their thesis proposal
- Complete a written thesis on a subject approved by the department (at least 1 year of thesis research must be spent in residence)
- Perform satisfactorily on a final oral examination (not limited to the student's special field of study)

Bioethics Program—The PhD in philosophy with a specialization in medical ethics is offered in cooperation with the Center for Medical Ethics and Health Policy at Baylor College of Medicine. Applicants to this special program must have enough background in philosophy to complete 2 and a half years of strong general training in philosophy at the graduate level. After completing their general training, students receive instruction in clinical bioethics at Baylor College of Medicine and then write a dissertation drawing on their philosophical and clinical training. Further information about this program is available from the Department of Philosophy.

CONTINENTAL PHILOSOPHY PROGRAM

The PhD program in continental philosophy allows graduate students to take advantage of resource faculty in history, French studies, philosophy, and religious studies, all of whom have done distinguished philosophical work in the Continental tradition. Students master the basic fields of analytic philosophy while doing a substantial amount of their course work with resource faculty. Further information is available from the Department of Philosophy.

See PHIL in the Courses of Instruction section.

PHYSICS AND ASTRONOMY

THE WIESS SCHOOL OF NATURAL SCIENCES

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Marjorie D. Corcoran

Michael W. Deem

Rui-Rui Du

Ian M. Duck

Reginald J. Dufour

Arthur A. Few Jr.

James P. Hannon

Thomas W. Hill

Huey W. Huang

Randall G. Hulet

Neal Lane

Eugene H. Levy

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Hannu E. Miettinen

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ADJUNCT ASSISTANT PROFESSOR

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INSTRUCTORS

Leonard E. Suess

Todd M. Tinsley

SENIOR FACULTY FELLOWS

William J. Llope

Ian A. Smith

Pablo P. Yepes

FACULTY FELLOW

Stanislav Sazykin

DEGREES OFFERED: BA, BS, MST, MS, PHD

The Department of Physics and Astronomy offers undergraduate and graduate programs for a wide range of interests. The bachelor of arts degrees in physics and astronomy are suitable for students who wish to obtain a broad liberal education with a concentration in physical science. The bachelor of science degrees in physics, astrophysics, and chemical physics provide preparation for employment or further study in physics and related fields. Students in the professional nonthesis, MST program obtain training in science teaching. Research facilities and thesis supervision are available for MS and PhD students

in atomic, molecular, and optical physics; biophysics; condensed matter and surface physics; earth systems science; nuclear and particle physics; observational astronomy; solar system physics; space plasma physics; and theoretical physics and astrophysics.

UNDERGRADUATE DEGREE REQUIREMENTS

For general university requirements, see Graduation Requirements (pages 14–15). Major requirements consist of a common core of basic physics and mathematics courses, with additional course work specific to each degree program. Students may obtain credit for some courses by advanced placement, and the department's undergraduate committee can modify requirements to meet the needs of students with special backgrounds.

All physics majors must complete the following courses:

PHYS 101 or 111 *Mechanics (with Lab)*
 PHYS 102 or 112 *Electricity and Magnetism (with Lab)*
 PHYS 201 *Waves and Optics*
 PHYS 202 *Modern Physics*
 PHYS 231 *Elementary Physics Laboratory II*

Additional courses for the BS degree in physics:

PHYS 302 *Intermediate Electrodynamics*
 PHYS 311/312 *Introduction to Quantum Physics I and II*
 PHYS 331/ 332 *Junior Physics Laboratory I and II*
 PHYS 411 *Introduction to Nuclear and Particle Physics*
 PHYS 412 *Solid-state Physics*
 PHYS 425 *Statistical and Thermal Physics*
 PHYS 491/492 *Undergraduate Research*

Additional courses for the BS degree in physics with option in applied physics:

PHYS 302 *Intermediate Electrodynamics* or ELEC 306 *Electromagnetic Fields and Devices*
 PHYS 311 *Introduction to Quantum Physics I*
 PHYS 312 *Introduction to Quantum Physics II* or ELEC 361 *Electronic Materials and Quantum Devices*
 2 of: PHYS 331/332 *Junior Physics Laboratory I and II*, ELEC 327 *Digital Logic Design Laboratory*, ELEC 342 *Electronic Circuits*, and ELEC 465 *Physical Electronics Practicum*
 PHYS 412 *Solid-state Physics* or approved substitute in applied physics
 PHYS 425 *Statistical and Thermal Physics*

PHYS 301 *Intermediate Mechanics*
 MATH 101/102 *Single Variable Calculus I and II*
 MATH 211 *Ordinary Differential Equations and Linear Algebra*
 MATH 212 *Multivariable Calculus*
 (MATH 221/222 *Honors Calculus III and IV* may substitute for MATH 211/ MATH 212)

PHYS 493/494 *Undergraduate Research Seminar*

(The undergraduate research course and seminar must be taken concurrently.)

MATH 381 *Introduction to Partial Differential Equations* and MATH 382 *Complex Analysis* or CAAM 335 *Matrix Analysis* and CAAM 336 *Differential Equations in Science and Engineering*

CHEM 121/122 *General Chemistry with Laboratory*
 or CHEM 151/152 *Honors Chemistry with Laboratory*

PHYS 491/492 *Undergraduate Research*

PHYS 493/494 *Undergraduate Research Seminar*

(The undergraduate research course and seminar must be taken concurrently.)

ELEC 242 *Fundamentals of Electrical Engineering II* or ELEC 243 *Introduction to Electronics*

ELEC 305 *Introduction to Physical Electronics*
 MATH 381 *Introduction to Partial Differential Equations*
 or CAAM 336 *Differential Equations in Science and Engineering*

CHEM 121/122 *General Chemistry with Laboratory*
 or CHEM 151/152 *Honors Chemistry with Laboratory*

Additional courses for the BS degree in physics with option in biophysics:

PHYS 302 *Intermediate Electrodynamics*
 PHYS 311/312 *Introduction to Quantum Physics I and II*
 PHYS 425 *Statistical and Thermal Physics*
 BIOS 201/202 *Introductory Biology*

Additional courses for BS degree in physics with option in computational physics:

PHYS 302 *Intermediate Electrodynamics*
 PHYS 311/312 *Introduction to Quantum Physics I and II*
 PHYS 416 *Computational Physics*
 PHYS 425 *Statistical and Thermal Physics*
 PHYS 491/492 *Undergraduate Research*
 PHYS 493/494 *Undergraduate Research Seminar*

(The undergraduate research course and seminar must be taken concurrently.)

MATH 381 *Introduction to Partial Differential Equations* and MATH 382 *Complex Analysis*

Additional courses for the BS degree in astrophysics:

PHYS 302 *Intermediate Electrodynamics*
 PHYS 311 *Introduction to Quantum Physics I*
 PHYS 425 *Statistical and Thermal Physics*
 ASTR 230 *Astronomy Laboratory*
 ASTR 350/360 *Introduction to Astrophysics—Stars, Galaxies, and Cosmology*
 3 courses from: ASTR 450 *Experimental Space Science*, ASTR 451 *Solar and Stellar Astrophysics*, ASTR 452 *Galaxies and Cosmology*, ASTR 470 *Solar System Physics*,
 PHYS 312 *Introduction to Quantum Physics II*,
 PHYS 480 *Introduction to Plasma Physics*

Additional courses for the BA degree in physics:

PHYS 302 *Intermediate Electrodynamics*
 PHYS 311 *Introduction to Quantum Physics I*
 PHYS 331 *Junior Physics Laboratory I*
 PHYS 425 *Statistical and Thermal Physics*

BIOS 301 *Biochemistry*

CHEM 121/122 *General Chemistry with Laboratory*
 or CHEM 151/152 *Honors Chemistry with Laboratory*

CHEM 211/212 *Organic Chemistry*

CHEM 215 *Organic Chemistry Laboratory*

or CAAM 335 *Matrix Analysis* and CAAM 336 *Differential Equations in Science and Engineering*

CAAM 210 *Introduction to Engineering Computation*

CAAM 353 *Computational Numerical Analysis*

CAAM 420 *Computational Science I*

1 of: CAAM 452 *Numerical Methods for Partial Differential Equations*, CAAM 453 *Numerical Analysis*, CAAM 520 *Computational Science II*

CHEM 121 *General Chemistry with Laboratory*
 or CHEM 151 *Honors Chemistry with Laboratory*

PHYS 491/492 *Undergraduate Research*
 PHYS 493/494 *Undergraduate Research Seminar*

(The undergraduate research course and seminar must be taken concurrently.)

NSCI 230 *Computation in Natural Science* or
 CAAM 210 *Introduction to Engineering Computation*

CAAM 336 *Differential Equations in Science and Engineering*

CHEM 121 *General Chemistry with Laboratory*

1 additional PHYS or ASTR course (3 credit hours) at 400 level

NSCI 230 *Computation in Natural Science* or CAAM 210 *Introduction to Engineering Computation* or 1 MATH or CAAM course (3 credit hours) at or above 300 level

Additional courses for the BA degree in astronomy:

PHYS 302 *Intermediate Electrodynamics*
 1 of: PHYS 331 *Junior Physics Laboratory I*,
 NSCI 230 *Computation in Natural Science*
 or CAAM 210 *Introduction to Engineering*
Computation
 PHYS 425 *Statistical and Thermal Physics*
 or CHEM 311 *Physical Chemistry*

Additional courses for the BS degree in chemical physics:

CHEM 121/122 *General Chemistry* or
 CHEM 151/152 *Honors Chemistry*
with Laboratory
 CHEM 211 *Organic Chemistry*
 CHEM 212 *Organic Chemistry*
 or CHEM 360 *Inorganic Chemistry*
 CHEM 311/312 *Physical Chemistry*
 PHYS 302 *Intermediate Electrodynamics*
 2 of: PHYS 311 or 312 *Introduction to*
Quantum Physics I or II, CHEM 415 *Chemical*
Kinetics and Dynamics, and CHEM 430
Quantum Chemistry
 6 credit hours from: CHEM 215 *Organic Chem-*
istry Laboratory, CHEM 351 or 352
Introductory Module in Experimental Chemistry,

ASTR 100 *Exploring the Cosmos*
 ASTR 230 *Astronomy Laboratory*
 ASTR 350/360 *Introduction to Astrophysics—*
Stars, Galaxies, and Cosmology
 ASTR 470 *Solar System Physics*
 1 of: ASTR 430 *Teaching Astronomy*
Laboratory, ASTR 450 *Experimental Space*
Science, or PHYS 443 *Atmospheric Science*

CHEM 373–391, CHEM 435 *Methods of Compu-*
tational Quantum Chemistry, and PHYS 331 or
 332 *Junior Physics Laboratory I or II*; up to 2
 hours of CHEM 491 *Research for Undergradu-*
ates or PHYS 491/492 *Undergraduate Research*
 may be counted toward this requirement.

6 credit hours from: NSCI 230 *Computation in*
Natural Science, CAAM 210, *Introduction to*
Engineering Computation, and MATH, or CAAM
 courses at or above 300 level

REQUIREMENTS FOR ADVANCED DEGREES

For general university requirements, see Graduate Degrees (pages 57–58). More detailed information on courses and requirements is available from the Department of Physics and Astronomy.

The master of science teaching requires 30 credit hours of approved course work.

The master of science is a research degree, normally undertaken as the first stage of doctoral study. The MS requires at least 30 credit hours of approved graduate-level studies, including a thesis performed under the direction of a departmental faculty member.

To be eligible for the PhD degree, graduate students must demonstrate to the department their ability to engage in advanced research. This normally is accomplished by successfully completing the work for the MS. Students also must complete 60 credit hours of approved graduate-level study at Rice and produce a research thesis under the direction of a departmental faculty member. At least two years of graduate study are required for the PhD.

See ASTR and PHYS in the Courses of Instruction section.

POLICY STUDIES

THE SCHOOL OF SOCIAL SCIENCES

DIRECTOR

Donald Ostdiek

DEGREE OFFERED: BA

This interdisciplinary major focuses on policy issues that are of public interest. Students in policy studies evaluate and analyze both the determinants and the effects of policy decisions, gaining an understanding of the policy-making process and acquiring an intellectual base for policy-making skills. The course of study addresses theoretical issues as well as applied and prescriptive policy questions.

Students may take policy studies *only as a 2nd major*. It complements majors in any university department. For instance, engineering or science majors who are contemplating careers in business or government can investigate how technical innovations or regulations are adopted and implemented as matters of public policy, and humanities majors can explore career options where language skills are particularly valuable.

Students are encouraged to investigate research opportunities with Rice faculty. Students also may elect to participate in the Washington Semester Program at American University, which includes both course work and an internship in the federal government. See the policy studies director for more information.

DEGREE REQUIREMENTS FOR BA IN POLICY STUDIES

For general university requirements, see Graduation Requirements (pages 14–15). Students may take the policy studies major only as a 2nd major (their 1st major cannot also be in an interdepartmental program). The major contains 11 courses divided into the following elements: a basic curriculum, an area curriculum, and a research requirement.

The policy studies basic curriculum introduces students to the basic concepts and tools needed to understand and study policy, regardless of the policy area on which they choose to focus. The 4 courses ensure that all policy studies majors have a common professional vocabulary and conceptual frame of reference. The policy studies area curriculum provides specialized training that builds on students' work in the basic curriculum.

Students are required to take 6 courses from 1 of the following areas of specialization:

- Environmental policy
- Government policy and management
- Healthcare management
- International affairs
- Law and justice
- Business policy and management
- Urban and social change

Policy studies students also must engage in a research project in their area of interest. In consultation with the policy studies director, each student must

select a research seminar or complete an approved research project through independent study or other credit. The Policy Studies Research Seminar (SOSC 400) also counts for this requirement.

4 Basic Curriculum Courses

POLI 338/SOSC 301 *Policy Analysis*

ECON 211 or 212 *Principles of Economics I or II*

POLI 337 *Public Policy and Bureaucracy*

1 advanced analysis or methods course approved by the policy studies director

6 Area Curriculum Courses

6 courses from 1 of the following

7 groups:

1. Environmental Policy (Choose 6)

ECON 480 *Environmental and Energy Economics I*

POLI 331 *Environmental Politics and Policy*

SOCI 367 *Environmental Sociology*

ENVI 306 *Global Environmental Law and Sustainable Development*

ENVI 406 *Introduction to Environmental Law*

HIST 330 *U.S. Environmental History*

ARCH 313 *Sustainable Architecture*

ANTH 468 *Palaeoclimate and Human Response*

BIOS 322 *Global Ecosystem Dynamics*

BIOS 324 *Wetland Ecosystems*

BIOS 325 *Ecology*

ENGL 478 *Literature and the Environment*

ENVI/HPHS 201 *Introduction to Environmental Systems*

ENVI 445 *Natural Environmental Factors*

GEOL 326 *Environmental Geology*

GEOL 341 *The Oceans*

GEOL 345 *Geology of National Parks*

POLI 336 *Politics of Regulation*

RELI 362 *Environmental Ethics*

SPAC 203 *Atmosphere, Weather, and Climate*

SPAC 443/ENVI 443 *Atmospheric Science*

UNIV 303 *Environmental Problem Solving*

2. Government Policy and Management (Choose 6)

ECON 436 *Government Regulation of Business*

ECON 461 *Urban Economics*

ECON 483 *Public Finance*

POLI 300 *Federalism and Intergovernmental Politics*

POLI 301 *State Politics*

POLI 332/432 *Urban Politics*

POLI 436 *Politics of Regulation*

ANTH 344 *City/Culture*

ECON 438 *Economics of the Law*

ECON 480 *Environmental and Energy Economics I*

POLI 330 *Minority Politics*

POLI 331 *Environmental Politics and Policy*

POLI 335 *Political Environment of Business*

POLI 458 *Property Rights and Privatization*

ENVI 406 *Introduction to Environmental Law*

HIST 468 *Women and the Welfare State*

SOSC 330 *Healthcare Reform in the 50 States*

SOSC 430 *The Shaping of Health Policy in the United States*

SOCI 308 *Houston: The Sociology of a City*

SOCI 331 *Politics and Society in Texas*

SOCI 370 *Sociology of Education*

SOCI 350 *Sociological Approaches to Poverty*

SOCI 399 *Immigration and Public Health*

SOCI 411 *Social Change*

SOCI 441 *Minorities in the Schooling Process*

3. Healthcare Policy and Management (Choose 6)

ANTH 381 *Medical Anthropology*

ANTH 386 *Human Nutrition*

ANTH 388 *Life Cycle: A Biocultural View*

HEAL 212 *Consumer Health*

HEAL 350 *Understanding Cancer*

HEAL 407 *Epidemiology*

HEAL 410 *Program Development in Health Education*

PHIL 315 *Ethics, Medicine, and Public Policy*

RELI 462/463 *Medical Ethics and American Values I and II*

SOSC 330 *Healthcare Reform in the 50 States*

SOSC 420 *Healthcare: Competition and Managed Care*

SOSC 430 *The Shaping of Health Policy in the United States*

SOCI 334 *Sociology of the Family*
 SOCI 345 *Sociology of Medicine*
 SOCI 399 *Immigration and Public Health*
 SPAN 307/308 *The Language of Healthcare*

4. International Affairs (Choose 6)

ECON 420 *International Economics*
 POLI 372 *American Foreign Policy*
 POLI 376 *International Political Economy*
 POLI 378 *The Politics of American National Security Policy*
 POLI 462 *Comparative Public Policy*
 ANTH 360 *Modernity and Social Space*
 ECON 421 *International Finance*
 ECON 430 *Comparative Economic Systems*
 ECON 451 *Political Economy of Latin America*
 HIST 232 *The Making of Modern Africa*
 HIST 353 *The Cold War*
 HIST 394 *War in the Modern World*
 HIST 464 *Foreign Policy of Nixon and Kissinger*
 HIST 469 *U.S.–Latin America Relation*
 POLI 354 *Latin American Politics*
 POLI 355 *Government and Politics of the Middle East*
 POLI 356 *Politics of Latin American Economic Development*
 POLI 360 *West European Democracies*
 POLI 361 *Comparative Post-Communist Systems*
 POLI 373 *International Conflict*
 POLI 376 *International Political Economy*
 POLI 464 *Political Economy of Development*

5. Law and Justice (Choose 6)

ANTH 326 *Anthropology of Law*
 ANTH 419 *Law and Society*
 ECON 438/439 *Economics of the Law I and II*
 ENVI 406 *Introduction to Environmental Law*
 HIST 297/298 *American Legal History I and II*
 PHIL 307 *Social and Political Philosophy*
 PHIL 316 *Philosophy of Law*
 POLI 321 *American Constitutional Law*
 POLI 458 *Property Rights and Privatization*
 SOCI 321 *Criminology*

6. Business Policy and Management (Choose 6)

ECON 436 *Government Regulation of Business*
 ECON 445 *Managerial Economics*
 ECON 435 *Industrial Organization*
 POLI 335 *Political Environment of Business*
 POLI 336 *Politics of Regulation*
 PSYC 231 *Industrial and Organizational Psychology*
 ACCO 305 *Introduction to Accounting*
 ECON 355 *Money and Banking*
 ECON 370 *Microeconomic Theory*
 ECON 375 *Macroeconomic Theory*
 ECON 415 *Human Resources, Wages, and Welfare*
 ECON 420 *International Economics*
 ECON 421 *International Finance*
 ECON 448 *Corporation Finance*
 HIST 331 *Labor in America*
 POLI 376 *International Political Economy*
 POLI 458 *Property Rights and Privatization*
 POLI 464 *Political Economy of Development*

7. Urban and Social Change

ANTH 344 *City/Culture*
 ANTH 360 *Modernity and Social Space*
 ARCH 311 *Houston Architecture*
 ARCH 313 *Sustainable Architecture*
 ARCH 321 *Economics of the Built Environment*
 ARCH 346 *19th- and 20th-Century Architectural History*
 ARCH 351 *Social Issues and Architecture*
 ARCH 455 *Housing and Urban Programs*
 ECON 461 *Urban Economics*
 ECON 480 *Environmental Economics*
 HIST 377 *The Ancient City*
 HIST 429 *Technologies of Nationalism*
 HART 325 *Art and Architecture in the Middle East*
 PHIL 307 *Social and Political Philosophy*
 SOCI 301 *Social Inequality*
 SOCI 308 *Houston: The Sociology of a City*
 SOCI 309 *Race and Ethnic Relations*

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SOCI 310 *Urban Sociology*

SOCI 313 *Demography*

SOCI 411 *Social Change*

POLI 332 *Urban Politics*

POLI 438 *Race and Public Policy*

POLI 441 *Common Property Resources*

POLITICAL SCIENCE

THE SCHOOL OF SOCIAL SCIENCES

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DEGREES OFFERED: BA, MA, PHD

Students majoring in political science are encouraged to achieve both a broad understanding of the field and a specialized knowledge of one or more aspects of political science, including American politics and comparative politics and politics and international relations (see also majors in managerial studies and public policy). Graduate study is grounded in the areas of American government (public policy, Congress, and intergovernmental relations), comparative government (Western Europe, Latin America, and political development), and international relations (international conflict).

DEGREE REQUIREMENTS FOR BA IN POLITICAL SCIENCE

For general university requirements, see Graduation Requirements (pages 14–15). Students majoring in political science must complete 30 semester hours (10 courses) in the field of political science, plus 6 hours (2 courses) of upper-level work in any of the following fields: anthropology, economics, history, philosophy, psychology, or sociology. Students select these upper-level courses in consultation with the department advisor.

Political science degree requirements are as follows:

- At least 1 course in each of the following fields: American government, comparative politics, international relations, theory, and methods.
- At least 2 of the 4 introductory courses.
- A concentration of at least 4 courses in one of the following fields: American government, comparative politics, and international relations. These 4 courses must include the introductory course and a seminar.
- A statistics course offered by the Department of Political Science.
- Two seminars, at the 400 or 500 level, with different instructors.

Introductory Courses—POLI 209 *Introduction to Constitutionalism and Modern Political Thought*, POLI 210 *American Government and Politics*, POLI 211 *International Relations*, and POLI 212 *Introduction to Comparative Politics* constitute the introductory courses in political science. **Students entering in the fall 1999 and after must take at least 2 of these, including one in the field of specialization.** Students should note, however, that POLI 210 is the course that meets the Texas state licensing requirements in political science for teachers. Students who entered Rice before fall 1999 and choose to stay with the old plan may count no more than 2 of the introductory courses toward their major requirements.

Directed Readings Courses—Directed readings courses are intended for students who have completed a substantial number of political science courses and who seek to explore a subject not covered in regular courses. They are available only if an appropriate faculty member agrees to supervise. The faculty member supervising a directed readings course must have a full-time appointment, and a student may not take more than 1 readings course from him or her. Students should submit a brief, 1-page description of the work to be conducted in the readings course (including the name of the faculty supervisor) to the department director of undergraduate studies no later than 2 weeks into the semester in which they intend to take the course. Readings courses do not count toward the department's distribution requirement.

Honors Program—Admission to the honors program requires the approval of the department director of undergraduate studies. During the first semester of the 2-semester program, students take a readings course that provides them with a basis for drawing up a thesis prospectus. At the end of the 1st semester, a thesis committee composed of 2 full-time members of the political science department reviews and approves the prospectus. During the 2nd semester, students write their honors thesis, which also must meet with committee approval. Students may not combine the 2 honors courses into 1 semester. Those who successfully complete the honors program may substitute it for 1 of the seminars required for the major. See also Honors Programs (page 26). Failure to complete the 2nd semester of the honors program will result in loss of credit for the 1st semester of the honors program.

DEGREE REQUIREMENTS FOR MA AND PHD IN POLITICAL SCIENCE

For general university requirements, see Graduate Degrees (pages 57–58). Students in the PhD program must complete 48 semester hours in advanced courses or seminars before candidacy and conclude the degree program with the oral presentation of a dissertation displaying original research. Normally, students take the specified core courses in the three general fields of American government, comparative government, and international relations, completing additional course work and comprehensive examinations in 2 of those 3 fields. Before taking the comprehensive examinations, students must:

- Complete courses in statistical analysis
- Demonstrate some familiarity with traditional political theory
- Satisfy the language or skill requirement in their major field
- Complete all course requirements

Students select specific courses for graduate study in consultation with the faculty advisor.

The master of arts degree can be obtained with 36 semester hours of course work, all of which must be taken at the graduate level (400 level or above), and the completion of 2 research papers in seminars taken over the course of study. A minimum G.P.A. of 3.0 is required for awarding the MA.

The political science department requires that not more than 3 years elapse between the time the student is admitted to graduate study and the completion of the MA degree, unless an extension is approved by the department graduate committee.

See POLI in the Courses of Instruction section.

PSYCHOLOGY

THE SCHOOL OF SOCIAL SCIENCES

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POSTDOCTORAL RESEARCH

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Philip C. Burton

PROFESSOR IN THE PRACTICE

Philip T. Kortum

DEGREES OFFERED: BA, MA, PHD

The undergraduate program offers the core preparation recommended by the nation's leading graduate schools of psychology, with advanced courses

and research opportunities to fit individual needs. Programs of study may be structured around prospective careers in medicine, law, business, and education as well as in psychology. Program emphasis in graduate study is on doctoral training, which includes course work in memory, cognition, engineering and industrial/organizational psychology, social psychology, and methodology. Faculty research interests include cognitive psychology (human memory, psycholinguistics, perception, and information processing), cognitive neuropsychology (memory, perception, and language disorders), human-computer interaction, and industrial/organizational psychology (personnel selection, training, work motivation, discrimination, and group processes).

DEGREE REQUIREMENTS FOR BA IN PSYCHOLOGY

For general university requirements, see Graduation Requirements (pages 14–15). Students majoring in psychology must complete 29 semester hours in departmental courses, including the following required courses.

Core Courses

PSYC 101 *Introduction to Psychology*
 PSYC 202 *Introduction to Social Psychology*
 PSYC 203 *Introduction to Cognitive Psychology*
 PSYC 339 *Statistical Methods—Psychology*
 PSYC 340 *Research Methods* (no substitutions or transfer credits allowed for PSYC 339 or 340)

At least 1 course from each block*

Block 1

PSYC 308 *Memory*
 PSYC 309 *Psychology of Language*
 PSYC 350 *Psychology of Learning*

PSYC 351 *Psychology of Perception*

PSYC 360 *Thinking*

PSYC 362 *Biopsychology*

Block 2

PSYC 321 *Developmental Psychology*

PSYC 329 *Psychological Testing*

PSYC 330 *Personality Theory*

PSYC 331 *The Psychology of Gender*

PSYC 332 *Abnormal Behavior*

PSYC 460 *The Psychology of Emotion and Motivation*

*No substitutions or transfer credits allowed to fulfill Block 1 and 2 requirements.

Students are encouraged to take PSYC 339 and PSYC 340 as soon as possible, preferably by the end of their sophomore year.

Honors Program—Qualified students may apply to the honors program during preregistration in the spring semester of their junior year. A written proposal for the project must be submitted by the end of the second week of classes in fall of the senior year, and the faculty will decide on final admission to the honors program by the end of the 4th week of classes. Admission to the honors program requires a psychology GPA of 3.7 and an overall GPA of 3.5, completion of PSYC 339, and completion or concurrent enrollment in PSYC 340. To graduate with departmental honors, students must complete the requirements for the psychology major, a written honors thesis approved by a faculty committee, and other requirements as determined by their honors committee (see Honors Program, page 26). Detailed information about the honors program is available from the instructor of the course or the departmental office.

DEGREE REQUIREMENTS FOR MA AND PHD IN PSYCHOLOGY

Students must complete an admission-to-candidacy procedure that should establish their expertise in their chosen specialty. For general university requirements, see Graduate Degrees (pages 57–58). For both MA and PhD degrees, students must complete a research thesis, including a public oral defense, and accumulate 30 semester hours for the MA and 60 hours for the PhD. Course work includes required courses in certain areas, plus whatever offerings are available in the student's specialty area, either cognitive/experimental, industrial/organizational/social, or engineering psychology. Competence in a foreign language is not required.

See PSYC in the Courses of Instruction section

RELIGIOUS STUDIES

THE SCHOOL OF HUMANITIES

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ADJUNCT ASSOCIATE PROFESSOR

B. Jill Carroll

DEGREES OFFERED: BA, PHD

The undergraduate major includes courses in methodology (textual, historical, normative, and sociocultural approaches to the study of religion) and religious traditions (African religions, Buddhism, Christianity, comparative religions, Hinduism, Islam, and Judaism). For research degrees in the graduate program, see below. Within these clearly defined fields, students acquire a broad knowledge of religious studies with enough flexibility for interdisciplinary pursuits.

DEGREE REQUIREMENTS FOR BA IN RELIGIOUS STUDIES

For general university requirements, see Graduation Requirements (pages 14–15). In addition, students also must satisfy the distribution requirements and complete no fewer than 60 semester hours outside the departmental requirements for a program totaling at least 120 semester hours. See Distribution Requirements (pages 15–16) and Majors (pages 17–18).

Students majoring or double-majoring in religious studies must complete:

- 30 hours for majors
- 24 hours for double majors
- 24 hours for majors at 200, 300, or 400 level
- 18 hours for double-majors at 200, 300, or 400 level
- No more than 2 courses outside the Department of Religious Studies

To ensure breadth and depth to the major, students are encouraged to work out a program of study with the undergraduate advisor. The 30 hours (24 for double-majors) must include the following requirements:

- RELI 101 *Introduction to Religion*
- 2 introductory courses in religious traditions (1 Western; 1 non-Western)
- At least 3 courses concentrated in one of the following fields: Judaism, Christianity, African religion, Buddhism, comparative studies, cross-cultural studies, Islam, Hinduism, methodological studies, or ethics/philosophy of religion

Honors Program. Qualified undergraduates may choose the option of writing a senior thesis. To complete a thesis, the student must enroll for 6 hours in addition to the 30 hours (24 for double majors) required for the major. Students

are expected to have at least a 3.5 average in their religious studies courses before undertaking thesis work and must obtain the permission of a faculty advisor who will supervise the project, usually during the second semester of the junior year and first semester of the senior year. Any additional supervisors and readers of the completed thesis (if any) will be arranged in advance by the primary faculty advisor in consultation with relevant faculty.

DEGREE REQUIREMENTS FOR PHD IN RELIGIOUS STUDIES

The graduate program accepts a limited number of qualified students. A distinguished undergraduate record and high scores on the Graduate Record Examination (GRE) are essential, and an advanced degree in the humanities is desirable. For general university requirements, see Graduate Degrees (pages 57–58). Students admitted into the program normally will receive financial assistance in the form of a tuition waiver and a stipend. As part of their training and in return for their stipends, students in their second year and beyond are expected to perform a minimum amount of services in return for their stipend by assisting the department as needed.

The PhD in religious studies is normally a 5-year program. Course requirements for students without a relevant MA or MDiv (based on 3 courses per semester):

- 18 courses (54 hours required); 36 hours for students with a relevant MA or MDiv
- 2 department seminars to be taken in each of the 1st 2 years
- Passing grades on reading examinations in 2 secondary research languages approved by the faculty before taking qualifying exams.
- Passing grades in 4 qualifying examinations
- Oral discussion of dissertation proposal
- Satisfactory completion of dissertation and oral defense

Reading Lists—Reading lists are available for all Qualifying Exams. Students are expected to familiarize themselves with this material enough that they draw on it on their exams and the dissertation itself. The graduate seminar is, in part, an introduction to areas of the reading list and to the techniques for engaging in deep, independent reading.

PROFESSIONAL DEVELOPMENT

Opportunities may be available to teach undergraduate courses in the department or in local colleges and universities. Limited funds also are available for students to attend conferences to present their research. The department encourages these and other efforts to prepare students for academic careers.

See RELI in the Courses of Instruction section.

SOCIOLOGY

THE SCHOOL OF SOCIAL SCIENCES

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D. Michael Lindsay

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Melanie Heath

Kristen Schilt

Jason E. Shelton

DEGREE OFFERED: BA

This undergraduate major fosters an analytic approach to the study of human societies, whether as a preparation for graduate work in sociology and related fields or as the foundation for a variety of occupations. It also is an important component of a liberal arts education and, as such, can serve as effective preparation for professions like law or medicine. The program provides students with considerable latitude in pursuing personal interests while ensuring familiarity with basic theoretical approaches and research methods.

DEGREE REQUIREMENTS FOR THE BA IN SOCIOLOGY

For general university requirements, see Graduation Requirements (pages 14–15). Students majoring in sociology must complete at least 33 semester hours (11 courses) in sociology. Requirements for the major include the following:

SOCI 203 *Introduction to Sociology*

SOCI 398 *Social Statistics*

1 of the following:

SOCI 390 *Research Methods*

SOCI 421 *Craft of Sociology*

At least 1 theory course, such as:

SOCI 317 *Contemporary Sociological Theory*

SOCI 359 *Individual and Society*

SOCI 395 *Feminist Social Thought*

Any other sociology courses to reach a total of 11

Sociology majors must earn a C or better to receive credit for the following courses: statistics (SOCI 398), theory (SOCI 317, SOCI 395, or SOCI 359), and research methods (SOCI 390 or SOCI 421). This rule applies to Rice courses and transfer courses.

Sociology majors are not required to take a foreign language, but those planning graduate study should be competent in at least 1 such language. Some sociology courses listed in the Courses of Instruction section may not be offered every year, and courses among the regular offerings are occasionally added or dropped. Students are responsible for making sure they satisfy all the requirements for their degree. One of the sociology faculty, preferably the department advisor should sign each major's registration.

Honors Program—For general information, see Honors Programs (page 26). Students who have maintained an A- average in all sociology courses beyond

the introductory level may apply to enter the honors program. They should submit their research proposals:

- a) by November 15 of the 1st semester of their junior year, in which case they will research and write their thesis during the 2nd semester of their junior year and the 1st semester of their senior year.
- b) by March 15 of the 2nd semester of their junior year, in which case they will complete their thesis during the 2 semesters of their senior year.

Since departmental awards for seniors are usually determined around March 1, and the honors thesis often is taken into consideration in this determination, students who wish to be considered for these awards are advised to begin their thesis in the spring of their junior year. Research proposals must be carefully thought out and discussed with at least 1 professor before being submitted. Once submitted, they will be considered by the department faculty as a whole and, if acceptable, the student will be assigned a faculty advisor.

Students in the honors program register for 2 successive semesters in Directed Honors Research (SOC 492 and 493). The 1st of the 2 courses is typically devoted to a thorough review of the relevant literature, the formulation of hypotheses growing out of the literature review, and a proposal consisting of a research design that clearly describes how the data are to be collected and analyzed. To receive a grade for the 1st semester, the student must submit a paper to the primary thesis advisor by the last day of classes. This paper must contain the literature review, hypotheses, and research design, along with a bibliography. The research itself usually is carried out in the 2nd semester (and sometimes in the summer following the junior year) and is analyzed, written up, and defended as a completed honors thesis during that semester.

All honors students should complete SOC 390 *Research Methods* or SOC 421 *The Craft of Sociology* before beginning the 2nd semester of the program. If their project requires statistical analysis, students also should complete SOC 398 *Social Statistics* before beginning the 2nd semester of their research.

See SOC in the Courses of Instruction section.

STATISTICS

THE GEORGE R. BROWN SCHOOL OF ENGINEERING

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Dennis Cox

Mahmoud El-Gamal (*joint appointment:
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Katherine B. Ensor

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Marek Kimmel

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FACULTY FELLOW

Janet Siefert

DEGREES OFFERED: BA, MSTAT, MA, PHD

Course work in statistics acquaints students with the role played in the modern world by probabilistic and statistical ideas and methods. Students grow familiar with both the theory and the application of techniques in common use as they are trained in statistical research. The flexibility of the undergraduate program allows students to concentrate on theoretical or applied training, or they may link their studies in statistics to work in other related departments (see majors in economics, education, electrical and computer engineering, computational and applied mathematics, managerial studies, mathematics, political science, and psychology). Graduate study has concentrations in applied probability, bioinformatics, biomathematics, biostatistics, computational finance, data analysis, density estimation, epidemiology, image processing, model building, quality control, statistical computing, spatial processes, stochastic processes, and time series analysis. A joint MBA/master of engineering degree also is available in conjunction with the Jesse H. Jones Graduate School of Management.

DEGREE REQUIREMENTS FOR BA IN STATISTICS

For general university requirements, see Graduation Requirements (pages 14–15). Students majoring in statistics normally complete the following:

- MATH 101/102 *Single Variable Calculus I and II*
- MATH 211 *Ordinary Differential Equations and Linear Algebra*
- CAAM 210 or 211 *Introduction to Engineering Computation*
- STAT 310 *Probability and Statistics*
- STAT 410 *Introduction to Statistical Computing and Regression*
- 6 elective courses from the statistics department (or other departments with approval from their advisor) at the 300 level or higher

Mathematically oriented students should also take MATH 212 *Multivariable Calculus* and MATH 355 *Linear Algebra* (or CAAM 335 *Matrix Analysis*).

The department offers a specialization in computational finance and through the Center for Computational Finance and Economic Systems.

DEGREE REQUIREMENTS FOR MSTAT, MA, AND PHD IN STATISTICS

For general university requirements, see Graduate Degrees (pages 57–58). Admissions applications should include scores on the Graduate Record Examination (GRE) in the quantitative, verbal, and analytical tests. Financial support is available for well-qualified doctoral students. Course work for all degree programs should be at the 400 level or above, although 2 approved 300-level courses may be accepted.

Master's Programs—Candidates for the nonthesis MStat degree must complete 30 semester hours of approved course work. Candidates for the MA degree in statistics must complete 30 semester hours of approved course work as well as 1 of the following: (1) complete an original thesis and defend it in a public oral examination; or (2) perform satisfactorily on the 2nd-year PhD comprehensive examinations.

PhD Program—Candidates for the PhD degree in statistics must complete at least 90 semester hours of approved course work beyond the bachelor's degree and a minimum of 60 hours beyond a master's degree, perform satisfactorily on preliminary and qualifying examinations, and complete an original thesis with a public oral defense.

See STAT in the Courses of Instruction section.

SUBSURFACE GEOSCIENCE

THE WIESS SCHOOL OF NATURAL SCIENCES

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W. C. Rusty Riese

FACULTY FELLOW

Kristen M. Kulinowski

DEGREES OFFERED: MS

Rice University introduced a professional master's degree in subsurface geoscience in fall 2003. This degree is designed for students who wish to become proficient in applying geological knowledge and geophysical methods to finding and developing reserves of oil and natural gas. Students can specialize in 1 of 3 focus areas: information technology, geology, and geophysics. The information technology focus area prepares students to apply IT principles to the rapidly growing industry needed to store, access, and interpret very large and diverse geological, geophysical, cultural, and infrastructural datasets. The geology focus area prepares students to be explorationists, with strong skills in using seismic and other geophysical methods along with geological principles to find oil and natural gas. The geophysics focus area prepares students to become technical experts in aspects of exploration seismology.

The subsurface geoscience degree is 1 of three tracks in the new Professional Master's Program at Rice housed in the Wiess School of Natural Sciences. These master's degrees are designed for students seeking to gain further scientific core expertise coupled with enhanced management and communication skills. These degrees instill a level of scholastic proficiency that exceeds that of the bachelor's level, and they create the cross-functional aptitudes needed in modern industry. This program will allow students to move more easily into management careers in consulting or research and development, design, and/or marketing within oil-and gas-related industries.

DEGREE REQUIREMENTS FOR MS IN SUBSURFACE GEOSCIENCE

In addition to core science courses, students are required to complete a 3- to 6-month internship and take a set of cohort courses focusing on business and communication. Students select a group of elective courses from 1 of 3 focus areas: geology, geophysics, or information geology. Students must present their internship project in both oral and written form in the Professional Master's Seminar.

Part-time students who already work in their area of study may fulfill the internship requirement by working on an approved project with their current employer. For general university requirements for graduate study, see pages 56–58, and see also Professional Degrees, page 58.

ADMISSION

Admission to graduate study in subsurface geoscience is open to qualified students holding a bachelor's degree in science that includes course work in general chemistry, physics, calculus, differential equations, and linear algebra. Department faculty evaluate the previous academic record and credentials of each applicant individually.

Science core courses:

ESCI 415 *Petroleum Geology* (S)

ESCI 417 *Petroleum Industry Economics and Management* (S)

ESCI 420 *Modern Industrial Exploration Techniques* (S)

ESCI 440 *Geophysical Data Analysis: Digital Signal Processing* or

ESCI 441 *Geophysical Data Analysis: Inverse Theory*

ESCI 441 *Geophysical Data Analysis* (F)

ESCI 442 *Exploration Geophysics I* (F)

ESCI 444 *Exploration Geophysics II* (S)

Cohort courses:

NSCI 610 *Management in Science and Engineering* (F)

NSCI 501 *Professional Master's Seminar* (F, S)
[required for 2 semesters]

NSCI 511 *Policy and Ethics* (S)

NSCI 512 *Professional Master's Project* (F, S)

INTERNSHIP

An internship may be conducted under the guidance of a host company, government agency, or national laboratory. A summary of the internship project is required in both oral and written form as part of the Professional Master's Project.

ELECTIVE COURSES

NOTE: Each of these electives is not offered every year, and some courses may have prerequisites or require instructor permission.

Students will choose 5 electives, 3 of which should be chosen from 1 of the focus areas listed below. Recommended courses for each focus area include, but are not limited to, the following:

Information Technology

COMP 429 *Introduction to Computer Networks* (S)

ESCI 454 *Geographic Information Science* (F)

STAT 310 *Probability and Statistics* (F, S)

STAT 410 *Introduction to Statistical Computing and Computer Models* (F, S)

Geology Focus Area

ESCI 427 *Seismic Sequence Stratigraphy* (S)

ESCI 428 *Interpretation of Reflection Seismograms* (F)

ESCI 450 *Remote Sensing* (S)

ESCI 463 *Advanced Structural Geology* (F)

ESCI 467 *Geomechanics* (F)

ESCI 470 *Quantitative Hydrogeology* (S)

ESCI 504 *Siliciclastic Depositional Systems* (F)

ESCI 505 *Applied Sedimentology* (F)

ESCI 506 *Carbonate Depositional Systems* (S)

Geophysics Focus Area

CENG 571 *Flow and Transport through Porous Media I* (S)

ESCI 427 *Seismic Sequence Stratigraphy* (S)

ESCI 428 *Interpretation of Reflection Seismograms* (F)

ESCI 454 *Geographic Information Science* (F)

ESCI 461 *Seismology I* (F)

ESCI 467 *Geomechanics* (F)

ESCI 542 *Seismology II* (F)

Additional Electives

CAAM 378 *Introduction to Operations Research* (F)

ECON 486 *Energy Economics* (S)

CEVE 322 *Engineering Economics for Engineers* (F)

NSCI 625 *New Venture Creation for Science and Engineering* (S)

MGMT 617 *Managerial Decision Making* (S)

MGMT 636 *Systems Analysis and
Database Design*

MGMT 661 *International Business Law* (S)

MGMT 674 *Production and Operations
Management* (F)

MGMT 676 *Project Management/Project
Finance* (S)

MGMT 721 *General Business Law* (S)

PROFESSIONAL SCIENCE MASTER'S 5TH YEAR DEGREE OPTION FOR RICE UNDERGRADUATES

Rice students have an option to achieve the MS in subsurface geoscience by adding an additional 5th year to the 4 undergraduate years of science studies. Advanced Rice students in good standing apply during their junior year, then start taking required core courses of the subsurface geoscience program during their senior year. A plan of study based on their particular focus area will need to be approved by the track director and the PSM coordinator.

THE STUDY OF WOMEN, GENDER, AND SEXUALITY

DIRECTOR AND ADVISOR

Rosemary Hennessy

PROFESSORS

Jane Chance

Marcia J. Citron

James D. Faubion

Beatriz González-Stephan

Anne C. Klein

Elizabeth Long

Susan Keech McIntosh

Helena Michie

Deborah Nelson-Campbell

Robert L. Patten

Meredith Skura

Ewa M. Thompson

ASSOCIATE PROFESSORS

José F. Aranda Jr.

Elias K. Bongmba

Scott S. Derrick

Lucille P. Fultz

Eugenia Georges

Deborah A. Harter

Betty Joseph

Maria-Regina Kecht

Jeffrey J. Kripal

Colleen R. Lamos

Caroline F. Levander

Susan Lurie

Nanxiu Qian

Carol E. Quillen

Paula Sanders

Sarah Westphal

Lora Wildenthal

ASSISTANT PROFESSORS

Marcia Brennan

Krista Comer

Sarah Ellenzweig

Bridget K. Gorman

Holly Heard

Michelle R. Hebl

Nancy A. Niedzielski

Kirsten Ostherr

Sherrilyn Roush

Elora Shehabuddin

Allison Sneider

PROFESSOR OF THE PRACTICE

Diana L. Strassmann

LECTURER

Thad Logan

DEGREES OFFERED: BA AND GRADUATE CERTIFICATE

Both the undergraduate major and the graduate certificate program take an interdisciplinary approach in their exploration of women's experiences and the role that ideas about sexual differences have played in human societies. Areas of inquiry include women's participation in social and cultural production; the construction of gender roles and sexuality; the relationship between ideas about gender and concepts inherent in other social, political, and legal structures; and the implications of feminist theory for philosophical and epistemological traditions. Students acquire an understanding of how adopting gender as a significant category of analysis challenges existing disciplines. They also gain proficiency in the methods used to study and compare cultural constructions of gender and sexuality, and they become familiar with the ongoing fundamental debates in women's and gender studies.

DEGREE REQUIREMENTS FOR BA IN THE STUDY OF WOMEN, GENDER, AND SEXUALITY

For general university requirements, see Graduation Requirements in this publication. Students majoring in the study of women, gender, and sexuality must complete:

- 36 semester hours of departmental course work (30 hours if this is a 2nd major)

- WGST 101 *Introduction to the Study of Women, Gender, and Sexuality* or WGST 201 *Introduction to Lesbian, Gay, Bisexual, and Transgender Studies*
- WGST 498 and WGST 499 (capstone courses in fall and spring respectively)
- At least 1 approved non-Western studies course
- At least 1 approved critical race studies course
- At least 1 approved theory course

Of the remaining required courses, no more than 4 courses may be from a single department. All students must work out their individual courses of study with their faculty advisors. Each student's course of study must be approved by the director of the major. Course requirement tracking forms are available in the SWGS office for declared SWGS majors.

The following courses are among those that can be used to fulfill requirements for the major. As course offerings may vary from year to year, students are urged to consult with their faculty advisors or with the director at the beginning of each semester.

Please note that not all courses listed below will be offered during the academic year. For a current list of courses that will be offered in fall 2006 and spring 2007, please visit the SWGS website at <http://swgs.rice.edu>.

I. Courses that Satisfy the Core Requirements

WGST 101 *Introduction to the Study of Women, Gender, and Sexuality*

WGST 201 *Introduction to Lesbian, Gay, Bisexual, and Transgender Studies*

WGST 498 *Research in the Study of Women, Gender, and Sexuality (F)*

WGST 499 *Research in the Study of Women, Gender, and Sexuality (S)*

II. Courses that Satisfy the Non-Western Studies Requirement

WGST 240 *Gender and Politicized Religion*

WGST 250 *International Political Economy of Gender*

WGST 283 *Women in the Modern Islamic World*

WGST 315 *Gender and Islam*

WGST 323 *The Knowing Body: Buddhism, Gender, and the Social World*

WGST 340 *Gender and Politicized Religion (enriched version)*

WGST 399 *Women in Chinese Literature*

WGST 432 *Islam in South Asia*

WGST 455 *Women and Gender in Medieval Islamic Societies*

III. Courses that Satisfy the Critical Race Studies Requirement

WGST 234 *U.S. Women's History I: Colonial Beginnings to the Civil War*

WGST 235 *U.S. Women's History II: Civil War to the Present*

WGST 370 *Survey of African American Literature*

WGST 387 *Cultural Studies: Race, Gender, and the Politics of Representation*

WGST 387 *Cultural Studies*

WGST 415 *Sociolinguistics*

WGST 453 *Topics in African American Literature: Black Women Writers*

WGST 468 *Women and the U.S. Welfare State: Sexual Politics and American Poverty*

IV. Courses that Satisfy the Theory Requirement

WGST 303 *Women's Stories and Legal Change*

WGST 391 *Producing Feminist Knowledge: Methodology and Visual Culture*

WGST 395 *Feminist Knowledges*

WGST 430 *Queer Theory*

WGST 434 *French Feminist Theory*

WGST 460 *Feminist Social Thought*

WGST 480 *Feminist Literary Theory*

WGST 482 *Problems in Contemporary Feminist Theory*

V. Other Courses

WGST 105 *Language, Gender, and Sexuality*
WGST 130 *Mapping German Culture: Women and National Socialism*
WGST 205 *Language and Society*
WGST 220 *Gendered Perspectives on the Law*
WGST 301 *Arthurian Literature*
WGST 305 *Chaucer*
WGST 324 *Sociology of Gender*
WGST 325 *Sociology of the Family*
WGST 327 *20th-Century Women Writers: Feminist Literatures of Africa and the African Diaspora*
WGST 329 *Literature and Culture of the American West*
WGST 330 *Mapping German Culture: Courtship, Love, and Marriage in the Age of Chivalry*
WGST 331 *The Psychology of Gender*
WGST 332 *Self, Sex, and Society in Ancient Greece*
WGST 335 *The Lifecycle: A Biocultural View*
WGST 348 *Subjectivity in Modern and Postmodern Art and Thought*
WGST 349 *Women Writers: 1400-1900*
WGST 350 *Gender and Symbolism*
WGST 358 *Mapping German Culture: European Women Filmmakers*
WGST 361 *New German Cinema*
WGST 365 *Gender, Subjectivity, and the History of Photography*
WGST 366 *Topics in American Literature*
WGST 368 *Mythologies*
WGST 369 *Seminar on Beauty and Fragmentation in Modern Art*
WGST 372 *Survey of Victorian Fiction*

WGST 389 *Generation X in Literature and Culture*
WGST 390 *Hispanic Cinema*
WGST 400 *Constructing Identities in Modern Fiction*
WGST 405 *Austen Only*
WGST 410 *The Literary and Historical Image of the Medieval Woman*
WGST 412 *Women and Women's Voices in French Literature*
WGST 420 *Women and Gender in 19th-Century Europe*
WGST 422 *Gender and Global Economic Justice*
WGST 440 *Women in Music*
WGST 442 *Women in Russian Literature*
WGST 444 *Family Inequality*
WGST 448 *Disease and Difference: The Body in Visual Culture*
WGST 462 *20th-21st-Century American Literary Studies*
WGST 465 *Gender and Health*
WGST 470 *Sex, Sanctity, and Psychoanalysis*
WGST 485 *Gender and Hollywood Cinema in the 1950s*
WGST 495 *Independent Study*
WGST 496 *Applied Women's and Gender Studies*
WGST 498 *Research in the Study of Women and Gender* (F)
WGST 499 *Research in the Study of Women and Gender* (S)

REQUIREMENTS FOR GRADUATE CERTIFICATE IN THE STUDY OF WOMEN, GENDER, AND SEXUALITY

The graduate certificate program in the Study of Women, Gender, and Sexuality (SWGS) is designed to provide interdisciplinary training in the field of women and gender studies to students pursuing a PhD degree at Rice University. Students who have been admitted into a PhD program are eligible to apply to the SWGS graduate certificate program. The SWGS graduate certificate is not a free-standing degree program; in addition to fulfilling the SWGS requirements outlined below, candidates will be required to successfully complete the PhD program in which they have been admitted in order to receive the graduate certificate in SWGS. Further information is available on request from the SWGS office. For PhD requirements, see the relevant department. For general university requirements, see Graduate Degrees in this publication.

The program awards graduate fellowship stipends, within the limits of available funds, to certificate students during the prospectus-writing

semester. Although timelines vary depending on the student's home department, this semester normally occurs during the semester following the completion of coursework and before passing the qualifying examinations in the PhD program. During the prospectus-writing semester, graduate certificate students will be enrolled in WGST 502 *Gender, the Disciplines, and Interdisciplinarity*. Graduate certificate students will be eligible to work as teaching assistants for an SWGS undergraduate core or cross-listed course, or in some cases, to teach a course of their own upon approval of the steering committee.

For the graduate certificate in SWGS, candidates must complete:

- 9 credit hours of courses in SWGS, including 2 core courses (WGST 501 and WGST 502) and 1 cross-listed elective course (see list of approved courses below)
- 3 noncredit hours for participation in annual colloquium

SWGS certificate students are strongly encouraged to include a member of the SWGS faculty on their dissertation committee and to consult regularly with the faculty member as they pursue their dissertation work.

The following courses are those that can be used to fulfill requirements for the graduate certificate. In most cases, students will be able to complete these requirements within the normal time limits for coursework in their PhD program. All students must work out their individual courses of study with the SWGS director and the graduate advisor in their home department. Each student's course of study must be approved by the SWGS director. Please note that not all courses listed below will be offered during the academic year. For a current list of courses that will be offered in fall 2006 and spring 2007, please visit the SWGS website at <http://swg.rice.edu>.

I. Courses that Satisfy the Core Graduate Certificate Requirements

WGST 501 *Feminist Debates*

WGST 502 *Gender, the Disciplines, and Interdisciplinarity*

II. Courses that Satisfy the Cross-listed Elective Course Requirement

WGST 503 *Directed Reading*

WGST 517 *Medieval Women Writers*

WGST 520 *Shakespeare and Difference*

WGST 522 *Feminist Economics*

WGST 525 *Self, Sex, and Society in Ancient Greece*

WGST 542 *Victorian Fiction*

WGST 545 *Women and Gender: Europe and Beyond*

WGST 546 *20th Century British Literature*

WGST 551 *U.S. Women's History*

WGST 556 *Seminar in Language Variation*

WGST 576 *Topics in U.S. Women's History*

WGST 577 *Buddhism, Gender, Society*

WGST 580 *Sex, Sanctity, and Psychoanalysis*

WGST 581 *Studies in Sexuality: Thinking Sex under Neo-Liberalism*

WGST 585 *Postcolonialism and After*

III. Annual Colloquium Requirement

Graduate certificate students will participate in a colloquium involving a series of speakers over the course of a year, to be offered annually at Rice and organized by SWGS. Colloquium attendance by graduate certificate students constitutes an official requirement for the certificate. Colloquium topics will be determined by the SWGS Steering Committee with a view to highlighting emerging knowledge in the field of women's studies. The colloquium will provide graduate students with the opportunity to engage in sustained intellectual exchange with leading women's studies scholars and to participate in cutting edge work in the field.

UNIVERSITY COURSES

University courses provide opportunities for dialogue across disciplinary and departmental boundaries. They are an experiment in curriculum development, directed toward students interested in interdisciplinary subjects beyond their elected major.

See UNIV in the Courses of Instruction section.

THE DEPARTMENT OF VISUAL AND DRAMATIC ARTS

THE SCHOOL OF HUMANITIES

CHAIR

Karin Broker

PROFESSORS

Karin Broker

Basilios Poulos

George Smith

Geoff Winningham

ASSOCIATE PROFESSORS

Brian Huberman

Darra Keeton

John Sparagana

ARTIST TEACHERS

Gary Feuge

Paul Hester

LECTURERS ON THEATRE

Trish Rigdon

Matthew Schlieff

VISITING LECTURER

Jim Huston

RICE CINEMA DIRECTOR & LECTURER ON FILM & MEDIA STUDIES

Charles Dove

DEGREES OFFERED: BA

Department of Visual and Dramatic Arts majors are students who declare a major in the studio arts (drawing, digital video and film production, painting, photography, printmaking, sculpture) or theatre arts tracks. Each student should discuss with their faculty adviser the selection of courses and any other matters of concern in the student's academic life, such as study and travel abroad, scholarships and internships, career goals or options, etc.

Graduating senior visual and dramatic arts majors and double majors are required to participate in the annual student art exhibition and/or theatre production held during commencement week. In addition, graduating senior visual and performing arts majors are required to enroll in a 1 credit hour class,

ARTV 499 *Special Problems: Senior Exhibition/Theatre Project*, during their last semester.

DEGREE REQUIREMENTS FOR BA IN VISUAL AND DRAMATIC ARTS

(For general university requirements, see Graduation Requirements on pages 14–15.)

Bachelor of Arts in Visual and Dramatic Arts Single Major Studio Art Track (12 courses required)

ARTV 225 *Basic Drawing*

ARTV 205 *Photography I* or ARTV 327

Documentary Production

ARTV 301 *Painting*, or ARTV 325 *Life Drawing*,
or ARTV 337 *Color Drawing*

ARTV 311 *Intaglio I* or ARTV 365 *Sculpture I*

6 elective courses in studio (ARTV) or theatre
(THEA) arts (may include no more than 3
theatre arts courses)

2 courses in art, film, or theatre criticism/
theory or art history (HART)—NOTE: open
selections qualified by course prerequisites and
in consultation with a visual and dramatic arts
faculty adviser.

Theatre Track (12 courses required)

ARTV 225 *Basic Drawing*

THEA 100 *Theatre Technology* or THEA 101
Costume/Clothing Construction

THEA 300 *Introduction to Theatre Design* or
THEA 301 *Acting I*

THEA 303 *Introduction to Theatre*

6 elective courses; 3 in theatre (THEA) and 3 in
studio art (ARTV)

2 courses in art, film, or theatre theory/criticism,
dramatic literature, or art history (HART)—

NOTE: open selections qualified by course
prerequisites and in consultation with a visual
and dramatic arts faculty adviser.

Bachelor of Arts in Visual and Dramatic Arts**Double Major****Studio Art Track****(11 courses required)**ARTV 225 *Basic Drawing*ARTV 205 *Photography I* or ARTV 327*Documentary Production*ARTV 301 *Painting* or ARTV 325 *Life Drawing* orARTV 337 *Color Drawing*ARTV 311 *Intaglio I* or ARTV 365 *Sculpture I*

5 courses in studio (ARTV) or theatre (THEA) arts (may include no more than 2 theatre arts courses)

2 courses in art, film, or theatre criticism/theory or art history (HART)—NOTE: open selections qualified by course prerequisites and in consultation with a visual and dramatic arts faculty adviser.

Theatre Track**(11 courses required)**ARTV 225 *Basic Drawing*THEA 100 *Theatre Technology* or THEA 101*Costume/Clothing Construction*THEA 300 *Introduction to Theatre Design* orTHEA 301 *Acting I*THEA 303 *Introduction to Theatre*

5 elective courses; 3 in theatre (THEA) and 2 in studio art (ARTV)

2 courses in art, film, or theatre theory/criticism, dramatic literature, or art history (HART)—

NOTE: open selections qualified by course prerequisites and in consultation with a visual and dramatic arts faculty adviser.

In addition to the above requirements, visual and dramatic arts majors and double majors are required to take a 1 credit hour senior exhibition/theatre project class during their senior year, ARTV 499 *Special Problems: Senior Exhibition/Theatre Production Project*, prior to the annual senior art exhibition held during commencement week. Students must speak with their visual arts faculty advisor and receive written permission to enroll in ARTV 499.

TRANSFER CREDIT

No more than 2 courses may be transferred for the single or double major to satisfy degree requirements for BA in visual and dramatic arts degree. The 2 transfer credit courses must be in studio or theatre practice required for all majors. Advanced placement credit may not be used by visual and dramatic arts majors to fulfill department degree requirements.

See also Transfer Credit in the Information for Undergraduate Students section of the *General Announcements*.

EXHIBITIONS, LECTURES, AND ARTS PROGRAMS AT RICE

The Department of Visual and Dramatic Arts mounts several art and photography exhibitions and stage productions each year. In addition exhibitions and related activities organized by the Rice University Art Gallery enrich the teaching program of the Department of Visual and Dramatic Arts, as well as the larger university and Houston communities.

The department enjoys an ongoing close relationship with local theatres, museums, and galleries. The department offers opportunities for students to work and study with local art venues and alternative art spaces by way of collaborative events and programs. The collections and exhibitions of local museums often are the subject of course lectures.

Lectures, symposia, and talks are sponsored by the department and are designed to bring local, national, and international scholars, actors, directors, critics, and studio artists to campus to speak on a broad range of topics and current interests.

MUSEUM OF FINE ARTS, HOUSTON, GLASSELL SCHOOL OF ART CORE FELLOWS

The Department of Visual and Dramatic Arts, in partnership with the Museum of Fine Arts, Houston, Glassell School of Art, supports up to 6 Glassell Core Fellowship recipients each year to teach studio practice and critical theory courses. These Core Fellowship recipients, selected by the MFAH from the highly competitive and prestigious Glassell School of Art Core Fellowship Residency Program, are postgraduate artists and art educators.

RICE THEATRE PROGRAM

The Rice Theatre Program curriculum offers a solid foundation in all aspects of theatrical production, from acting and directing to technology and design, for students who wish to pursue a professional career in theatre or continue on to a graduate program. Theatre courses also are open to nonmajors who want to gain a greater appreciation for the art of theatre.

There are two main-stage productions and two student showcases offered each year in Hamman Hall—a 500 seat proscenium theatre facility. Participation in productions is open to all students currently enrolled in theatre courses as well as students who have taken theatre courses as nonmajors. The end of semester showcases feature the work of students currently enrolled in theatre courses.

Theatre Program faculty are actively involved in professional theatre and film locally, nationally, and internationally and actively pursue opportunities to involve advanced students in that work. In addition, advanced students are encouraged to apply for internship positions whenever possible. Rice students have been accepted in competitive internships such as the Alley Theatre, Berkeley Repertory Theatre, Williamstown Theatre Festival, and the Peter Hall Company. In addition, students are encouraged to study theatre abroad and to transfer course credit back to Rice. Approval for transfer credit must be sought prior to enrollment in a study-abroad program by contacting the director of the Theatre Program.

In even number years, the Theatre Program, sponsored by the Alan and Shirley Grob Endowment for Shakespeare in Performance, hosts the Actors from the London Stage—one of the oldest established touring Shakespeare theater companies in the world—for a week-long residency of workshops, performances, and lectures. Each tour presents a full-length play by Shakespeare performed by five classically trained actors who come from such prestigious companies as the Royal Shakespeare Company; the Royal National Theatre of Great Britain; and Shakespeare's Globe Theatre.

RICE CINEMA

Rice Cinema, a public alternative film program, is intimately connected with the curriculum both in film and media studies (HART) and in film and photography production (ARTV) and includes frequent guest lecturers, panel discussions, and media events.

Operating for 35 years, Rice Cinema has screened cult films and revivals as well as festivals and retrospectives. Founded as an integral part of the visual arts, Rice Cinema's mission has long crossed boundaries to bring people together to promote scholarly dialogue and cross-cultural interaction. The legendary vision of the de Menil family, Roberto Rossellini, Colin Young, and James Blue is fulfilled by the presence of this unique program on campus.

Each year the cinema screens films from around the world, including foreign features, shorts, documentaries, and animation. Rice Cinema reaches beyond the university's hedges to the diverse communities of Houston. It offers a living alternative to the monolithic commercial cinema of Hollywood and screens films from every continent. Among the internationally known filmmakers who have appeared on campus over the years are Werner Herzog, Rakhshan Banietemad, Atom Egoyan, Shirin Neshat, Martin Scorsese, Andy Warhol, George Lucas, and Dennis Hopper.

Rice Cinema works in concert with academic programs to enrich students' undergraduate experience. Students are provided state-of-the-art screening facilities to examine and study the historical and methodological aspects of movies from around the world in 16, 35, or 70 millimeter with Dolby Digital Sound. Film production students can showcase their work during the academic year on the new silver screen in recently renovated projection facilities.

See ARTV, HART, and THEA in the Courses of Instruction section for course descriptions.

FACULTY

EMERITUS FACULTY

- Akers, William Walter**, 1947–93. Professor Emeritus in Chemical and Biomolecular Engineering
BS (1943) Texas Technological College; MS (1944) University of Texas at Austin; PhD (1950) University of Michigan
- Alcover, Madeleine**, 1975–2004. Professor Emerita of French
Licence de lettres modernes (1962), Diplôme d'études supérieures (1963), Doctorat de 3e cycle (1965) France
- Ambler, John S.**, 1964–2003. Professor Emeritus of Political Science
BA (1953) Willamette University; MA (1954) Stanford University; Certificat d'études politiques (1955) University of Bordeaux; PhD (1964) University of California at Berkeley
- Andrews, John E.**, 1982–91. Professor Emeritus of Environmental Science and Engineering
BSCE (1951), MS (1954) University of Arkansas; PhD (1964) University of California at Berkeley
- Apple, Max**, 1972–2001. Gladys Louise Fox Professor Emeritus of English
BA (1963) University of Michigan; MA (1965) Stanford University; PhD (1970) University of Michigan
- Armeniadis, Constantine D.**, 1969–2006. Professor Emeritus of Chemical and Biomolecular Engineering
BS (1961) Northeastern University; MS (1967) Case Institute of Technology; PhD (1969) Case Western Reserve University
- Avé Lallemant, Hans G.**, 1970–2006. Professor Emeritus of Earth Science and Associate of Sid Richardson College
BA (1960), MA (1964), PhD (1967) University of Leiden
- Bailar, Benjamin E.**, 1987–97. H. Joe Nelson III Professor Emeritus of Administration
BA (1955) University of Colorado; MBA (1959) Harvard Graduate School of Business Administration
- Baker, Donald Roy**, 1966. Professor Emeritus of Geology and Honorary Associate of Brown College
BS (1950) California Institute of Technology; PhD (1955) Princeton University
- Baker, Stephen D.**, 1963–2004. Professor Emeritus of Physics and Astronomy
BS (1957) Duke University; MS (1959), PhD (1963) Yale University
- Bale, Allen M.**, 1947–78. Athletic Director Emeritus
BS (1930) Rice Institute; MA (1939) Columbia University
- Bally, Albert W.**, 1981–96. Harry Carothers Wiess Professor Emeritus of Geology
PhD (1953) University of Zurich, Switzerland
- Barker, J. R.**, 1949–86. Professor Emeritus of Health and Physical Education
BS (1949) Rice Institute; MEd (1954) University of Texas at Austin
- Bixby, Robert E.**, 1984–98. Noah Harding Professor Emeritus of Computational and Applied Mathematics
BS (1968) University of California at Berkeley; MS (1971), PhD (1972) Cornell University
- Boterf, Chester Arthur**, 1973–93. Professor Emeritus of Art
BA (1959) Kansas University; MFA (1965) Columbia University
- Brelsford Jr, John W.**, 1970–2000. Professor Emeritus of Psychology
BA (1960), MA (1961) Texas Christian University; PhD (1965) University of Texas at Austin
- Brotzen, Franz Richard**, 1954–86. Stanley C. Moore Professor Emeritus of Materials Science
BS (1950), MS (1953), PhD (1954) Case Institute of Technology
- Brown, Katherine Tsanoff**, 1963–89. Professor Emerita of Art History and Honorary Associate of Will Rice College
BA (1938) Rice Institute; MFA (1940) Cornell University
- Burrus, C. Sidney**, 1965–2005. Maxfield and Oshman Professor Emeritus of Electrical and Computer Engineering
BA (1957), BSEE (1958), Rice Institute; MS (1960) Rice University; PhD (1965) Stanford University
- Burt, George**, 1984–97. Professor Emeritus of Theory and Composition
BA (1955) University of California at Berkeley; MA (1958) Mills College; MFA (1962) Princeton University
- Camfield, William A.**, 1969–2002. The Joseph and Joanna Nazro Mullen Professor Emeritus of Art and Art History
AB (1957) Princeton University; MA (1961), PhD (1964) Yale University
- Campbell, James W.**, 1959–2000. Professor Emeritus of Biochemistry and Cell Biology
BS (1953) Southwest Missouri State University; MS (1955) University of Illinois; PhD (1958) University of Oklahoma
- Cason, Carolyn**, 1956–74. Lecturer Emerita in Dietetics
BS (1934) University of Texas at Austin; MA (1939) Columbia University
- Chapman, Alan Jesse**, 1946–95. Harry S. Cameron Professor Emeritus of Mechanical Engineering
BSME (1945) Rice Institute; MS (1949) University of Colorado; PhD (1953) University of Illinois
- Clark, Howard Charles**, 1966–88. Professor Emeritus of Geology and Geophysics
BS (1959) University of Oklahoma; MA (1965), PhD (1967) Stanford University

- Class, Calvin M.**, 1952–85. Professor Emeritus of Physics
AB (1943), PhD (1951) Johns Hopkins University
- Copeland, James E.**, 1966–2001. Professor Emeritus of Linguistics and German
BA (1961) University of Colorado; PhD (1965) Cornell University
- Curl Jr, Robert E.**, 1958–2005. University Professor Emeritus and Kenneth S. Pitzer-Schlumberger Professor Emeritus of Natural Sciences
BA (1954) Rice Institute; PhD (1957) University of California at Berkeley
- Daichman, Graciela S.**, 1973–99. Lecturer Emerita of Hispanic Studies
Profesorado (1959) Instituto Nacional del Profesorado en Lenguas Vivas, Argentina;
MA (1975), PhD (1983) Rice University.
- Davidson, Chandler**, 1966–2003. Radoslav A. Tsanoff Professor Emeritus of Public Affairs and Sociology and Research Professor
BA (1961) University of Texas at Austin; MA (1966), PhD (1969) Princeton University
- Davis, Philip W.**, 1969–2003. Agnes Cullen Arnold Professor Emeritus of Linguistics
BA (1961) University of Texas at Austin; PhD (1965) Cornell University
- Davis Jr, Sam H.**, 1957–2000. Professor Emeritus in Chemical and Biomolecular Engineering and Computational and Applied Mathematics
BA (1952), BS (1953) Rice Institute; ScD (1957) Massachusetts Institute of Technology
- De Bremaecker, Jean-Claude**, 1959–94. Professor Emeritus of Earth Science
Ingenieur Civil des Mines (1948) University of Louvain, Belgium; MS (1950) Louisiana State University; PhD (1952) University of California at Berkeley
- Dennis, John E.**, 1979–2002. Noah Harding Professor Emeritus of Computational and Applied Mathematics and Research Professor
BS (1962), MS (1964) University of Miami; PhD (1966) University of Utah
- Dessler, Alexander J.**, 1963–93. Professor Emeritus of Space Physics and Astronomy
BS (1952) California Institute of Technology; PhD (1956) Duke University
- Doughtie, Edward O.**, 1963–2001. Professor Emeritus of English
BA (1958) Duke University; AM (1960), PhD (1964) Harvard University
- Drew, Katherine Fischer**, 1950–96. Lynette S. Autrey Professor Emerita of History
BA (1944), MA (1945) Rice Institute; PhD (1950) Cornell University
- Dyson, Derek C.**, 1966–2000. Professor Emeritus of Chemical and Biomolecular Engineering
BA (1955) University of Cambridge; PhD (1966) University of London
- Eifler, Margret**, 1973–2005. Professor Emerita of German and Slavic Studies
BA (1962), MA (1964), PhD (1969) University of California at Berkeley
- Evans, Elinor Lucile**, 1964–85. Albert K. and Harry K. Smith Professor Emerita of Architecture
BA (1938) Oklahoma State University; MFA (1954) Yale University
- Farwell, Joyce**, 1994–2005. Professor Emerita of Voice
BME (1956), MME (1958) University of Oklahoma; DMA (1976) College Conservatory of Music, University of Cincinnati
- Fisher Jr, Frank M.**, 1963–2002. Professor Emeritus of Biology
BA (1953) Hanover College; MS (1958), PhD (1961) Purdue University
- Freeman, John W.**, 1964–2000. Professor Emeritus of Space Physics and Astronomy and Associate of Lovett College
BS (1957) Beloit College; MS (1961), PhD (1963) University of Iowa
- Gardner, Gerald H. E.**, 1990–93. Professor Emeritus of Geophysics
BS (1948) Trinity College, Dublin; MSc (1949) Carnegie Mellon University; PhD (1953) Princeton University
- Glass, Graham P.**, 1967–2005. Professor Emeritus of Chemistry
BS (1959) Birmingham University, England; PhD (1963) Cambridge University
- Glantz, Raymond M.**, 1969–2006. Professor Emeritus of Biochemistry and Cell Biology
BA (1963) Brooklyn College; MS (1964), PhD (1966) Syracuse University
- Gordon, Chad**, 1970–99. Professor Emeritus of Sociology
BS (1957), MA (1962), PhD (1963) University of California at Los Angeles
- Gordon, William E.**, 1965–85. Distinguished Professor Emeritus of Space Physics and Astronomy and of Electrical and Computer Engineering
BA (1939), MA (1942) Montclair State College; MS (1946), PhD (1953) Cornell University
- Grob, Alan**, 1961–2002. Professor Emeritus of English
BA (1952) Utica College; MA (1957), PhD (1961) University of Wisconsin at Madison
- Hackerman, Norman**, 1970–85. President Emeritus and Distinguished Professor Emeritus of Chemistry
AB (1932), PhD (1935) Johns Hopkins University
- Hale, Elton B.**, 1963–79. Professor Emeritus of Accounting
BS (1937), MA (1940) Southwest Texas State Teachers College; PhD (1948) University of Texas at Austin

- Hansz, Ingrid**, 1987–2000. Lecturer Emerita of Hispanic Studies, 2001 Language Consultant for School of Continuing Studies
BA (1952) Universidad de la Republica; MA (1987) Rice University
- Harvey, F. Reese**, 1968–2003. Professor Emeritus of Mathematics
BS, MA (1963) Carnegie Institute of Technology; PhD (1966) Stanford University
- Havens, Neil**, 1964–2000. Professor Emeritus of Art and Art History
BA (1956) Rice Institute; MA (1959) Indiana University
- Haymes, Robert C.**, 1968–98. Professor Emeritus of Space Physics and Astronomy
BA (1952), MS (1953), PhD (1959) New York University
- Hellums, Jesse David**, 1960–1998 and 2003–2005. A.J. Hartsook Professor Emeritus of Chemical and Biomolecular Engineering and of Bioengineering
BS (1950), MS (1958) University of Texas at Austin; PhD (1961) University of Michigan
- Heymann, Dieter**, 1966–98. Professor Emeritus of Geology and Geophysics and Adjunct Professor in Chemistry
MS (1954), PhD (1958) University of Amsterdam, The Netherlands
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MS (1961), PhD (1963) Johns Hopkins University
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BS (1930) Harvard University; MA (1934) Rice Institute
- Holt, Edward C.**, 1956–93. Professor Emeritus of Civil and Environmental Engineering
SB (1945), SM (1947) Massachusetts Institute of Technology; PhD (1956) Pennsylvania State University
- Huddle, Donald L.**, 1964–92. Professor Emeritus of Economics
BS (1959), MA (1960) University of California at Los Angeles; PhD (1964) Vanderbilt University
- Hyman, Harold M.**, 1968–97. William P. Hobby Professor Emeritus of History
BA (1948) University of California at Los Angeles; MA (1950), PhD (1952) Columbia University
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Bachelor (1928), Master (1931) Prague Institute of Technology, Czechoslovakia
- Jones, Samuel**, 1973–97. Professor Emeritus of Music
BA (1957) Millsaps College; MA (1958), PhD (1960) Eastman School of Music, University of Rochester
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- Kelber, Werner H.**, 1973–2005. Isla Carrol Turner and Percy E. Turner Professor Emeritus of Religious Studies
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BS (1944) Rice Institute; MSE (1947), PhD (1951) University of Michigan
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BS (1957), MS (1959), PhD (1961) Carnegie Mellon University
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BA (1946) Pontificia Universidade Católica, Brazil; PhD (1963) Universidade Federal de Rio de Janeiro, Brazil
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Baccalaureat es lettres (1937), Licence es lettres (1943), Diplome d'études superieures (1944) Universite de Paris, France; PhD (1954) Yale University
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BS (1962) North Texas State University; MEd (1967) Sam Houston State University; EdD (1974) Louisiana State University
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BA (1955), BSEE (1956) Rice Institute; MSEE (1960), PhD (1963) University of Pittsburgh; JD (1972) University of Houston
- Leeman, William P.**, 1977–2005. Professor Emeritus of Earth Science
BA (1967), MA (1969) Rice University; PhD (1974) University of Oregon
- Lewis, Edward S.**, 1948–90. Professor Emeritus of Chemistry
BS (1940) University of California at Berkeley; PhD (1947) Harvard University
- Marcus, George E.**, 1975–2006. Emeritus Professor of Anthropology
BA (1968) Yale University; PhD (1976) Harvard University
- Martin, William C.**, 1968–2005. Professor Emeritus of Religion and Public Policy and Professor Emeritus of Sociology
BA (1958), MA (1960) Abilene Christian University; BD (1963) Harvard Divinity School; PhD (1969) Harvard University

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BA (1963) University of Cincinnati; MA (1965) University of Washington; MA (1968) University of Cincinnati
- Meixner, John, 1968–95.** Professor Emeritus of English
BA (1951) City College of New York; MA (1953), PhD (1957) Brown University
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BA (1952), BSME (1953), MSME (1955) Rice Institute; PhD (1962) University of Cambridge
- Michel, F. Curtis, 1963–2000.** Andrew Hays Buchanan Professor Emeritus of Astrophysics
BA (1955), PhD (1962) California Institute of Technology
- Miele, Angelo, 1964–93.** Foyt Family Professor Emeritus in Mechanical Engineering and Materials Science and Computational and Applied Mathematics
Dr. CE (1944), Dr. AE (1946) University of Rome
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- Minter, David Lee, 1967–80 and 1990–2002.** Bruce and Elizabeth Dunlevie Professor Emeritus of English
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BA (1956) Adelphi University; Certificate (1958) Università de Perugia; Certificate (1958) Yale University School of Languages; Certificate (1960) Goethe Institute, Blaubeuren, Germany
- Nielsen Jr, Niels C., 1951–91.** Professor Emeritus of Philosophy and Religious Thought and Honorary Associate of Will Rice College
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- Sass, Ronald L.**, 1958–2005. Harry C. and Olga Keith Wiess Professor Emeritus of Ecology and Evolutionary Biology
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BS (1941) Rice Institute; MS (1950), PhD (1956) University of Illinois
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- Stebbins, Ronald F.**, 1968–95. Professor Emeritus of Space Physics and Astronomy
BSc (1952), PhD (1956) University College, London
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AB (1963) Dartmouth College; PhD (1971) University of California at Berkeley
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- Taylor, Julie M.**, 1981–2005. Professor Emerita of Anthropology
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AB (1952) Dartmouth College; MS (1953), PhD (1959) Northwestern University
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BA (1948) University of the Pacific; MA (1950) Claremont Graduate School; PhD (1957) University of California at Berkeley
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- Wall, Frederick T.**, 1972–79. Professor Emeritus of Chemistry
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- Walters, G. King**, 1963–99. Sam and Helen Worden Professor Emeritus of Physics
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BS (1959) National Taiwan University; PhD (1965) Johns Hopkins University
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BA (1951) Yale University; MA (1956) Columbia University; PhD (1975) New York University
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- Aresu, Bernard**, 1977. Professor of French Studies and Master of Lovett College
Licence es lettres (1967) Université de Montpellier, France; PhD (1975) University of Washington
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BSc (1992), PhD (1996) University of Glasgow, Scotland
- Ashmore, Jean**, 2002. Lecturer on Education Certification
BA (1973) University of California at Los Angeles; MS (1976) California State University
- Athanasios, Kyriacos A.**, 1999. Karl F. Hasselmann Professor of Bioengineering
BS (1984) New York Institute of Technology at Old Westbury; MS (1985), PhM (1988), PhD (1989) Columbia University
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BMus (1976), MMus (1977) Juilliard School of Music
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BA (1975), MA (1981), PhD (1981) Rice University
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BS (1992) University of Ottawa, Canada; MS (1993), PhD (1997) École Polytechnique, Montreal, Canada
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BS (1992) University of Lisbon, Portugal; PhD (1997) University of Edinburg, UK
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BS (1982) Rice University; MS (1990), PhD (1992) University of Texas at Austin
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BM (1981) West Virginia University; MM (1983) Eastman School of Music
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BS (1980) University of Oklahoma; MS (1985) Texas A&M University; MS (1994) University of Arkansas;
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BMus (1976) Lewis and Clark College; MA (1979), PhD (1982) University of Southern California
- Baker, John A.**, 1999. Lecturer on Management
BA (1990), JD (1993) University of Houston; MBA (1997) Rice University
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AB (1952) Princeton University
- Ball, Zachary T.**, 2006. Assistant Professor of Chemistry
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BS (1987) University of Manitoba; MS (1988) University of Wisconsin; PhD (1992) University of Illinois
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BS (1983) University of Melbourne; PhD (1989) Trinity College, Cambridge
- Barnett, Gregory**, 2002. Assistant Professor of Musicology
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BS (1983), PhD (1986) Imperial College of Science and Technology, University of London
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- Biln, Karma Singh (John)**, 1999. Associate Professor of Architecture
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- Brooks, Philip R.**, 1964. Professor of Chemistry
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