

Previous Editions

Non-Traditional Students

Undergraduate Students	Gradua
Introduction	Introduct
Academic Opportunities	Academ
Academic Calendar 🗗	Academi
Admission	Admissio
Auditing Courses	Auditing
Majors, Minors and Certificates	Graduate
Non-Traditional Coursework	Graduate
Study Abroad	Non-Tra
Teacher Education	Academ
Undergraduate Degrees	Academi
Undergraduate Degree Chart	Academi
Academic Policies and Procedures	Candida
Academic and Judicial Discipline	Grades
Attendance and Excused Absences	Leaves,
Final Examinations	Registra
Grades	Transfer
Graduation Requirements	Veterans
Leaves and Withdrawals	Student
Name Changes	Clubs an
Registration	Disability
Transcript Policies	Financia
Transfer Credit	Graduate
Veterans Information	Graduate
Student Services and Organizations	Health, C
Clubs and Organizations	Tuition, I
Disability Support Services	Rights a
Financial Aid	Access t
Health, Counseling and Wellbeing	Code of
Student Government	Dispute
Tuition, Fees and Expenses	Honor S
Undergraduate Student Life	Student
Rights and Responsibilities	
Access to Student Records	
Code of Student Conduct	
Honor System	

Student Responsibility

Honors and Distinctions

Graduate Students

tion

nic Opportunities

ic Calendar 🛃

on

Courses

e Degrees

e Degree Chart

ditional Coursework

nic Policies and Procedures

ic and Judicial Discipline

ic Regulations and Registration

cy, Oral Examinations and Thesis

Interruptions of Study and Withdrawals

tion

Credit

s Information

t Services and Organizations

nd Organizations y Support Services al Aid e Student Government e Student Life Counseling and Wellbeing Fees and Expenses and Responsibilities to Student Records

Student Conduct

Resolution

ystem

Responsibility

Syllabus Standards
Non-maultonal Coursework
Non-Traditional Coursework
Faculty Grading Guidelines
Faculty
Visiting Undergraduate Students
Visiting Post Baccalaureates
Summer Sessions for Visiting Students
Second Bachelor's Degree Students

Departments and Programs

Courses of Instruction 🛃

Administration and Faculty

Board of Trustees

Administration

Faculty

Emeritus Faculty

Important Notices

Message from the President **Contact Information** Accreditation **Complaints Process** Disclaimer **Ethical Concerns** Equal Opportunity Notice

2016-2017 General Announcements

Academic Honor Societies	
Honors Programs	
President's Honor Roll	
University Honors	

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Web Services

University Calendar Rice A-Z

Maps-Directions

Feedback



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Undergraduate Students Introduction > Introduction

Introduction

Graduate Students

RICE

Non-Traditional Students

Undergraduate Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

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. "Inside 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 two 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. The programs leading to the BS degrees in Bioengineering, Civil Engineering, Chemical Engineering, Electrical Engineering and Mechanical Engineering are accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org. 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 and minors also are available, as are various departmental minors and 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 an advanced degree in music (BMus/MMus) that may be completed with a fifth year of study. The BA–BArch professional track is the primary course of study for undergraduate architectural study at Rice. All students who successfully apply to the university and the School of Architecture enter into this program. This program leads to a degree of Bachelor of Arts with a major in Architecture (BA) after four years, followed immediately by the professional Bachelor of Architecture (BArch) degree sequence, which consists of a one year internship program (Preceptorship) and one year of advanced course work.

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.

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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

 va17
 Va17<

RICE Office of the Registrar Working with the Rice community to provide quality service and records management

Home > Students > Calendars > Academic Calendar Fall 2016

Academic	Fall 2016 Aca	ademic Calendar		
Calendars	A printable PDF version 🛃 of this calendar is available.			
Academic Honors	Sunday -	Orientation week for new students		
► Classrooms	Friday, August 14-19,			
Course Information	2016			
Course & Instructor Evaluations	Friday, August 19, 2016	Deadline: Last day for instructors to submit final grades to resolve "Other" (OT) grades for courses taken in Summer 2016		
 Degree Planning 	Monday, August 22, 2016	FIRST DAY OF CLASSES - START OF THE FALL SEMESTER		
Degree Works	Monday -	Fall Registration Continues: Registration continues for		
 Distribution Credit 	Friday, August 22 -	undergraduate, graduate, and visiting students		
Enrollment and Degree Verification	August 26, 2016			
▶ ESTHER	Friday, August 26, 2016	Deadline: Last day for instructors to submit final grades to resolve "Incomplete" (INC) grades for courses taken in Spring and Summer 2016		
Exam Credit (AP, etc.)	Friday, September 2,	Deadline: Last day to complete late registration Deadline: Last day to add courses (Please go to ESTHER <i>»</i> to add		
Final Exam Information	2016	courses) Deadline: Last day to adjust variable credit for courses online via ESTHER		
 Graduation 		Deadline: Last day to designate a credit course as "Audit" or vice versa		
Inter-Institutional Graduate Students		Deadline: Last day to convert a "Pass/Fail" to an earned letter grade for courses taken in Spring or Summer 2016 Deadline: Last day to withdraw with a 100% refund of tuition and		
- OTR Fees		fees Deadline: Last day to drop to part-time status with refund of tuition		
Personal Information	Monday, September 5, 2016	LABOR DAY (HOLIDAY - NO SCHEDULED CLASSES)		
▶ Registration	Friday, September 9,	Deadline: Last day to withdraw with a 70% refund of tuition		
- Summer Session	2016 Friday,	Deadline: Last day to withdraw with a 60% refund of tuition		
 Transcripts 	September 16, 2016			
 Transfer Credit 	Friday,	Deadline: Last day to withdraw with a 50% refund of tuition		
Veterans	September 23, 2016			

2016-2017 General Announcements

2010-2017 General Announcemer	113	5 01 925
Education Benefits Visiting Students 	Friday, September 30, 2016	Deadline: Last day to withdraw with a 40% refund of tuition and fees
QUICK LINKS		 Deadline: Last day to drop courses for full-term courses (Please go to ESTHER, to drop courses) Deadline: Last day for instructors to submit Mid-semester Grades for first-year undergraduate students online via ESTHER Deadline: College course plans due to Dean of Undergraduates office
Academic Calendars		for Spring 2017 Deadline: Last day to withdraw with a 30% refund of tuition
Classrooms Course Catalog o Course Schedule o Data and Reporting	Monday - Tuesday October 10 - 11, 2016	MIDTERM RECESS (NO SCHEDULED CLASSES)
Degree Works ESTHER o	14, 2016	Deadline: Last day to withdraw with a 20% refund of tuition
Evaluations	21, 2016	Deadline: Last day to withdraw with a 10% refund of tuition
FERPA Final Exams General Announcements Registrar Email Policy Summer Sessions Transcripts Verifications	Friday, October 28, 2016	 Deadline: Last day to designate a full-term course status to "Pass/Fail" option Deadline: Last day to file an application for December 2016 degree conferral with the Office of the Registrar (Undergraduate and Graduate Students) Deadline: Last day to file an application for a May 2017 degree conferral with the Office of the Registrar (Undergraduate Students only) Deadline: Last day to file the following in the Office of Graduate and Postdoctoral Studies for December 2016 degree conferral: Thesis master's candidacy petitions Certification of non-thesis master's Form for candidacy master's Ph.D. candidacy petitions
	Monday, October 31, 2016	Spring Registration: Spring 2017 <u>Course Schedule</u> <i>Published</i> Spring Registration: <i>ESTHER Course Registration Planner</i> opens for currently enrolled undergraduates
	Wednesday, November 9, 2016	Deadline: Last day for instructors to submit textbook orders for Spring 2017 to bookstore@rice.edu Deadline: Last day for instructors to submit Spring semester classroom and lab software requests to edtech@rice.edu
	Sunday, November 13, 2016	Deadline: ESTHER Course Registration Planner closes at 11:59 PM
	Monday, November 14, 2016	Spring Registration : Spring 2017 registration begins for currently enrolled graduate and fifth-year students at 5:00 PM
	Wednesday, November 16, 2016	Spring Registration : Spring 2017 ADD/DROP begins for currently enrolled undergraduate students at 7:00 AM
	Friday, November 18, 2016	Deadline: Last day to register for Spring 2017 by 5:00 PM without a Late Registration Fee
	Saturday, November 19, 2016	Late Registration Begins: Continuing students that have not registered for any classes are charged a Late Registration Fee to add classes

nts	6 of 923
Thursday - Friday, November 24 - 25, 2016	THANKSGIVING RECESS (HOLIDAY - NO SCHEDULED CLASSES)
Friday, December 2, 2016	LAST DAY OF CLASSES Deadline: Last day to drop courses (for Fall 2016 undergraduate matriculants only) - students must go to the Office of the Registrar by 4:00 PM Deadline: For a December conferral of degree, students must submit thesis to the Office of Graduate and Postdoctoral Studies by 12:00 noon
Saturday - Tuesday, December 3 - 6, 2016	STUDY DAYS - NO EXAMS
Wednesday - Wednesday, December 7 - 14, 2016	Final examinations for undergraduate courses
Wednesday, December 14, 2016	END OF THE FALL SEMESTER
Wednesday, December 21, 2016	Deadline: Last day for instructors to submit Final Grades online via ESTHER <i>></i>

Last Revised : August 22, 2016

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Home > Students > Calendars > Academic Calendar Spring 2017

	Spring 2017 Academic Calendar		
Calendars	Monday,	FIRST DAY OF CLASSES - START OF THE SPRING SEMESTER	
 Academic Honors 	January 9, 2017	TROT DAT OF VERSES - START OF THE STRING SEMESTER	
Classrooms	Monday -	Spring Registration Continues: Registration continues for	
► Course Information	Friday, January 9 -	undergraduate, graduate, and visiting students	
Course & Instructor	13, 2017		
Evaluations	Friday, January 13,	Deadline: Last day for instructors to submit final grades to resolve "Other" (OT) grades for courses taken in Fall 2016	
Degree Planning	2017		
Degree Works	Monday, January 16,	MARTIN LUTHER KING, JR. DAY (HOLIDAY - NO SCHEDULED CLASSES)	
Distribution Credit	2017		
Enrollment and Degree Verification		Deadline: Last day to complete late registration Deadline: Last day to add courses online via ESTHER Deadline: Last day to adjust variable credit for courses online via	
▶ ESTHER	Friday,	ESTHER ESTHER Deadline: Last day to designate a credit course as "Audit" or vice versa	
Exam Credit (AP, etc.)	January 20, 2017	Deadline: Last day to convert a "Pass/Fail" to an earned letter grade for courses taken in Fall 2016 Deadline: Last day to withdraw with a 100% refund of tuition and fees	
Final Exam Information		Deadline: Last day to drop to part-time status with a refund of tuition Deadline: Last day for instructors to submit final grades to resolve "Incompletes" (INC) grades for courses taken in Fall 2016	
Graduation	Friday, January 27, 2017	Deadline: Last day to withdraw with a 70% refund of tuition	
Inter-Institutional Graduate Students	Friday, February 3,	Deadline: Last day to withdraw with a 60% refund of tuition	
- OTR Fees	2017		
Personal	Thursday - Friday,	SPRING RECESS (NO SCHEDULED CLASSES)	
Information	February 9		
	- 10, 2017		
Registration	Friday, February	Deadline: Last day to withdraw with a 50% refund of tuition	
- Summer Session	10, 2017		
 Transcripts 	Friday, February	Deadline: Last day to withdraw with a 40% refund of tuition	
Transfer Credit	17, 2017		
Veterans	Friday, February	Deadline: Last day to drop full-term courses online via ESTHER <i>J</i> Deadline: Last day for instructors to submit Mid-Semester Grades for	

2016-2017 General Announcements

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24, 2017	first-year undergraduate students online via ESTHER Deadline: College course plans due to Dean of Undergraduates office for Fall 2017 Deadline: Last day for instructors to submit textbook orders for Summer 2017 to bookstore@rice.edu
	Deadline: Last day to withdraw with a 30% refund of tuition Deadline: Last day to file an application for a May degree conferral with the Office of the Registrar (Graduate Students only) Deadline: Last day to file the following in the Office of Graduate and Postdoctoral Studies for May degree conferral:
	 Thesis master's candidacy petitions Certification of non-thesis master's Form for candidacy master's Ph.D. candidacy petitions
Friday, March 3, 2017	Deadline: Last day to withdraw with a 20% refund of tuition
Friday, March 10, 2017	Deadline: Last day to withdraw with a 10% refund of tuition
Saturday - Sunday, March 11 - 19, 2017	SPRING BREAK (NO SCHEDULED CLASSES)
Monday, March 13, 2017	Summer Registration Begins: Summer 2017 registration begins for currently enrolled undergraduate, graduate and fifth-year students
Friday, March 24, 2017	 Deadline: Last day to designate a full-term course status to "Pass/Fail" option Deadline: Last day to drop courses (for previous Fall undergraduate matriculants only) - students must go to the Office of the Registrar by 4:00 PM Deadline: Last day for second year students to declare majors with the Office of the Registrar
Monday, March 27, 2017	Fall Registration: Fall 2017 Course Schedule PublishedFall Registration: ESTHER Course Registration Planner opens for undergraduate students for Fall 2017 registration.
Wednesday, March 29, 2017	Deadline: Last day for instructors to submit textbook orders for Fall 2017 to bookstore@rice.edu
Wednesday, April 5, 2017	Deadline: Last day for instructors to submit Fall semester classroom and lab software requests to edtech@rice.edu
Sunday, April 9, 2017	Deadline: ESTHER Course Registration Planner closes at 11:59 PM
Monday, April 10, 2017	Fall Registration: Fall 2017 registration begins for currently enrolled graduate and fifth-year students at 5:00 PM
Wednesday, April 12, 2017	Fall Registration : Fall 2017 ADD/DROP begins for currently enrolled undergraduate students at 7:00 AM
Friday, April 14, 2017	Deadline: Last day to register for Fall 2017 by 5:00 PM without a Late Registration Fee
	Friday, March 3, 2017 Friday, March 10, 2017 Saturday - Sunday, March 11 - 19, 2017 Monday, March 13, 2017 Friday, March 24, 2017 Friday, March 24, 2017 Wednesday, March 29, 2017 Wednesday, March 29, 2017 Wednesday, April 5, 2017 Sunday, April 5, 2017 Sunday, April 7, 2017 Sunday, April 12, 2017 Wednesday, April 12, 2017

5	
Saturday, April 15, 2017	Late Registration Begins: Continuing students that have not registered for any classes are charged a Late Registration Fee to add classes
Friday,	LAST DAY OF CLASSES
April 21, 2017	Deadline: Last day to drop courses (for Spring 2017 undergraduate matriculants only) - students must go to the Office of the Registrar by
2017	4:00 PM
	Deadline: Last day to submit theses in the Office of Graduate and
	Postdoctoral Studies for May degree conferral by 12:00 noon
Saturday -	STUDY DAYS - NO EXAMS
Tuesday, April 22 -	
25, 2017	
Wednesday	Final examinations for all undergraduate courses
- Wednesday,	
April 26 -	
May 3,	
2017	
	END OF THE SPRING SEMESTER
May 3, 2017	
Friday, May	Deadline: Last day for instructors to submit Final Grades for all degree
5, 2017	candidates online via ESTHER by 5:00 PM
	Deadline: Last day for academic departments to submit their proposed list of degree candidates to receive the university honor of Distinction in
	Research and Creative Work to Provost's Office by 4:00 PM
Monday,	Deadline (May 2017 Undergraduate Degree Candidates only): Last
May 8,	day to convert a "Pass/Fail" to an earned letter grade for courses taken in
2017	Spring 2017 by 12:00 noon
Friday - Saturday,	ONE HUNDRED AND FOURTH COMMENCEMENT
May 12 -	
May 13,	
2017	
-	Deadline: Last day for instructors to submit Final Grades for all non-
May 17,	graduating students online via ESTHER 🥒
2017	
2017 Friday,	Deadline: Last day for instructors to submit final grades to resolve

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10 of 923

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Opportunities > Admission

Undergraduate Students

RICE

Admission

- Introduction
- Academic Opportunities
 - Academic Calendar 🛃
 - Admission
 - Auditing Courses
 - Majors, Minors, and Certificates
 - Non-Traditional Coursework
 - Study Abroad
 - Teacher Education
 - Undergraduate Degrees
 - Undergraduate Degree Chart
- Academic Policies and Procedures
- Student Services and
- Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Jump to: First-Year Applicants Decision Plans Accelerated Students Home-Schooled Applicants Transfer Students Advanced Placement/International Baccalaureate/International Certificate Programs

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, p. 17, third rev. ed. 2006). 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 admission 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 admission 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 admission 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 admits undergraduate degree candidates on a full-time basis only.

Applicants are selected on a competitive basis in six 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, 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 first 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

The areas of focus generally used in evaluation of first-year candidates for admission include: scholastic record as reflected by the courses chosen and the quality of academic performance, recommendations from high school, the application presentation of personal information, special talents, essays, and standardized testing.

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	3 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 second 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 in high school, many at the college level. Therefore, only those students who have more than 20 college preparatory courses may have the Office of 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:

- An official transcript of all college courses sent directly from the college(s) attended. The college courses should be part of the normal curriculum of the college and taught by regular members of the college faculty.
- 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. College-level courses that appear on the high school transcript will not yield credits at Rice.

Recommendations—Candidates must submit evaluations from their guidance counselor and one teacher.

The Application—All freshman applicants must complete the Common Application, the Coalition Application, the QuestBridge Application, or the Universal College Application. The application and the Rice supplement provide 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. The application fee is \$75. 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 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—All freshman applicants for Fall 2017 must submit at least one of the following:

- the old SAT (Reading, Math, and Writing) and two SAT Subject Tests in fields related to their proposed area of study
- the new, redesigned SAT (Reading/Writing/Language and Math (SAT Essay is optional) and two SAT Subject Tests in fields related to their proposed area of study
- the ACT. Writing is optional

These exams are administered by the College Board and the American College Testing Program. The applicant is responsible for arranging to take the tests and sending official score reports to Rice before the student can be considered for admission. The College Board code for Rice is 6609. The ACT code is 4152.

Rice uses the highest scores from any sitting on the same version of the SAT in order to consider each applicant's most positive test results. Rice will not combine (superscore) area scores from the old and the new SAT. Recognizing that this policy could disadvantage those students who cannot afford repeated testing or expensive test prep coaching, we believe a comprehensive testing history provides us with the appropriate context required for making a fair judgment of what the test scores mean in a holistic admission process. Therefore, we require all applicants submitting the SAT to submit all scores from all versions to Rice. The ACT's definition of a composite score is the average of the four multiple-choice scale scores from a single administration, therefore, it is Rice's policy to use the highest ACT composite score from a single administration.

Additionally, applicants for whom English is not their native language are required to submit official results of either the TOEFL or IELTS exam. A minimum score of 100 is required on the internet-based TOEFL or a 600 on the paper-based TOEFL. The minimum acceptable score for the IELTS exam is 7.0. Applicants may be exempt from this requirement if the language of instruction at the school(s) they attended for the most recent two full years (minimum) is English.

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 Admission makes no distinction between on-campus and off-campus interviews. Interviews are available to seniors only.

Music Audition—The deadline for submitting all required documents is December 1.

Architecture Portfolio—Architecture applicants must submit a portfolio along with the required application materials by the deadline for either the Early Decision or Regular Decision Plan.

Decision Plans

Early Decision Plan—Early Decision is a binding decision plan designed for students who have selected Rice as their first 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 prior to or by the November testing dates in their senior year. All other materials should be submitted by November 1. Admission notices will be mailed by mid December. The committee will admit, defer, or deny Early Decision applicants. Deferred applicants are considered with the Regular Decision pool.

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 \$300 nonrefundable deposit by January 1. An additional \$100 housing deposit is required of those desiring on-campus accommodations.

Those accepted under Early Decision who demonstrate financial aid eligibility will receive a financial aid package in the admission packet. To apply for need-based aid, Early Decision applicants must submit the College Scholarship Service Profile and the student and parent income tax and W-2 forms by November 15, 2016. Register for the CSS PROFILE at https://student.collegeboard.org/css-financial-aid-profile & Students will complete the PROFILE online. The PROFILE number for Rice is 6609. For more detailed information go to http://financialaid.rice.edu &

Shepherd School of Music—All candidates applying to the Shepherd School of Music must submit their application and all required supporting documents by December 1. Admission notification is April 1. Admitted students must submit a \$300 nonrefundable deposit by May 1.

Rice/Baylor Medical Scholars Program—All candidates interested in the Rice/Baylor Medical Scholars Program must submit the Baylor College of Medicine application to Rice University by December 1. Rice application materials are due by November 1 for Early Decision or December 1 for Regular Decision.

Regular Decision Plan—Students who apply Regular Decision must submit their materials by January 1 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 December of their senior year of high school.

Regular Decision applicants who are offered admission should submit a \$300 enrollment deposit by May 1 to reserve their places in the incoming class. Those who desire a room on campus must pay an additional \$100 deposit. Enrollment deposits are not refundable.

Accelerated Students

Rice University will accept applications from students who are completing high school in less than four years. It is important to note that these students will compete with other candidates who will be completing four 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 with an admission officer well 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, home-schooled applicants are encouraged to provide clear, detailed documentation of curriculum of study, assessment tools, and learning experiences. Rice requires evaluations from a guidance counselor and a teacher from all applicants. For home-schooled applicants, at least one of these evaluations must be from someone not related to the student.

Transfer Students

Students with superior records from two-year or four-year colleges or universities may apply as transfer candidates. Applicants should have completed at least 12 semester hours of college work since graduating from high school. Students with less than 12 semester hours should apply through the freshman admission process. High school students enrolled in an Early College program or Dual Enrollment program are not eligible to apply as transfer students and should apply through the freshman admission process. Students who have already completed a bachelor's degree may not apply for transfer admission.

Applicants for transfer admission must file the following with the Office of Admission:

- The Transfer Common Application and the Rice Writing Supplement, the Coalition Application and Rice Supplement, or the Universal College Application and Rice Supplement
- Official transcripts of all high school and college work completed to date, as well as courses in progress
- Professional evaluation of transcripts from non-U.S. institutions. Recommended evaluators are SpanTran (www.spantran.com 🗗) and Education Credential Evaluators (www.ece.org 🗗).
- Two college instructor evaluations
- The college official's report
- SAT or ACT
- A \$75 application fee

Applications with the appropriate documents must be submitted by March 15 for fall term admission. Notification of the admission decisions are made on a rolling basis between May 1 and June 1. 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 or ACT must be taken by February 15. The SAT Subject Tests are not required.

Additionally, applicants for whom English is not their native language are required to submit official results of either the TOEFL or IELTS exam. A minimum score of 100 is required on the internet-based TOEFL or a 600 on the paper-based TOEFL. The minimum acceptable score for the IELTS exam is 7.0. Applicants may be exempt from this requirement if the language of instruction at the school(s) they attended for the most recent two full years (minimum) is English.

Students for whom the \$75 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. Only U.S. citizens and permanent residents are eligible for an application fee waiver.

Transfer students must be registered in residence at Rice for at least four 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 four or five on the applicable Advanced Placement College Board examinations taken before matriculation at Rice may receive university credit for the corresponding Rice course(s). For more information, see AP Credit 4.

International Baccalaureate—Students who complete the International Baccalaureate diploma and receive a score of six or seven on a higher-level IB exam may receive course credit for the corresponding Rice course(s). For more information, see IB Credit 4.

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. For more information, see International Exam Credit 🗗.

Rice A-Z

Back to top

Rice Home

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General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Web Services Un

University Calendar va17 Maps-Directions Feedback

15 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Opportunities > Auditing Courses

Undergraduate Students

RICE

Auditing Courses

Introduction

- Academic Opportunities
 - Academic Calendar 🛃
 - Admission
 - Auditing Courses
 - Majors, Minors, and Certificates
 - Non-Traditional Coursework
 - Study Abroad
 - Teacher Education
 - Undergraduate Degrees
 - Undergraduate Degree Chart
- Academic Policies and Procedures
- Student Services and
- Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

During the fall and spring semesters, currently enrolled degree-seeking Rice students may audit one or more courses at Rice without charge by securing permission of the instructor and by registering as an auditor with the Office of the Registrar. During the summer sessions, enrolled Rice students may audit one or more courses at Rice at the cost of the auditor fee for Rice alumni (see Cashier's website).

Upon completion, the audited course will appear on the student's transcript with a grade of either "AUD" or "NC" (see Grade Symbols). There are no credit hours associated with audited courses, and auditing a course does not affect a student's GPA. Requests to audit a class or to change from audit must be done by the dates and deadlines documented in the posted Academic Calendar (see Academic Calendar).

Last Revised : August 03, 2015

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Rice Home

Web Services

University Calendar va17

endar Rice A-Z

Maps-Directions

Feedback

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Opportunities > Majors, Minors, and Certificates

Undergraduate Students

RICE

Majors, Minors, and Certificates

- Introduction
- Academic Opportunities
 - Academic Calendar 🛃
 - Admission
 - Auditing Courses
 - Majors, Minors, and Certificates
 - Non-Traditional Coursework
 - Study Abroad
 - Teacher Education
 - Undergraduate Degrees
 - Undergraduate Degree Chart
- Academic Policies and Procedures
- Student Services and Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

- Jump to: Undergraduate Majors
 - Declaring Majors, Minors, and Certificates Area Majors

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, in the section "Departments and Interdisciplinary Programs" or by contacting the department. The process for declaring majors appears in the section Declaring Majors and Minors and Area Majors.

School of Architecture—Students admitted to the university as architecture majors must first complete four 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. The School of Architecture also offers a BA in Architectural Studies, which provides a foundation for graduate level study of architecture and/or pursuit of other fields.

George R. Brown School of Engineering—Rice offers majors in bioengineering, chemical and biomolecular engineering, civil and environmental engineering, computational and applied mathematics, computer science, electrical and computer engineering, materials science and nanoengineering, mechanical 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, classical studies, English, French studies, German studies, Spanish and Portuguese, history, philosophy, religion, and visual and dramatic arts. Interdisciplinary majors are available in ancient mediterranean civilizations, Asian studies, Latin American studies, medieval and early modern studies, and the study of women, gender, and sexuality, 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 five years of study.

Wiess School of Natural Sciences—All natural sciences departments, including biosciences, chemistry, earth science, kinesiology, mathematics, and physics and astronomy offer programs leading to the BA degree. BS degrees are offered in some departments. Majors include astronomy, astrophysics, biochemistry and cell biology, biological sciences, kinesiology, chemical physics, chemistry, earth science, ecology and evolutionary biology, environmental stuides, 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, linguistics, mathematical economic analysis, political science, psychology, sociology, and sport management. In addition, 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.

Declaring Majors, Minors, and Certificates

Students declare a major, minor or certificate via a Declaration 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 (or minor, or certificate), it may express its reservations on the form and/or propose a specific course of study to help the

student improve his or her background. No department or program, except the School of Architecture and Shepherd School of Music, may refuse to admit an undergraduate into its program unless specific curricular conditions for such refusals are included in the relevant description of the program requirements, or in cases of resource limitations. Students may not obtain both a BA and a BS in the same major.

Students are encouraged to declare an official major as soon as they have decided on it so that a major advisor can be assigned. Students may declare a major at any time up to, before, or during the spring semester of their second year at Rice. They will not be permitted to register for the fall semester of their third year without having declared a major. The major declaration deadline is listed in the Academic Calendar each year. (Transfer students should declare within their first year or before reaching junior level status.) Students are always free to change their major by completing the Change of Major 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).

Some majors provide students an opportunity to declare a major concentration. Major concentrations are formally recognized subfields of study within a major, and they are represented by a coordinated set of courses emphasizing a subfield in that program. For those majors with approved concentrations, the major concentration is listed on the student's academic transcript as an element of the official curriculum.

Students may declare a minor only after they have first declared a major. The declaration of minor process is identical to that of majors. Students may not major and minor in the same subject.

Additionally, students may declare their intent to pursue a university certificate only after they have first declared a major. The declaration of intent to pursue a university certificate process is identical to that of a major.

Once a student declares a major, minor, or certificate, the title of the major, minor, or university certificate is noted on the student's transcript, and a faculty advisor in the appropriate department is assigned. To gain full benefit of departmental or program course offerings, students should meet regularly with faculty advisors.

To assess progress toward degree requirements, students should:

monitor their Degree Works degree audits (via ESTHER) to review progress toward degree requirements; and
 meet regularly with their faculty advisors to review progress toward completion of major, minor, university certificate, and degree requirements.

For instructions on how to declare a major or minor in ESTHER, visit the Major, Minors, and University Certificates 🗗 page of the Office of the Registrar's website.

Area Majors

Students with well-defined needs that are not met by established departmental or interdisciplinary majors may propose an area major. Area majors combine courses from more than one department into a cohesive plan of original study that is equivalent in quality and rigor to a traditional major.

Area majors are rare and limited by the available academic resources and must be distinct from other majors at Rice. They differ from double majors, which must conform to the requirements of both departments. An area major constitutes a single major with specific requirements that include courses from two or more departments. No course in an area major may be used to fulfill the requirements of an additional major, minor or a certificate, and students with area majors must still meet all the other university graduation requirements.

Students initiate an area major after first consulting with faculty advisors from each of the departments involved. Once support has been obtained from these faculty advisors, students should consult the Office of Academic Advising (OAA) which serves as a liaison to the Committee on the Undergraduate Curriculum (CUC). Students work closely with each faculty advisor to design a comprehensive and substantial course of study and to decide on an appropriate title. This course of study must be formulated in a written proposal. Each faculty advisor and the OAA must sign off on the plan before submission to the chair of the CUC. The CUC determines final approval. As part of the review process, the CUC consults chairs of the involved departments to confirm that courses necessary for successful and timely completion of the major will be offered. If approved, the OAA officially certifies the area major plan to the Office of the Registrar and goes on to oversee the major on behalf of the faculty advisors. Any change in the area major requirements needs the approval of both the faculty advisors and the CUC.

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

Back to top

Last Revised : August 29, 2016								
	General Announce	ments 6100 Ma	in MS-10, Houston, T	exas 77005-1827 Mailir	ng Address: P.O. E	Box 1892, Houston, Tex	xas 77251-1892	
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19 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Opportunities > Non-Traditional Coursework

Non-Traditional Coursework

Introduction

RICE

Academic Opportunities

Undergraduate Students

- Academic Calendar 🛃
- Admission
- Auditing Courses
- Majors, Minors, and Certificates
- Non-Traditional Coursework
- Study Abroad
- Teacher Education
- Undergraduate Degrees
- Undergraduate Degree Chart
- Academic Policies and Procedures
- Student Services and
- Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Courses tailored for individual students provide a valuable opportunity for them to pursue an academic or professional interest under the supervision of a Rice faculty member. Such courses are typically titled as independent study or research, directed reading, or internships. Although the organization of these courses is quite variable, they are subject to the same basic requirements as other course offerings. In particular:

- The instructor of record must hold a regular faculty appointment at Rice. This instructor is responsible for submitting the final grade, in consultation with the student's immediate supervisor, if appropriate.
- The course must have a written syllabus that meets published Rice Syllabus Standards. In addition, the syllabus must include a description of anticipated activities and topical content.
- Credit hours assigned are subject to the same amount-of-work considerations as other courses. Credit hours will be awarded in accordance with the Rice credit hour guidelines 🛃 and fixed at the time of registration.
- All Registrar deadlines for registration, add/drop, completion of course work, and grade submission must be met.

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Rice Home

Web Services

University Calendar va17

Rice A-Z

Maps-Directions Feedback

• The subject matter and intellectual level of the course must be appropriate for Rice.

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Opportunities > Study Abroad

Undergraduate Students

RICE

Study Abroad

Introduction

- Academic Opportunities
 - Academic Calendar 🛃
 - Admission
 - Auditing Courses
 - Majors, Minors, and Certificates
 - Non-Traditional Coursework
 - Study Abroad
 - Teacher Education
 - Undergraduate Degrees
 - Undergraduate Degree Chart
- Academic Policies and • Procedures
- Student Services and
- Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Rice University Study Abroad provides substantial, intellectually rigorous and culturally enriching international opportunities. Rice Study Abroad is committed to providing high quality academic-based educational programs in collaboration with prestigious international universities and select program providers. Rice approved programs are distinguished by their academic focus contributing to the curricular needs of Rice University as well as integration with host communities through opportunities such as intensive language instruction, field studies, professional internships and independent study.

Students must make their study abroad arrangements through Rice Study Abroad 🗗 in order to ensure proper enrollment, credit transfer, financial aid portability, scholarship eligibility and risk management coverage.

Transfer credit for study abroad is governed by the guidelines established by the Faculty Senate, available here 🗗

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General Announcements	6100 Main MS-10, Houston, Texas 77005-1827	Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Rice Home

Web Services

University Calendar

va17

Maps-Directions Feedback

Rice A-Z

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Opportunities > Teacher Education

Undergraduate Students

Teacher Education

Introduction

- Academic Opportunities
 - Academic Calendar 🛃
 - Admission
 - Auditing Courses
 - Majors, Minors, and Certificates
 - Non-Traditional Coursework
 - Study Abroad
 - Teacher Education
 - Undergraduate Degrees
 - Undergraduate Degree Chart
- Academic Policies and ۶ Procedures
- Student Services and
- Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

01/03/2017

Students in the teacher education program earn Texas state teacher certification at the secondary level, grades 7–12. Subjects include art, English, history, Latin, life sciences, mathematics, physical sciences, physics/mathematics, science, social studies, and Spanish. For more information on teacher education programs at the undergraduate and graduate levels, see Teacher Education.

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Rice Home

Web Services

University Calendar va17

Maps-Directions

22 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Opportunities > Undergraduate Degrees

Undergraduate Students

RICE

Undergraduate Degrees

Introduction

- Academic Opportunities
 - Academic Calendar 🛃
 - Admission
 - Auditing Courses
 - Majors, Minors, and Certificates
 - Non-Traditional Coursework
 - Study Abroad
 - Teacher Education
 - Undergraduate Degrees
 - Undergraduate Degree Chart
- Academic Policies and Procedures
- Student Services and
- Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty

Programs of Study

- Administration and Faculty
- Important Notices

Jump to:

- Bachelor of Arts Degrees
 - Bachelor of Science Degrees in the Wiess School of Natural Sciences Bachelor of Science Degrees in the George R. Brown School of Engineering Other Bachelor's Degrees

Bachelor of Arts Degrees

The specific requirements of individual majors leading to the Bachelor of Arts degree vary widely. No department may specify more than 80 semester credit hours (including prerequisites, required courses, 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 semester credit hours in course work outside the major, and students in architecture must complete at least 45 semester credit hours in course work outside the major.

Bachelor of Science Degrees in the Wiess School of Natural Sciences

The Bachelor of Science degree is offered with majors in astrophysics, biochemistry and cell biology, chemistry, chemical physics, earth science, environmental science, ecology and evolutionary biology, mathematics, 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 credit hours (including prerequisites, required courses, and related laboratories) for the Bachelor of Science. To earn a BS degree in one of these fields, students must complete at least 60 semester credit hours in course work outside the major.

Bachelor of Science Degrees in the George R. Brown School of Engineering

- Bioengineering (BSBE)
- Chemical Engineering (BSChE)
- Civil Engineering (BSCE)
- Computer Science (BSCS)
- Electrical Engineering (BSEE)
- Materials Science and NanoEngineering (BSMSNE)
- Mechanical Engineering (BSME)

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 Bachelor of Science degrees, departments may specify up to a defined maximum number of hours of coursework towards that major (including prerequisites, required courses, and related laboratories).

For the declared majors associated with the Bachelor of Science degrees, the Bioengineering department specifies 95 semester credit hours of coursework towards its major; the Chemical and Biomolecular Engineering department may specify up to 100 semester credit hours; the Civil and Environmental Engineering department up to 95; the Computer Science department up to 86; the Electrical and Computer Engineering department up to 91; the Materials Science and NanoEngineering department, 88; and the Mechanical Engineering department specifies 94 semester credit hours of coursework.

To earn the corresponding Bachelor of Science degrees, students must meet the following minimum semester credit hour requirements in total course work:

- Bioengineering majors a total of at least 134 semester credit hours
- Chemical Engineering majors a total of 132 semester credit hours
- Civil Engineering majors a total of at least 133 semester credit hours
- Computer Science majors a total of at least 128 semester credit hours
- Electrical Engineering majors a total of at least 134 semester credit hours

- Materials Science and NanoEngineering majors a total of at least 131 semester credit hours
- Mechanical Engineering majors a total of at least 132 semester credit hours

The programs leading to BS degrees in Bioengineering, Civil Engineering, Chemical Engineering, Electrical Engineering and Mechanical Engineering are accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

Other Bachelor's Degrees

The professional Bachelor of Architecture (BArch) degree requires a fifth year of study and a one-year preceptorship. The Bachelor of Music (BMus) degree requires advanced courses in performance and ensemble in addition to the core music curriculum.

Rice A-Z

Back to top

Last Revised : August 26, 2016

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University Calendar

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va17

Maps-Directions Feedback



GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Opportunities > Undergraduate Degree Chart

Undergraduate Degree Chart

Jump to:

School of Architecture Susanne M. Glasscock School of Continuing Studies George R. Brown School of Engineering School of Humanities Jesse H. Jones Graduate School of Business Shepherd School of Music Wiess School of Natural Sciences School of Social Sciences

SCHOOL OF ARCHITECTURE	
School of Architecture	
- Bachelor of Arts (BA), Architectural Studies	
- Bachelor of Arts (BA), Architecture	
- Bachelor of Architecture (BArch), Architecture	
SUSANNE M. GLASSCOCK SCHOOL OF CONTINUING STUDIES	
N/A: no undergraduate level degrees offered	
GEORGE R. BROWN SCHOOL OF ENGINEERING	
Department of Bioengineering	
- Bachelor of Science in Bioengineering (BSBE)	
Department of Chemical and Biomolecular Engineering	
- Bachelor of Arts (BA), Chemical Engineering	
- Bachelor of Science in Chemical Engineering (BSChE)	
Department of Civil and Environmental Engineering	
- Bachelor of Arts (BA), Civil and Environmental Engineering	
- Bachelor of Science in Civil Engineering (BSCE)	
Department of Computational and Applied Mathematics	
- Bachelor of Arts (BA), Computational and Applied Mathematics	
Department of Computer Science	
- Bachelor of Arts (BA), Computer Science	
- Bachelor of Science in Computer Science (BSCS)	
Department of Electrical and Computer Engineering	
- Bachelor of Arts (BA), <i>Electrical Engineering</i>	
- Bachelor of Science in Electrical Engineering (BSEE)	
Department of Materials Science and NanoEngineering	
- Bachelor of Arts (BA), Materials Science and NanoEngineering	
- Bachelor of Science in Materials Science and NanoEngineering (BSMSNE)	
Department of Mechanical Engineering	
- Bachelor of Arts (BA), Mechanical Engineering	
- Bachelor of Science in Mechanical Engineering (BSME)	
Department of Statistics	
- Bachelor of Arts (BA), Statistics	
SCHOOL OF HUMANITIES	
Department of Art History	
- Bachelor of Arts (BA), Art History	
Department of Classical and European Studies	

2016-2017 General Announcements

- Bachelor of Arts (BA), Classical Studies	
- Bachelor of Arts (BA), French Studies	
- Bachelor of Arts (BA), German Studies	
Department of English	
- Bachelor of Arts (BA), English	
Department of History	
- Bachelor of Arts (BA), History	
Department of Philosophy	
- Bachelor of Arts (BA), Philosophy	
Department of Religion	
- Bachelor of Arts (BA), Religion	
Department of Spanish and Portuguese, and Latin American Studies	
- Bachelor of Arts (BA), Latin American Studies	
- Bachelor of Arts (BA), Spanish and Portuguese	
Department of Visual and Dramatic Arts	
- Bachelor of Arts (BA), Visual and Dramatic Arts	
Interdisciplinary Undergraduate Degrees (from the School of Humanities)	
- Bachelor of Arts (BA), Ancient Mediterranean Civilizations	
- Bachelor of Arts (BA), Asian Studies	
- Bachelor of Arts (BA), Medieval and Early Modern Studies	
- Bachelor of Arts (BA), Study of Women, Gender and Sexuality	
JESSE H. JONES SCHOOL OF BUSINESS	
N/A: no undergraduate level degrees offered	
SHEPHERD SCHOOL OF MUSIC	
School of Music	
- Bachelor of Arts (BA), Music	
- Bachelor of Music (BMus), Bassoon Performance	
- Bachelor of Music (BMus), <i>Cello Performance</i>	
- Bachelor of Music (BMus), Clarinet Performance	
- Bachelor of Music (BMus), Composition	
- Bachelor of Music (BMus), Double Bass Performance	
- Bachelor of Music (BMus), Flute Performance	
- Bachelor of Music (BMus), Harp Performance	
- Bachelor of Music (BMus), Horn Performance	
- Bachelor of Music (BMus), <i>Music History</i>	
- Bachelor of Music (BMus), <i>Music Theory</i>	
- Bachelor of Music (BMus), Oboe Performance	
- Bachelor of Music (BMus), Organ Performance	
- Bachelor of Music (BMus), Percussion Performance	
- Bachelor of Music (BMus), Piano Performance	
- Bachelor of Music (BMus), Trombone Performance	
- Bachelor of Music (BMus), <i>Trumpet Performance</i>	
- Bachelor of Music (BMus), <i>Tuba Performance</i>	
- Bachelor of Music (BMus), Viola Performance	
- Bachelor of Music (BMus), Violin Performance	
- Bachelor of Music (BMus), Vocal Performance	
WIESS SCHOOL OF NATURAL SCIENCES	
Department of Biosciences	
- Bachelor of Arts (BA), Biochemistry and Cell Biology	
- Bachelor of Science (BS), Biochemistry and Cell Biology	
- Bachelor of Arts (BA), Biological Sciences	
- Bachelor of Arts (BA), Ecology and Evolutionary Biology	

- Bachelor of Arts (BA), Chemistry	
- Bachelor of Science (BS), Chemistry	
Department of Earth Science	
- Bachelor of Arts (BA), Earth Science	
- Bachelor of Science (BS), Earth Science	
Department of Kinesiology	
- Bachelor of Arts (BA), <i>Kinesiology</i>	
Department of Mathematics	
- Bachelor of Arts (BA), Mathematics	
- Bachelor of Science (BS), Mathematics	
Department of Physics and Astronomy	
- Bachelor of Arts (BA), Astronomy	
- Bachelor of Science (BS), Astrophysics	
- Bachelor of Arts (BA), <i>Physics</i>	
- Bachelor of Science (BS), Physics	
Interdisciplinary Undergraduate Degrees (from the School of Natural Sciences)	
- Bachelor of Science (BS), Chemical Physics	
- Bachelor of Arts (BA), <i>Environmental Science</i>	
- Bachelor of Science (BS), <i>Environmental Science</i>	
SCHOOL OF SOCIAL SCIENCES	
Department of Anthropology	
- Bachelor of Arts (BA), Anthropology	
Department of Economics	
- Bachelor of Arts (BA), <i>Economics</i>	
- Bachelor of Arts (BA), Mathematical Economic Analysis	
Department of Linguistics	
- Bachelor of Arts (BA), Linguistics	
Department of Political Science	
- Bachelor of Arts (BA), Political Science	
Department of Psychology	
- Bachelor of Arts (BA), <i>Psychology</i>	
Department of Sociology	
- Bachelor of Arts (BA), Sociology	
Department of Sport Management	
- Bachelor of Arts (BA), Sport Management	
Interdisciplinary Undergraduate Degrees (from the School of Social Sciences)	
- Bachelor of Arts (BA), Cognitive Science	
- Bachelor of Arts (BA), <i>Managerial Studies</i>	

Back to top

Last Revised : September 09, 2016

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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			va17			

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 \bigcirc

01/03/2017

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Policies and Procedures > Academic and Judicial Discipline

Undergraduate Students

RICE

Academic and Judicial Discipline

- Introduction
- Academic Opportunities
- Academic Policies and Procedures
 - Academic and Judicial Discipline
- Attendance and Excused Absences
- Final Examinations
- Grades
- Graduation Requirements
- Leaves and Withdrawals
- Name Changes
- Registration
- Transcript Policies
- Transfer Credit
- Veterans Information

Student Services and Organizations

- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

- Jump to: Academic Probation Academic Suspension Readmission After Suspension
 - Disciplinary Probation, Suspension, and Expulsion Degree Revocation

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 academic probation 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 third time, or
- Have a grade point average for the semester that is less than 1.00 (exceptions are made for students completing their first semester at Rice).

Students readmitted after a previous suspension will again be suspended if in any succeeding semester they fail to achieve at least one of the following requirements:

- a cumulative and semester grade point average of at least 1.67, or
- a semester grade point average of at least 2.00.

The first suspension period is normally one semester; the second suspension period is at least two semesters. Students may only return for a fall or spring semester following suspension, not for summer school. Students are not readmitted after a third suspension.

Participation in student activities on and off campus and use of Rice facilities, including, but not limited to, the student center, the colleges, the playing fields, the gym, and the computer labs, are limited to *enrolled* students.

Students placed on academic suspension are notified by the Office of the Registrar after all final grades have been received and posted to their record. Suspension is lifted the first 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 first or second academic suspension who verify with the Office of the Registrar, academic advising, and their department that successful completion of their proposed academic plan would satisfy their degree requirements in one semester if allowed to return, may petition the dean of undergraduates for immediate readmission. This is known as the "senior exception rule", and students may be granted this exception only once. If granted, both the immediate readmission and the exception will be noted on the student's academic transcript.

Senior exception students that do not complete their degree requirements in the one semester for which they were readmitted, but finish with a GPA which allows for good academic standing may be allowed to continue with their studies at Rice, but only by

Senior exception students should note that if they do not complete their degree requirements in the one semester for which they were readmitted, and finish with a GPA resulting in an academic suspension, that second or third suspension will be applied to their academic record.

Students who fulfill all of their degree requirements 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 "academic suspension" placed on their transcript for that semester, but will instead have the notation of "Good Standing with Exception", and be permitted to graduate.

Readmission After Academic 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 June 1 for readmission in the fall semester and November 1 for readmission in the spring semester. The petition should demonstrate what the student did while they were separated from Rice and how they have prepared themselves to successfully function as a student at Rice. The petition must include two supporting letters from persons for whom the student has worked during the suspension period as a student or an employee, as well as an academic plan. Academic plans must be reviewed and approved by the Office of Academic Advising by June 1 for readmission in the fall semester and November 1 for readmission in the spring semester. To allow time for review and revision of the academic plan, students must submit their first draft academic plan at least three weeks in advance of the deadline. Guidelines for completing an academic plan can be found at www.rice.edu/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 or a designated faculty advisor throughout the semester. In the first semester upon return from an academic suspension, students may not become candidates for, or hold, any elected or appointed office, nor are they allowed to enroll in more than 17 semester hours.

In some instances, the committee may postpone approval of readmission or rule that suspension is permanent. 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.

Disciplinary Probation, Suspension, and Expulsion

The Code of Student Conduct applies to all Rice students and encompasses conduct both on and off campus. The Office of Student Judicial Programs may sanction students including implementing disciplinary probation, suspension, or expulsion for violations of the Code of Student Conduct or the Honor Code. Students who have been expelled, who are serving a suspension, who are under investigation for disciplinary violations, or who have pending Code of Conduct or Honor Code proceedings against them may not receive their degree, even if they have met all academic requirements for graduation. Students who are suspended or expelled must leave the university within the timeframe specified by Student Judicial Programs, generally 48 hours from being informed of the decision, though in cases of unusual hardship, Student Judicial Programs may extend the deadline. Any tuition refund will be prorated from the official date of suspension or expulsion. A grade of "W" will be awarded to all enrolled courses regardless of when the suspension or expulsion began. Expelled students will have the expulsion noted on their transcript.

While on disciplinary probation or 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, including, but not limited to the student center, the colleges, the playing fields, the recreation center, and the computer labs, are reserved for enrolled students.

Students seeking readmission after a suspension for Honor Code or Code of Conduct violations or other nonacademic action should submit a petition in writing to the Office of Student Judicial Programs by emailing SJP@rice.edu. That petition should include information on what the student did while away from Rice, including any schooling or employment; how the student met any requirements described by Rice at the time of separation; what the student did to address any issues leading to the separation; and what the student learned from the separation. Once approved by Student Judicial Programs, the petition is forwarded to the dean of undergraduates for final readmission approval and action.

Degree Revocation

The University reserves the right to revoke any degrees granted. A degree awarded may be revoked if the University becomes aware that the degree should not have been granted, such as a degree that was obtained by violating the Honor Code or Code of Student Conduct or by deception, misrepresentation, falsification of records, academic misconduct, research misconduct, or if the work submitted in fulfillment of -- and indispensable to -- the requirements for such degree are determined to fail to meet the academic standards that were in effect at the time the degree was awarded. Notification of the date of revocation will appear on the student's transcript, and the student will be asked to return the diploma. The Provost receives all recommendations for revocation of degrees and, after consideration and review, forwards to the President any recommendations deemed to be warranted. The Provost may also initiate and forward to the President his or her own recommendation for a degree revocation. The President will consider all such recommendations forwarded by the Provost and effectuate those he or she determines to be warranted.

The University also reserves the right to withdraw a degree to correct an administrative error, such as an incorrectly listed degree, or in a situation where it was found that a student had not actually fulfilled all graduation requirements.

30 of 923

Back to top

Last Revised : August 12, 2016

General Announc	ements 6100	Main MS-10, Houston, 7	Texas 77005-1827	Mailing Address: P.O.	Box 1892, Houston, Te	xas 77251-1892
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			va17			



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Policies and Procedures > Attendance and Excused Absences

Undergraduate Students

Introduction

- Academic Opportunities
- Academic Policies and Procedures
 - Academic and Judicial Discipline
- _ Attendance and Excused
- Absences
- Final Examinations
- Grades
- Graduation Requirements
- Leaves and Withdrawals
- Name Changes
- Registration
- Transcript Policies
- Transfer Credit
- Veterans Information
- Student Services and Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Attendance and Excused Absences

Students are expected to attend all scheduled activities for all of the classes for which they are registered during the entire course of the academic semester for which they are enrolled. The academic calendar indicates normal class days, recesses, and holidays. Instructors, however, may schedule required activities on other days, including recesses, holidays, and weekends, if required by programmatic needs, such as laboratories or field trips. Such requirements must be clearly stated in the online course description available at registration and on the syllabus, and instructors should try to provide compensatory time off for students.

The university understands 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.

Resolving conflicting course obligations scheduled outside of assigned class time

Many courses require presentations that cannot reasonably be accommodated within the scheduled class period. Problems occur when faculty schedule these presentations during times that conflict with other regularly scheduled classes.

Principles

- Generally, faculty should plan their course activities to avoid conflicts with other regularly scheduled classes.
- Generally, all deadlines and schedules will be included in the syllabus or announced, in writing, early in the semester.
- It is the responsibility of faculty members to make appropriate accommodations and adjustments when required class exercises are scheduled outside of assigned class time.
- A student must not be penalized either directly or indirectly.

Resolution of scheduling conflicts

- Class presentations outside of the scheduled class time should be held on evenings and weekends.
- Registrar-assigned class times take priority over activities of other classes.
- When two or more classes require activities outside of class time, the order of priority is determined by the date at which the exercise was announced in writing and scheduled.
- When two or more classes require activities outside of class time, activities which require external reviewers or coordination of multiple schedules have priority over individual exercises that can rescheduled.
- Required exercises outside of assigned class times that are announced at the last minute do not take priority over those announced earlier, even if they require coordination of multiple schedules.

Roles and responsibilities

- Ideally, faculty will cooperate with one another when they need to resolve scheduling conflicts.
- If faculty involved are unable to find a solution that does not penalize or unduly disadvantage the student, department chairs will resolve the scheduling conflict.
- If department chairs are unable to resolve the scheduling conflict, the matter will be referred to the Dean of Undergraduates or

32 of 923

	Last Revised : Au	gust 03, 2015				
General Announce	ments 6100 M	ain MS-10, Houston,	Texas 77005-1827 Maili	ng Address: P.O.	. Box 1892, Houston, Te	kas 77251-1892
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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Policies and Procedures > Final Examinations

Undergraduate Students

RICE

Introduction

- Academic Opportunities
- Academic Policies and Procedures
 - Academic and Judicial Discipline
- Attendance and Excused
- Absences
- Final Examinations
- Grades
- Graduation Requirements
- Leaves and Withdrawals
- Name Changes
- Registration
- Transcript Policies
- Transfer Credit
- Veterans Information
- Student Services and Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

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 undergraduate-level courses are assigned a final examination time by the Office of the Registrar. Upon request, graduate-level courses may be scheduled for a final examination time. Instructors may choose to use that assigned time for a scheduled final examination. If they choose this option, the Office of 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 five 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 Office of 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.

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Web Services

University Calendar

va17

Maps-Directions

Rice A-Z

Feedback

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Policies and Procedures > Grades

Undergraduate Students

RICE

Grades

- Introduction
- Academic Opportunities
- Academic Policies and Procedures
 - Academic and Judicial Discipline
- Attendance and Excused Absences
- Final Examinations
- Grades
- Graduation Requirements
- Leaves and Withdrawals
- Name Changes
- Registration
- Transcript Policies
- Transfer Credit
- Veterans Information
- Student Services and Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Jump to: Pass/Fail Option

Satisfactory/Unsatisfactory Audit Grade Symbols Grade Designations Grade Points

See also Faculty Grading Guidelines and Syllabus Standards.

Pass/Fail Option

Undergraduates may register for courses on a pass/fail basis. Students:

- May not take more than one course as a pass/fail per semester for each full year of residence (students studying in offcampus programs through Rice are considered to be in residence for the purpose of this rule).
- May not take more than four courses as pass/fail (even if they are in a five-year degree program).
- May not take more than a total of 14 semester hours total as pass/fail.
- May register for only one course as pass/fail in a semester.
- May not take as pass/fail a repeatable course previously taken and designated as pass/fail.
- May not take as pass/fail those courses used to meet the requirements for their major. If students take such courses pass/fail, the Office of the Registrar will replace the P with the grade earned during the final degree audit. This same rule and process applies to minors.
- Must submit the proper online form for a course to be taken pass/fail no later than the posted deadline, usually the end of the 10th week of semester.
- May not take First-Year Writing-Intensive Seminar (FWIS) courses as Pass/Fail.

Students may convert a pass/fail course to a graded course by submitting the proper online form with the Office of the Registrar, and must adhere to the pass/fail deadlines as stated in the Academic Calendar. Students wishing to designate a course as pass/fail during the summer sessions should see Registration During Summer Sessions.

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 four courses. For more information, see The Pass/Fail Option 4.

Satisfactory/Unsatisfactory

Satisfactory/unsatisfactory courses are those that do not use traditional grading procedures and instead assign a grade of S or U rather than a letter grade. Such courses or labs are designated by the instructor and are, in most cases, graduate level courses. With S/U courses, instructors report the S if the student successfully completes the course, or the U if they have not. 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.

Audit

Students have the option of auditing courses. For auditing students, instructors report either the AUD or the NC grade symbol, the AUD if the student met the audit requirements of the class, or the NC if they have not. There are no credit hours associated with audited courses, and auditing a course does not affect a student's GPA. Request to audit a class or to change from audit to credit or vice versa must be done by the end of the second week of the semester. (See Grade Designations AUD and NC below.)

Grade Symbols

Instructors are required to report a grade for all students whose names appear on the class roster. They grade their students using

the following conventional symbols: A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F.

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:

AUD ("Audit")—This designation is only used for students auditing the course, and specifically where the auditing student has met the audit requirements of the course as defined by the instructor. A grade designation of "NC" (No Credit) is given to students who do not meet the audit requirements. There are no credit hours associated with an AUD grade designation. (See Audit above.)

INC ("Incomplete")—Instructors report this designation to the Office of 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 provide independent corroboration of their illness or circumstances, and they are expected to coordinate with the instructor prior to final grades being submitted. For an INC received in the fall semester, students must complete the work by the end of the first week of the spring semester or an earlier date as defined by the instructor, and instructors must submit a revised grade by the end of the fall semester or an earlier date as defined by the instructor, students must complete the work before the start of the fall semester or an earlier date as defined by the instructor, and instructors must submit a revised grade by the end of the fall semester or an earlier date as defined by the instructor, and instructors must submit a revised grade by the end of the fall semester or an earlier date as defined by the instructor, and instructors must submit a revised grade by the end of the fall semester or an earlier date as defined by the instructor, and instructors must submit a revised grade by the end of the fall semester or an earlier date as defined by the instructor, will be automatically converted to a failing grade.

Students with an INC 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 according to the timeline previously stated, 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. Students also should be aware that they may be placed on probation or suspension when the INC is changed to a grade, either by an instructor or by default.

NC ("No Credit")—This designation signals that no credit was granted for the course. It is used in situations where a person auditing a course has not met the audit requirements of the course as defined by the instructor.

NG ("No Grade")—This designation signals that no credit was granted for the course, and no grade was submitted by the instructor. As a non-punitive grade, the NG is applied administratively and used in rare situations.

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 required work for the course. An OT awarded during a fall semester must be resolved and instructors must submit a revised grade by the end of the first week of the spring semester. An OT awarded during a spring semester must be resolved and instructors must submit a revised grade by the end of the first week of the solved by the end of the fourth week after Commencement. An OT awarded during a summer semester must be resolved and instructors must submit a revised grade by the start of orientation week. If a grade is not submitted by the appropriate deadline, the OT will be automatically converted to a failing grade. Students should be aware that they may be placed on probation or suspension when the OT is changed to a grade, either by an instructor or by default.

W ("Official Withdrawal from University")—Students who officially withdraw from the university after the designated drop deadline, the seventh week of classes, will receive a final grade of "W" for each course in which they were enrolled at the time of withdrawal.

Students who officially withdraw from the university by the drop deadline 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 Office of 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. New matriculants in their first semester at Rice may drop a class up until the last day of classes, and through the end of week ten in their second semester, if that is a full-term Spring semester, and the course will not be included on the student's official transcript.

XII ("Article XII")—This designation was used in various honor council or judicial cases when a student had opted to voluntarily withdraw from the university and forfeit credit for the course in question, with the understanding that the accusation would not otherwise be pursued. This option is no longer available.

Grade Points

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

A+	4.33*	С	2.00
Α	4.00	C-	1.67
A-	3.67	D+	1.33
B+	3.33	D	1.00
в	3.00	D-	0.67
B-	2.67	F	0.00
C+	2.33		

* Effective in Fall 2018 semester, the grade A+ will be worth 4.0, not 4.33, in calculating the GPA.

Grade Point Average Calculation—For each course carrying standard letter grades, the credit hours attempted and the points for the grade earned are multiplied. The grade 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. Courses taken on a S/U or pass/fail basis are excluded from the grade point average calculation.

Back to top

	Last Revised : Se	otember 07, 2016					
General Announce	ements 6100 Ma	ain MS-10, Houston, ⁻	Texas 77005-1827 Maili	ng Address: P.O	. Box 1892, Houston, Tex	as 77251-1892	
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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Policies and Procedures > Graduation Requirements

Undergraduate Students

Graduation Requirements

Introduction

- Academic Opportunities
- Academic Policies and Procedures
 - Academic and Judicial Discipline
- Attendance and Excused
- Absences
- Final Examinations
- Grades
- Graduation Requirements
- Leaves and Withdrawals
- Name Changes
- Registration
- Transcript Policies
- Transfer Credit
- Veterans Information
- Student Services and Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

The General Announcements (GA) is the official Rice curriculum. In the event that there is a discrepancy between the GA and any other websites or publications, the GA shall prevail as the authoritative source.

Jump to:

Degree Requirements for All Bachelor's Degrees Writing and Communication Requirement Distribution Requirements Academic Planning for Distribution Requirements Applicable Academic Graduation Requirements Application for Degree and Degree Conferral Dual-Degree 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 four full fall and/or spring semesters
- Complete the requirements of at least one major degree program
- Complete at least 120 semester credit hours (some degree programs require more than 120 credit hours)
- Complete at least 60 semester credit hours at Rice University
- Complete at least 48 credit 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 at least 60 credit hours outside of their major for Bachelor of Arts and Bachelor of Science degrees. Exceptions include:
 - Students pursuing the BA degree with a major in architecture must complete at least 45 credit hours outside the major.
 Students pursuing a BS degree in engineering are not subject to this requirement.
- 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 and/or minor requirements (as designated by the department) with a cumulative grade point average of at least 2.00 or higher
 - Satisfy the Writing and Communication requirement (see below)
- Complete one Lifetime Physical Activity Program (LPAP) course for one credit. Students with disabilities may make special
 arrangements to satisfy this requirement
- Complete courses to satisfy the distribution requirements (see below)
- Otherwise be a student in good academic and disciplinary standing and not under investigation

No more than three hours of credit for student-taught College Courses (COLL) may be counted toward graduation. This includes all courses COLL 100-199 as well as COLL 200 Teaching Practicum.

No more than four hours of credit for LPAP courses may be counted toward graduation.

In order to earn a second degree, students must fulfill the requirements outlined in the Dual-Degree Requirements section below.

Writing and Communication Requirement

All students must complete and pass a First-Year Writing-Intensive Seminar (FWIS). An FWIS is a content-based, 3-credit hour seminar open only to first-year students that can focus on any topic, and in which writing and communication pedagogy plays a significant role in assignments and grading. To facilitate success in meeting this requirement, all students must take the English Composition Examination prior to matriculating. Students who fail the English Composition Exam, or fail to take it, must successfully complete the FWIS 100 Fundamentals of Academic Writing and Communication course during their first semester, and prior to enrolling in the FWIS course used to meet the graduation requirement. FWIS 100 cannot be used to meet the FWIS

graduation requirement.

All first-year students must enroll in and successfully complete an FWIS during their first year at Rice, and all first-year students will be notified prior to Orientation Week if they have been assigned to take an FWIS during the fall or spring of their first year. Students who matriculate as freshmen may not substitute transfer credit for the FWIS. Transfer students who wish to satisfy the FWIS requirement with courses from another institution must apply for this credit before the end of their Orientation Week. Neither freshmen nor transfer students may satisfy the FWIS requirement by taking an equivalent course at another institution after matriculating at Rice.

All FWIS courses carry the FWIS designation and cannot be taken as Pass/Fail. Students are allowed to change FWIS sections during the first two weeks of classes each semester, but they cannot drop one FWIS section without simultaneously adding another. After week two, FWIS courses cannot be dropped. In extraordinary circumstances, students may submit a petition to the Dean of Undergraduates, who may approve a drop on an exception basis.

See the Program in Writing and Communication's web site for FWIS section descriptions and for more information on the required English Composition Exam.

Distribution Requirements

Purpose of Distribution Requirements

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. There are three groups of required courses.

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 two 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 two 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.

Academic Planning for Distribution Requirements

Each student is required to complete at least 4 courses of designated distribution courses of at least three credit hours each in each of Groups I, II, and III. The 4 courses in each group must include courses in at least two departments in that group. Divisional or interdisciplinary designations, e.g., HUMA or NSCI, count as departments. For the purpose of this rule, a course taken at another institution and transferred to Rice as an equivalent distribution course will be counted as one of these courses, provided that the course earns at least 2.5 credit hours.

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.

Applicable Academic Graduation Requirements

Students enrolled in four- (or five-) year bachelor's programs may decide whether to follow the graduation general and major requirements in effect when they first matriculated at Rice, or those in effect when they graduate. This is known as the GA Year, or *Catalog Year* in the university's degree audit system, Degree Works.

If the student graduates more than seven (or eight) years after their matriculation, they 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 seven (or eight) 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. When declaring the major or minor, students and advisors should identify and clearly document the set of major requirements to be followed. Each should retain a copy of the documented major requirements. If a new degree program, major, or minor is created during the student's time at Rice, the new program will be available to the student as if the program appeared in the General Announcements at the time of matriculation.

Application for Degree and Degree Conferral

All students must complete and submit an Application for Degree Form available in ESTHER. This form is required for all students who plan to complete their degree requirements at the end of the fall or spring semester. A late fee will be assessed for applying after the deadline (please consult the semester-specific Academic Calendar 🗗 for deadline).

Upon completion of degree requirements, degrees are approved by the faculty and conferred only in December and May. Degree recipients may then participate in the annual commencement ceremony, celebrated each year after the conclusion of the spring semester. Under specific, limited circumstances, an undergraduate student may participate in commencement without being a degree recipient, provided that the student would be joining his or her matriculating class in that commencement. The specific policy, rules and procedures are available on the Office of the Dean of Undergraduates' website.

Dual-Degree Requirements

To earn a second four-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 a second degree should submit an additional declaration of major form with the Office of the Registrar 🖗. This paperwork should include the addition of the proposed degree and major programs along with the approval of the chair or undergraduate advisor of each department involved, indicating that the proposed course program satisfies all major and degree requirements.

Students with a previously earned bachelor's degree from Rice who wish to earn a second bachelor's should look at the Non-Traditional Student section.

Back to top

Last Revised : August 19, 2016

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va17

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Policies and Procedures > Leaves and Withdrawals

Undergraduate Students

RICE

Introduction

- Academic Opportunities
- Academic Policies and Procedures
 - Academic and Judicial Discipline
- Attendance and Excused Absences
- Final Examinations
- Grades
- Graduation Requirements
- Leaves and Withdrawals
- Name Changes
- Registration
- Transcript Policies
- Transfer Credit
- Veterans Information
- Student Services and Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Leaves, Withdrawals and Readmission

General Information

All students taking a leave or withdrawal from Rice should submit their written request on an Undergraduate Separation Request Form . Student separations are effective when acknowledged by the university. Approval of a withdrawal and leave of absence is always 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 an academic suspension.

After a separation of more than four semesters, students seeking to return to Rice must submit a written petition to the dean of undergraduates who has discretion to submit it to the Committee on Examinations and Standing. The petition should be received no later than June 1 for the fall semester and November 1 for the spring semester. The petition should include an academic plan approved by the Office of Academic Advising and two letters of support. Academic plans must be reviewed and approved by the Office of Academic Advising by June 1 for readmission in the fall semester and November 1 for readmission in the spring semester. To allow time for review and revision of the academic plan, students must submit their first draft academic plan by October 7 in the fall semester and by May 7 in the spring semester. Guidelines for completing an academic plan can be found on the Academic Advising website ref.

Coordination of Separations and Returns

Rice is committed to students' long-term success and to seeing them thrive during their college experience. Part of that commitment means that Rice supports students if they decide to leave the university for a period of time. Professionals in these areas also work with students to plan a roadmap back to Rice.

The Office of the Dean of Undergraduates oversees readmission processes. Each request for readmission will be reviewed individually. The dean of undergraduates or his/her designee will make readmission decisions. Students are encouraged to contact the Office of the Dean of Undergraduates with questions about separations and re-enrollment at the university.

Students are expected to follow the process outlined in their letter from the dean of undergraduates and any other communications from Rice regarding expectations for separation and readmission. Additionally, sometimes students are separated from Rice through more than one process and are required to submit readmission requests to multiple university departments. In certain cases, readmission may be accompanied by additional requirements to support the success and wellbeing of the student.

Leave of Absence

Students may request a leave of absence from the university by submitting their written request on an Undergraduate Separation Request Form at any time before the first day of classes in the semester for which they are requesting a leave. A leave of absence taken after the first day of classes is considered a voluntary withdrawal.

To gain readmission following an approved leave of absence of not more than four semesters, students must notify the Office of the Dean of Undergraduates no later than June 1 for the fall semester and November 1 for the spring semester. We strongly recommend that the student consult with the Office of Academic Advising about their academic plan.

Military Leave of Absence

Students who require a leave of absence and return because of being called to active military duty may request a military leave of absence from the university by submitting their written request on an Undergraduate Separation Request Form 4.

To gain readmission following an approved leave of absence of not more than four semesters, students must notify the Office of the Dean of Undergraduates no later than June 1 for the fall semester and November 1 for the spring semester. We strongly recommend that the student consult with the Office of Academic Advising about their academic plan.

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 and submit their written request on an Undergraduate Separation Request Form 4. The Office of the Dean of Undergraduates may notify other offices of the university as necessary. Students who fail to give notice of withdrawal should expect to receive grades reflective of any missed academic work.

If students are in good academic standing at the time of their withdrawal, they may be considered for readmission after submitting a written petition to the Office of the Dean of Undergraduates. The petition, received no later than June 1 for the fall semester, and November 1 for the spring semester, should include an academic plan approved by the Office of Academic Advising and two letters of support. Academic plans must be reviewed and approved by the Office of Academic Advising by June 1 for readmission in the fall semester and November 1 for readmission in the spring semester. To allow time for review and revision of the academic plan, students must submit their first draft academic plan by October 7 in the fall semester and by May 7 in the spring semester. Guidelines for completing an academic plan can be found on the Academic Advising website 🗗.

If students withdraw within five weeks of the last day of classes, they must submit the written application on an Undergraduate Separation Request Form 🗗 to the dean of undergraduates who has discretion to submit it to the Committee on Examinations and Standing. If students withdraw within five 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. For purposes of readmission, students whose grades would have led to suspension had they not withdrawn are treated as if they had been suspended.

If students voluntarily withdraw for medical or psychological/psychiatric reasons, students are encouraged to contact the Student Wellbeing Office 🖗 about the readmission process.

Medical Withdrawal

Students may request a medical withdrawal from the university by submitting their written request on an Undergraduate Separation Request Form 🗗 at any time during the semester, up until the last day of classes. Students considering taking time off for personal reasons related to their wellbeing and mental health are also encouraged to contact the Student Wellbeing Office 🗗 about the roadmap back to Rice. The Student Wellbeing Office is part of the Dean of Undergraduates Division and serves as a liaison to the medical readmission process during the separation process and when students are ready to return.

Following a medical withdrawal, students should submit a written petition for readmission to the Office of the Dean of Undergraduates no later than June 1 for the fall semester and November 1 for the spring semester. This petition must include documentation of treatment provided. Students also may be required to schedule an interview with the director of the Rice Counseling Center & or Student Health Services & or their designees. Academic plans must be reviewed and approved by the Office of Academic Advising by June 1 for readmission in the fall semester and November 1 for readmission in the spring semester. To allow time for review and revision of the academic plan, students must submit their first draft academic plan by October 7 in the fall semester and by May 7 in the spring semester. Guidelines for completing an academic plan can be found at the Office of Academic Advising &.

Students who withdraw for psychological reasons within the last five weeks of a semester are strongly encouraged to focus on their wellbeing needs and will not be eligible to apply for immediate readmission. Therefore, petitions for readmission will be considered in the following readmission request cycle and must be received no later than the applicable June 1 or November 1 deadline.

Involuntary Withdrawal

The university may insist on a student's involuntary withdrawal if, in the judgment of the dean of undergraduates or his/her designee, the student's behavior includes, but is not limited to, one or more of the following:

- Poses a threat to the safety or welfare of him/herself or other members of the Rice community;
- Has a serious medical or a psychological condition that the student cannot effectively address while enrolled or which is likely to be severely exacerbated by the Rice academic and/or living environment;
- Demonstrates behavior that seriously interferes with the education of other members of the Rice community;
- Is not able to continue functioning as a student.

Following an involuntary withdrawal, students should submit a written petition for readmission to the Office of the Dean of Undergraduates 🗗 no later than June 1 for the fall semester and November 1 for the spring semester. This petition must include documentation of treatment provided. Students may be required to schedule an interview with the director of the Rice Counseling Center 🗗 or Student Health Services 🗗 or their designees. Academic plans must be reviewed and approved by the Office of Academic Advising by June 1 for readmission in the fall semester and November 1 for readmission in the spring semester. To allow time for review and revision of the academic plan, students must submit their first draft academic plan by October 7 in the fall semester and by May 7 in the spring semester. Guidelines for completing an academic plan can be found on the Academic Advising website 🗗. Further information is available by contacting the Office of the Dean of Undergraduates.

Students taking time off due to an involuntary withdrawal are also encouraged to contact the Student Wellbeing Office 🗗 about the

roadmap back to Rice. The Student Wellbeing Office is part of the Dean of Undergraduates Division and serves as a liaison to the medical readmission process during the separation process and when students are ready to return.

Students who are involuntarily withdrawn for psychological reasons after the designated drop deadline of the fall or spring semester may not petition for readmission for the semester immediately following the semester from which they are withdrawn. Petitions should be received no later than the applicable June 1 or November 1 deadline to be considered for readmission for the upcoming semester.

Unauthorized Withdrawal

Students who leave the university without proper notification of withdrawal are considered to have resigned. Resigned students will only be considered for readmission under exceptional circumstances. In order to be considered for readmission, students must submit a petition no later than June 1 for the fall semester and November 1 for the spring semester to the dean of undergraduates who has the discretion to submit it to the Committee on Examinations and Standing. The petition should include an academic plan approved by the Office of Academic Advising and two letters of support. Academic plans must be reviewed and approved by the Office of Academic Advising by June 1 for readmission in the fall semester and November 1 for readmission in the spring semester. To allow time for review and revision of the academic plan, students must submit their first draft academic plan by October 7 in the fall semester and by May 7 in the spring semester. Guidelines for completing an academic plan can be found on the Academic Advising web site 🗗.

Resignation

A student may resign from the university by notifying the dean of undergraduates in writing. Resignation means the student is withdrawing, is no longer a student at Rice, and will not return to Rice. A resignation becomes effective when accepted by the dean of undergraduates. In general, if a student is under investigation for a potential Code of Student Conduct violation or has charges pending under the Code, disciplinary proceedings will terminate upon acceptance of the resignation by the dean of undergraduates. A student who resigns is not eligible to receive a degree from Rice, even if the student has otherwise met all of the requirements for the degree.

All Separated Students, Presence on Campus

All students separated from Rice, whether voluntarily or involuntarily, withdrawn, resigned, or due to academic or disciplinary suspension, must leave campus within 48 hours. Exceptions are granted by the dean of undergraduates or, in the case of disciplinary suspensions, the Office of Student Judicial Programs and, if the student is living on campus, the college master. All separated students must return their college key to their college coordinator and their student ID to the dean of undergraduates. Participation in student activities on and off campus and use of Rice facilities, including, but not limited to, the student center, the colleges, the playing fields, the recreation center, and the computer labs, are limited to enrolled students. Separated students are expected to be away from Rice during the term of the separation. If the student is employed by Rice at the time of separation, he or she must relinquish such employment or petition the dean of undergraduates for written permission to continue the on-campus employment. Noncompliance with these requirements may delay readmission.

All Readmitted Students, Return to Campus

Students who have been readmitted must comply with any restrictions or requirements placed upon them by the dean of undergraduates or the Office of Student Judicial Programs. Failure to comply with or follow the restrictions or requirements may be cause for disciplinary action under the Code of Student Conduct 🗗. Student Judicial Programs may implement a period of disciplinary probation and/or other restrictions as a condition of any readmission.

Completing Graduation Requirements Elsewhere

Students planning to complete graduation requirements at another institution must first secure formal written approval from the dean of undergraduates by submitting their written request on anUndergraduate Separation Request Form A. Transfer credit is subject to all Rice's transfer credit policies and must be approved by the Registrar. All other graduation requirements apply, and the student is expected to adhere to all requirements and deadlines.

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 General Announcements
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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

 va17

43 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Policies and Procedures > Name Changes

Undergraduate Students

Name Changes

Introduction

- Academic Opportunities
- Academic Policies and Procedures
 - Academic and Judicial Discipline
- Attendance and Excused Absences
- Final Examinations
- Grades
- Graduation Requirements
- Leaves and Withdrawals
- Name Changes
- Registration
- Transcript Policies
- Transfer Credit
- Veterans Information
- Student Services and
- Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

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).

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University Calendar va17

Rice A-Z

Maps-Directions Feedback

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Policies and Procedures > Registration

Undergraduate Students

RICE

Registration

- Introduction
- Academic Opportunities

Academic Policies and Procedures

- Academic and Judicial Discipline

Attendance and Excused

- Absences
- Final Examinations
- Grades
- Graduation Requirements
- Leaves and Withdrawals
- Name Changes
- Registration
- Transcript Policies
- Transfer Credit
- Veterans Information
- Student Services and Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Jump to: Drop/Add Course Load Course Numbering System Repeated Courses Change in Registration Registration During Summer Sessions

Currently enrolled students register in April for the fall semester and in November for the spring semester. Student registration is prioritized based on a student's matriculation term and their hours completed and in academic history. Students matriculating in the fall complete their registration during Orientation Week before classes begin in August. Students matriculating mid-year register during Mid-Year Orientation before classes begin in January. Students are strongly encouraged to meet with their divisional or major advisor to discuss their courses for the upcoming semester.

New students may not register or attend classes until they return a properly completed health data form and meet immunization and TB screening requirements. Additionally, all first-time undergraduate students, including transfers, must meet the meningococcal meningitis vaccine requirement to live on campus. Immunizations required for admission are diphtheria/tetanus, measles, rubella, and mumps, meningococcal meningitis, with immunizations against hepatitis B and chicken pox recommended. The Mantoux tuberculin skin test is also 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 specific registration deadlines for the semesters of that year in the Academic Calendar. Deadline due dates for student account balances for each term are published here in the General Announcements under the appropriate sections and on the Cashier's website. 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. Withdrawn students will 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 \$125. Additionally, students who are readmitted after being withdrawn for nonpayment will be assessed a \$350 readmission fee.

Drop/Add

During the first two weeks of classes, students may add or drop courses without penalty. After the second week of the semester, the following conditions apply for adds and drops. Undergraduate students:

- May not add courses after the second week of classes, except in extenuating circumstances and with the approval of the Committee on Examinations and Standing (a \$75 fee per course will be assessed).
- May drop courses through the seventh week without penalty.
- May not drop courses after the end of the seventh week of classes except in extenuating circumstances and with the approval of the Committee on Examinations and Standing (a \$75 fee per course will be assessed). Students who receive approval to drop a course after the designated drop deadline will receive a grade of "W" for that course.

Newly matriculated undergraduate students, both new first-time and transfer students in their first full-term semester at Rice (Fall or Spring), are permitted to drop courses up to the last day of classes. These same students, in their second semester at Rice, if that semester is a full-term Spring semester, are permitted to drop courses through the tenth week of classes without a fee.

Students are allowed to change FWIS sections during the first two weeks of classes each semester, but they cannot drop one FWIS section without simultaneously adding another. After week two, FWIS courses cannot be dropped. In extraordinary circumstances, students may submit a petition to the dean of undergraduates who may approve a drop on an exception basis.

For courses with start and end dates not coinciding with Rice's typical semester calendar, otherwise known as "part of term" courses, the Office of the Registrar will consult with the instructor and:

- Set the add deadline approximately one-seventh of the way into the course
- Set the drop deadline approximately one-half of the way into the course
- Post these special deadlines on the Office of the Registrar's website, under Academic Calendars.

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 credit hours each semester. For most students, this allows completion of graduation requirements in eight semesters. Students who matriculated prior to Fall 2016 must secure permission in writing from the Office of the Academic Advising if they want to register for more than 20 credit hours in a semester. Guidelines for securing permission for more than 20 credits can be found on the Academic Advising website **P**. Petitions for more than 24 credit hours will not be considered. No student may receive credit for more than 20 semester credit hours in a semester, including courses taken elsewhere, without prior written approval.

Beginning with the Fall semester 2016, new first time students (i.e. freshmen, not transfers) may register for no more than 18 credit hours per semester. Music students and architecture students are not held to this semester credit hour limit due to their unique curricula; the credit hour limit for these students remains 20 credit hours per semester.

Students must secure permission in writing from the Office of the Dean of Undergraduates before registering for courses if they want to:

- Complete graduation requirements elsewhere
- Register for less than 12 semester credits hours, which will move the student to part-time status
- Register concurrently at another university, regardless of the delivery method of the course

i. In the absence of extenuating circumstances necessitating concurrent registration, such permission will not generally be granted.

ii. Credit for coursework at another college or university completed in a semester while enrolled at Rice will not be recorded by the Office of the Registrar without prior receipt of written permission from the dean of undergraduates.

Students also should be aware that the Office of the Registrar 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.

For more information, visit the Office of the Registrar website d

Course Numbering System

Courses numbered 100-499 are generally considered undergraduate level, with the 100-299 sequence classified as lower-level (freshman/sophomore) and the 300-499 sequence classified as upper-level (junior/senior). Courses numbered 500 and above are generally considered to be at the post-baccalaureate or graduate level. Graduate and undergraduate students may, with departmental approval, take certain courses outside their designated level.

Repeated Courses

Students may repeat courses previously taken; however the record of all attempts and the corresponding earned grades remain on the transcript. Additionally the grades for all attempts are included in both the term and cumulative grade point average calculations. If students repeat courses previously passed, credit is awarded only for the course with the highest grade. For example, a student took HIST 117 and received a grade of B. The student then repeated HIST 117 and received a grade of A. Both grades—the B and the A—appear on the transcript and are included in his/her GPA; however, he/she only receives three 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

Each course attempt will be included in a student's academic history. Under no circumstances will repeated course attempts be removed from a student's academic history or official transcript, nor will a student be retroactively dropped from a course that they completed.

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 student's grade point average.

If students repeat courses for which they have received either advanced placement or transfer credit, the credit will be removed from the transfer or advanced placement credit. Nor can credit be received twice for students transferring in courses that repeat courses previously completed 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.

Change in Registration

The academic calendar lists deadlines for dropping or adding a course 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 online or through the completion of the appropriate forms and submission to the Office of the Registrar. Changing a course to/from audit status must be done by the deadlines as posted in the Academic Calendar for the applicable semester. If a student feels they have exceptional circumstances, they can request exceptions to these deadlines by petitioning the Committee on Examinations and Standing.

Registration During Summer Sessions

Currently enrolled Rice students should register online via ESTHER as per normal registration processes and procedures. Rice students should be aware that the registration and payment deadlines do differ, depending on the summer session, and should familiarize themselves with the Academic Calendar. Summer courses that do not generate enrollments sufficient to cover their costs may be canceled prior to the first day of class.

Pass/Fail during summer sessions--Currently enrolled Rice students can designate a summer course as Pass/Fail during the summer sessions, but can do so only by visiting the Office of the Registrar in person and completing a Pass/Fail Designation form. Similarly, conversions of summer Pass/Fail grades can only be done via paper form at the Office of the Registrar. Students should adhere to the applicable pass/fail deadlines, as stated in the Academic Calendar.

Auditing courses during the summer sessions--Currently enrolled Rice students may audit one or more courses at Rice at the cost of the auditor fee for Rice alumni (see Cashier's Website).

Rice A-7

Back to top

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University Calendar

Maps-Directions Feedback

va17

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Policies and Procedures > Transcript Policies

Undergraduate Students

Transcript Policies

Introduction

- Academic Opportunities
- Academic Policies and Procedures
 - Academic and Judicial Discipline
- Attendance and Excused Absences
- Final Examinations
- Grades
- Graduation Requirements
- Leaves and Withdrawals
- Name Changes
- Registration
- Transcript Policies
- Transfer Credit
- Veterans Information
- Student Services and
- Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Univers

Web Services

University Calendar

Rice A-Z

Maps-Directions Feedback

va17

Rice University provides official hard-copy transcripts and electronic transcripts. Official transcripts are issued only at the request of the student. Official transcript requests should be made at least five working days before the desired date of issue. A \$10 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.

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Policies and Procedures > Transfer Credit

Undergraduate Students

RICE

Transfer Credit

Introduction

- Academic Opportunities
- Academic Policies and Procedures
 - Academic and Judicial Discipline
- Attendance and Excused Absences
- Final Examinations
- Grades
- Graduation Requirements
- Leaves and Withdrawals
- Name Changes
- Registration
- Transcript Policies
- Transfer Credit
- Veterans Information
- Student Services and Organizations
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Prematriculation Transfer Credit Postmatriculation 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. Students must have taken the course at a United States academic institution accredited by a regional accrediting agency, or at a foreign institution accredited by the appropriate agency, such as the government's Ministry of Education. Studies done in one's home country constitute transfer credit through the Office of the Registrar. Official transcripts from the transfer credit institution must be sent directly from the institution's registrar to Rice's Office of the Registrar or hand-delivered in an official sealed envelope. For students participating in an official study abroad program (i.e., studying in a country that is not one's home country) this coursework must be approved by Rice's Study Abroad Office.

All coursework must have earned a grade of at least a C- or the equivalent. Students may not transfer courses taken pass/fail or on a similar basis at other institutions. Generally, 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. However, where coursework taken at other institutions has been approved by the faculty as an explicitly specified component to a program's curriculum, the courses will be entered on the transcript and counted in the student's Rice grade point average (including grades lower than C-). Such opportunities are listed in the program curriculum description. Students should keep in mind that if they choose to pursue an advanced degree, the transcripts from transfer credit institutions, with the actual grades earned in the transferring courses, will be requested as part of a graduate school's admission process.

After matriculation at Rice, students are limited to 15 semester hours of summer school transfer credit. This restriction is waived for credit earned during an official summer study abroad program through the Study Abroad Office. Additionally, transfer credit taken at another institution while concurrently enrolled at Rice is subject to Rice's course load policy. Individual departments may place additional restrictions on particular courses and/or institutions. Similarly, various majors, minors, certificates and degree programs may limit the amount of transfer credit that students may apply to them.

All transferable credits from schools utilizing a system other than the semester hour (such as quarter hours or ECTS credits) 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.

Students with much transfer credit should be aware of the general graduation requirements: Students must be registered at Rice full time for at least four full fall and/or spring semesters, complete at least 60 semester hours, more than half of their upper-level degree work, and more than half of their upper-level major work at Rice. (Students also should check their specific departmental major requirements).

Prematriculation Transfer Credit

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.

Postmatriculation Transfer Credit

Continuing students who plan to transfer courses are strongly advised to seek prior approval. Without such approval, students cannot be certain transfer credit will be accepted at Rice. To receive Rice equivalent credit, students are required to complete the appropriate form through the Office of the Registrar and secure approval from the designated transfer credit advisor in the department offering the Rice equivalent course. Unless approval is secured before or after completing the transfer credit, students

Jump to: International Transfer Credit

can expect transferable courses to be granted TRAN. Transfer credit will be evaluated only after the Office of the Registrar receives an official transcript from the other college or university.

International Transfer Credit

Students seeking transfer credit for courses taken prematriculation and postmatriculation at institutions outside the United States must present a professional course-by-course evaluation of the foreign official transcript. The professional evaluation must verify that the foreign institution is equivalent to a regionally accredited U.S. academic institution and must include an explanation of credits earned (including U.S. semester hour equivalents), grade equivalents, and course levels (lower or upper level). Two reliable services with course-by-course evaluations that include this required information are:

SpanTran (www.spantran.com 2) and

Education Credentials Evaluators (www.ece.org 🗗).

All professional evaluations should be obtained from one of these two recommended credential services and submitted to the Office of the Registrar. Payment for the professional evaluation is the responsibility of the student.

Students participating in an official study abroad program through the Study Abroad Office are exempt from the requirement of having the international transcript professionally evaluated, unless the Office of the Registrar is unable to make a clear distinction of the credit earned. Study abroad international transfer credit may be transferred back to Rice in the following situations:

Third-Party Providers -- Students participating in a study abroad program with a third party provider must provide a School of Record transcript in order to transfer credit back to Rice.

Direct Enrollment -- Students participating in a study abroad program with direct enrollment into a foreign university should be prepared to provide a professionally evaluated transcript if the Office of the Registrar is unable to make a clear distinction of the credit earned.

A number of European institutions use the European Credit Transfer System (ECTS). One ECTS credit is comparable to one-half (0.5) semester credit at Rice. It is suggested that students take 30 ECTS credits per semester, which will transfer to Rice as 15 semester hours. A minimum full-time load during the fall and spring semesters is 24 ECTS, which will transfer as 12 Rice semester hours

Rice A-Z

Transfer credit for study abroad is governed by the guidelines established by the Faculty Senate, available here.

Back to top

Rice Home

Last Revised : August 03, 2015

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Web Services

University Calendar va17

Maps-Directions Feedback



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Academic Policies and Procedures > Veterans Information

Undergraduate Students

RICE

Introduction

- Academic Opportunities
- Academic Policies and Procedures
 - Academic and Judicial Discipline
- Attendance and Excused
- Absences
- Final Examinations
- Grades
- Graduation Requirements
- Leaves and Withdrawals
- Name Changes
- Registration
- Transcript Policies
- Transfer Credit
- Veterans Information
- Student Services and Organizations
- Rights and Responsibilities
- Honors and Distinctions

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Veterans Information

Qualified veterans, dependents of deceased or disabled veterans whose death or disability is a direct result of their military service, or dependents in receipt of transferred benefits from a veteran may be eligible for VA educational benefits under one of the following programs while attending Rice University:

- Chapter 30: Montgomery G.I. Bill-Active Duty/Discharged
- Chapter 31: Vocational Rehabilitation
- Chapter 32: Veterans Educational Assistance Program (VEAP)
- Chapter 33: Post 9/11 G.I. Bill
- Chapter 35: Dependents Education Assistance
- Chapter 1606: Montgomery G.I. Bill-Selected Reserve
- Chapter 1607: Reserve Education Assistance Program (REAP)

At Rice University, veterans' benefits are managed through the Office of the Registrar. This office assists all veterans and their dependents who wish to receive Veterans Administration (VA) educational benefits

Please see the Registrar's website regarding the documentation required to obtain educational allowances from the VA.

Veterans who are planning to attend the university should contact Rice University's Veterans Affairs Representative at least two 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, students should have an enrollment of at least half time (6 credits for undergraduates).

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

Last Revised : August 11, 2014

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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University Calendar va17

Web Services

Rice A-Z Maps-Directions

Directions

Feedback

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Student Services and Organizations > Clubs and Organizations

Undergraduate Students

RICE

- Introduction
- Academic Opportunities
- Academic Policies and Procedures
- Student Services and Organizations
- Clubs and Organizations - Disability Support Services
- Financial Aid
- Health, Counseling and Wellbeing
- Student Government
- Tuition, Fees and Expenses
- Undergraduate Student Life
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Clubs and Organizations

- Jump to:
 - Office of Student Activities Center for Civic Leadership Rice Student Volunteer Program Intercollegiate Speech and Debate Office of Multicultural Affairs

Office of Student Activities

The Office of Student Activities 4, located in the Rice Student Center, oversees the activities of various campus wide student organizations, student requests for facilities usage, and coordination of various leadership development programs.

In addition to managing the registration process, finances, and general advising for the 250 plus registered clubs at Rice University, Student Activities provides direct advising to the following organizations:

- Student Association (SA) 🖉 Undergraduate student government, including college presidents
- Graduate Student Association (GSA) & Graduate student government
- Impact Rice Retreat (IRR) d- freshmen and sophomore leadership development retreat
- Leadership Summit & advanced leaders' retreat
- Rice Program Council 🗗

The Rice University clubs are divided into eleven genres: Academic/Honorary, Cultural/International, Departmental GSA, Environmentalism and Sustainability, Political, Recreational/Sport, Religious/Spiritual, Service, Social/Special Interest, STEM, and Visual/Performing Arts. Additional information about the clubs can be found online 🗗. Student Activities also provides leadership development opportunities in the form of Lunch and Lead Programs, the Impact Rice Retreat, the Leadership Summit, the Women LEAD program, and the Club Development program.

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 College Republicans. There also are numerous sport related clubs such as sailing, rugby, volleyball, and soccer. Some of the special-interest groups include a pre-med society, a pre-law society, and Habitat for Humanity.

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

Student Activities also recognizes a number of religious and spiritual organizations. These include, but are not limited to, Chi Alpha Christian Ministries, the Baptist Student Ministry, Catholic Student Association, Hillel Foundation, the Muslim Student Association, and an Interfaith association. Many of these clubs are assisted by local clergy or staff, and form the Joint Campus Ministers.

The Clubs Office is located in the basement of the Rice Memorial Center and provides computers, workspace, storage, and a color copier for club convenience.

Center for Civic Leadership

The Center for Civic Leadership (CCL) fosters engaged citizenship among Rice undergraduates through integrated curricular and experiential learning opportunities. These opportunities help students develop the capacity to exercise civic leadership by better understanding themselves, their responsibilities as citizens, the complexity of social issues, and the mechanisms for creating sustainable change in Houston and communities beyond. By serving as the hub for the university's engagement with off-campus partners in Houston, the United States, and around the world, the CCL assists Rice faculty and staff with creating additional experiential learning opportunities with external partners

In addition to academic coursework in leadership, the CCL offers research, service, and internship opportunities that enable students to work with a range of off-campus partners in the public, private, and non-profit sectors. Programs include Urban Immersion, Alternative Spring Break, Houston Action Research Teams, the Loewenstern Fellowship in Civic Research and Science, and the Leadership Rice Mentorship Experience. While CCL programs are open to all undergraduates, those who seek greater depth and intentionality in their leadership development have the opportunity to pursue the Certificate in Civic Leadership. As home to undergraduate fellowships advising, the CCL also enables students to build upon their academic and leadership experiences to identify undergraduate and post-baccalaureate opportunities that best meet their future goals.

Further information can be found at http://ccl.rice.edu

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. To learn more about the programs sponsored by the Rice Student Volunteer Program, visit http://www.rice.edu/rsvp 🗗.

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 admission 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: www.ruf.rice.edu/~forensic/

Office of Multicultural Affairs

The Office of Multicultural Affairs (OMA) has, as its primary mission, coordinating and implementing comprehensive educational, cultural and social programs designed to emphasize inclusiveness, while promoting intercultural dialogue, awareness and respect for diversity. Through advocacy, cultural programs and education, OMA also helps students understand and appreciate racial, ethnic, gender and other differences, while creating opportunities for students to challenge prejudice and expand their cultural knowledge and appreciation. OMA utilizes its programming and support systems to provide an optimum developmental environment where all members of the University community may develop to the highest level of their potential in an atmosphere free from harassment and bias, thereby ensuring Rice's standing as an intellectually and culturally vibrant community. Cultural student clubs, such as the Black Student Association, the Hispanic Association for Cultural Enrichment at Rice and the South Asian Society meet regularly with OMA to discuss programming logistics and other issues. Another major program for students under OMA is HARAMBE, (Swahili for "working together in unity" or "let's pull together") a group that seeks to create a unifying event for entering African-American students, allowing them to build social and academic connections with peers, faculty, and staff. For more information about OMA, please visit this website \mathbf{M} .

Back to top

Last Revised : August 12, 2016

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892 ©2015 Rice University Rice Home Web Services University Calendar Rice A-Z Maps-Directions Feedback va17

53 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Student Services and Organizations > Disability Support Services

Undergraduate Students

Introduction

- Academic Opportunities
- Academic Policies and Procedures
- Student Services and Organizations
- Clubs and Organizations
- Disability Support Services
- Financial Aid
- _ Health, Counseling and _ Wellbeing
- Student Government
- Tuition, Fees and Expenses
- Undergraduate Student Life
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Disability Support Services

Located on the first floor of Allen Center, Disability Support Services coordinates campus services for individuals with documented disabilities. For academic accommodations, adaptive equipment, or disability-related housing needs, Disability Support Services 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://dss.rice.edu .

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 🗗 205 Allen Center, 713-348-4930.

Last Revised : August 12, 2013

General Announcements	6100 Main MS-10, Houston, Texas 77005-1827	Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

©2015 Rice University	Rice Home	Web Services	University Calendar	Rice A-Z	Maps-Directions	Feedback
			va17			

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Student Services and Organizations > Financial Aid

Undergraduate Students

RICE

Financial Aid

- Introduction
- Academic Opportunities
- Academic Policies and Procedures
- Student Services and Organizations
- Clubs and Organizations
- Disability Support Services
- Financial Aid
- Health, Counseling and Wellbeing
- Student Government
- Tuition, Fees and Expenses
- Undergraduate Student Life
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Jump to: Need-Based Application Process Decision Types of Financial Aid and Assistance Financial Aid Eligibility Loan Counseling Satisfactory Academic Progress Return of Title IV Funds

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). The FAFSA school code for Rice is 003604. Student and parent income tax documents, including W-2 forms, are required to be submitted to The College Board using Institutional Documentation (IDOC) Service.

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 documents and W-2 forms to The College Board using the IDOC Service.

"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. The Office of Financial Aid provides financial assistance only for coursework sponsored through Rice University.

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

- CSS PROFILE, priority date November 15
- Free Application for Federal Student Aid (FAFSA), priority date November 15
- Student and parent income tax documents and W-2 forms, priority date November 15

To apply for financial assistance, first-time students (Regular 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 documents 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 documents 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, file the FAFSA, and submit parent and student tax documents 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 Admission 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 Financial Aid participates in the following programs:

- Federal Direct Loans—These are low-interest loans made to students attending school on at least a half-time basis. Subsidized loans require need-based financial aid eligibility, but unsubsidized loans are not based on financial need.
- Federal Direct 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.
- College Access Loan (CAL)—The CAL loan is a credit based loan program administered by the Texas Higher Education Coordinating Board (THECB) and available to Texas residents.
- 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 Financial Aid.

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 either the Federal Work-Study Program or the Rice University Work Program. Students interested in employment should access the Office of Financial Aid 🗗 webpage.

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 four installments. 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 may be eligible to apply for limited financial aid for the summer terms.

Financial Aid Eligibility

Undergraduate students are eligible to apply for need-based Rice sponsored and federal/state/private aid during the first eight 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 eight semesters, the student may apply for federal/state/private aid for an additional two semesters. (Architecture students may apply for Rice sponsored aid for two 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.

Federal regulations (CRF § 668.34) require that students demonstrate satisfactory academic progress toward completion of their degree to continue to receive institutional, federal and state financial aid. With the exception of the five-year program in architecture, eligibility for institutional aid is limited to the equivalent of 8 semesters of undergraduate enrollment, including coursework taken at other colleges and universities. In addition to meeting the standard for receiving financial aid, students must also meet the academic standards of Rice University.

Satisfactory academic progress is comprised of three areas as required by federal regulations. A student must complete their degree within a specified period that does not exceed 150% of the published length of the program, demonstrate they are making progress towards the completion of their degree by successfully completing 66% percent of all attempted courses, and maintain a cumulative 1.67 GPA, which is consistent with meeting graduation requirements. This regulation applies to each financial aid applicant, whether a previous recipient or not.

Credits counted in the maximum time are all attempted credits (even when not a financial aid recipient). Attempted credits include:

- Earned credits Passed (A+ through D-), Satisfactory (S)
- Repeated courses
- Withdrawal
- Failures Failed (F), Unsatisfactory (U)
- Incomplete
- All accepted transfer credits (including Study Abroad courses) toward the degree program

If a student fails to meet the satisfactory academic progress standards by the end of the academic year, the student will be placed on Financial Aid Suspension and will not be eligible for aid until the satisfactory academic progress standards are met.

Appeal—Students are allowed to appeal their Financial Aid Suspension in cases of the death of a relative, an injury or illness of the student, or other special circumstances. Students must submit a letter discussing why the student failed to make satisfactory academic progress, and what has changed in the student's situation that will allow the student to demonstrate satisfactory academic progress at the next evaluation. Supporting documentation (doctor's letter or academic plan) must accompany the appeal letter and must be submitted to the Office of Financial Aid prior to the beginning of the subsequent term. The Appeals Committee will review appeals on a case-by-case basis.

If an appeal is approved by the Appeals Committee, the student will be placed on financial aid probation and may receive financial aid for one probationary semester. At the end of the probationary term, the student must meet the satisfactory academic progress standards or meet the requirements of an approved academic plan developed by the student's academic department(s).

Financial Aid after academic 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 the Office of Financial Aid 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 the Office of Financial Aid for information about "Return of Title IV Funds" policies and procedures

Rice A-Z

Back to top

Last Revised : August 12, 2016

Web Services

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Feedback

Maps-Directions

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Student Services and Organizations > Health, Counseling and Wellbeing

Undergraduate Students

RICE

Health, Counseling and Wellbeing

- Introduction
- Academic Opportunities
- Academic Policies and Procedures
- Student Services and Organizations
- Clubs and OrganizationsDisability Support Services
- Financial Aid
- Health, Counseling and Wellbeing
- Student Government
- Tuition, Fees and Expenses
- Undergraduate Student Life
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

- Jump to: Health and Wellness Support Services Fee
 - Student Health Services Health Insurance Wellbeing and Counseling Center Services Sexual Violence Prevention and Support

Health and Wellness Support Services Fee

By paying an annual student Health and Wellness Support Services Fee, all students gain access to the Student Health Services & , Rice Counseling Center & and the Student Wellbeing Office &. Detailed information on the care and services each provide is available from these centers.

Student Health Services

Student Health Services, an outpatient medical clinic, is located in the Morton L. Rich Health Center. The clinic is staffed by primary care physicians, nurses, and ancillary support staff. More information can be found at health.rice.edu 🗗.

Clinic hours are from 8:00 a.m. to 5:00 p.m., 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 (guidance on self-care as well as local healthcare options can be found on the website). 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 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 winter break. The clinic also is open for reduced hours during the summer months.

The Student Health Service provides the following:

- Medical 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

Confidentiality for Health Services

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. Physicians with Student Health Services are considered confidential employees under Title IX, meaning that should a student wish to speak about domestic or sexual violence or stalking with their physician, his/her information is confidential and will not be released without the student's written consent. The only exception is for students under the age of 18.

Health Insurance

All registered, degree-seeking students are required to maintain health insurance coverage, compliant with the Affordable Care Act, while enrolled at Rice University.

Students are required to either enroll in the Rice student health insurance plan, administered by Aetna Student Health, or complete an online waiver application demonstrating comparable insurance coverage. Every eligible student will have an Insurance Hold placed on their account until they have actively enrolled in insurance coverage or submitted a waiver. Once a student enrolls or waives coverage, the tuition bill will be updated based on the selection. Insurance and waiver applications, as well as specific dates for enrolling, frequently asked questions, and more can be found on the Rice Student Insurance website: http://studenthealthinsurance.rice.edu

Fall semester students who do not complete an enrollment or waiver application by September 2nd will be automatically enrolled in the annual insurance plan. The deadline to enroll or waive for the spring semester is January 20th. Please note the automatic enrollment process does require additional processing time. The premium amount will not be prorated. Once enrolled in coverage, students are unable to cancel coverage for any reason.

For questions concerning the Rice plan, please contact studentinsurance@rice.edu or call (713) 348-5544.

NOTE: If you waive coverage in the fall, you are still expected to have ACA compliant insurance coverage for the spring. If you experience a qualifying life event and need to enroll in coverage mid-year, please email studentinsurance@rice.edu.

International students that have an F1 or J1 visa are subject to the Rice University International Student Health Insurance Policy. For more information on the policy, please visit the OISS website & Here students will find detailed information concerning the approved alternative insurance option through Student Assurance Services (SAS), as well as application and rate information.

Wellbeing and Counseling Center Services

Center contact information

The Wellbeing and Counseling Center provides confidential counseling treatment as well as wellbeing case management services and Title IX support for graduate and undergraduate students. The Center also provides mental health and wellbeing related education for the student body. The Wellbeing and Counseling Center is located in the Barbara and David Gibbs Recreation and Wellness Center. The Center is open Monday - Friday from 8:30a.m. to 5:00p.m. Walk-ins are available during business hours. For appointments contact the Wellbeing and Counseling Center at 713-348-3311 (24/7) or visit http://wellbeingandcounseling.rice.edu 🗗 for more information. In emergencies, students should call the Rice University Police Department 🗗 at 713-348-6000.

General information about counseling

Rice Counseling Center addresses students' psychological needs with various programs and services. Typically, 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 and relationship 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 long term 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 and Wellness Support Services Fee are eligible for initial assessment sessions, consultations, crisis intervention, and educational programming. Students who have worked with a mental health professional prior to enrolling at Rice are encouraged to make contact with the Rice Counseling Center prior to coming to Rice. This will allow the student to make arrangements for a continued care plan. This plan may involve working with the Rice Counseling Center or working with the center to find a suitable off-campus provide

The Rice Counseling Center can be contacted at 713-348-3311 and at http://wellbeingandcounseling.rice.edu/rcc/ 2. The Rice Counseling Center provides the following services:

- Psychological crisis intervention, on a walk-in emergency basis during regular office hours or by phone at any time, 24 hours a day, by calling 713-348-3311. This includes after hours and weekends.
- Brief initial assessments to quickly receive information about a situation and assign an appropriate counselor
- Short-term individual and couples counseling
- Group therapy and support groups
- Medication consultations with the center's 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)

Confidentiality for counseling

Rice Counseling Center services are confidential; information about a student is not released without the student's written consent except as required by Texas state law. Before entering a therapeutic relationship with a counselor, students may review and discuss confidentiality with their counselor, ask all necessary questions, and be certain they understand how confidentiality will be applied in their case. As detailed in RCC's treatment agreements, state law does not extend confidentiality to several circumstances, including 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; or (4) the counselor suspects that the student has been the victim of sexual exploitation by a former health care provider during the course of treatment with that provider. In addition, RCC sometimes provides de-identified information to administrative officials who are in a need-to-know capacity. In some cases the terms of the treatment engagement with RCC may require a student to share assessments, diagnoses, or treatment plans from non-Rice treating professionals with Rice counselors.

Therapists with Rice Counseling Services are considered "confidential" employees under Title IX, meaning that should a student wish to speak about domestic or sexual violence or stalking with their therapist, their information is confidential and will not be released without his or her written consent. The only exception to this is for students under the age of 18.

General information about wellbeing advising

The Student Wellbeing Office provides case management services and education to support students who have experienced wellbeing challenges that may be impacting their personal and/or academic goals and overall success at Rice. Wellbeing advisors connect students to university resources and procedural options to help students during their enrollment. If students decide to take time off to focus on their wellbeing needs, the office works with them and serves as a liaison to the medical readmission process when students are ready to return. Contact the office by calling 713-348-3311 (24/7) or visit http://wellbeingandcounseling.rice.edu/SWO/ 2.

General information about Title IX Support

Rice encourages any student who has experienced an incident of sexual, relationship, or other interpersonal violence, harassment, or gender discrimination to seek support. There are many options available both on and off campus for all students, regardless of whether the perpetrator was a fellow student, a staff or faculty member, or someone unaffiliated with the university.

Students should be aware when seeking support & on campus that most employees are required by Title IX to disclose all incidents of non-consensual interpersonal behaviors to Title IX professionals on campus who can act to support that student and meet their needs. The therapists at the Rice Counseling Center and the doctors at Student Health Services are 'confidential' employees, meaning that Rice will not be informed about the incident if a student discloses it to one of these Rice staff members. Rice prioritizes student privacy and safety, and only shares disclosed information on a need-to-know basis.

Students who have been accused of committing interpersonal violence or harassment can also seek support a under Title IX. The student will be assigned a Title IX Resource Navigator who will assist the student through the process. Contact the office by calling 713-348-3311 (24/7) or visit http://wellbeingandcounseling.rice.edu/rcc/

Privacy for wellbeing advising and Title IX Support

Wellbeing staff follow FERPA guidelines. These staff members may inform others on the campus who have a legitimate educational interest in knowing about a student's general situation in order to perform their work to address the safety of the student or the community. This includes contacting a student's emergency contact(s) in the event of a health and safety emergency. Wellbeing staff are considered 'responsible' employees under Title IX, meaning that should a student wish to speak about domestic or sexual violence or stalking with their staff member, he or she is required by law to report the information to a Title IX Coordinator who may assign a Title IX Navigator to assist the student, including helping the student choose the best path for him or her.

Feedback

Back to top

Last Revised : August 12, 2016

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Student Services and Organizations > Student Government

Undergraduate Students

RICE

Student Government

Introduction

- Academic Opportunities
- Academic Policies and Procedures
- Student Services and Organizations
- Clubs and Organizations
- Disability Support Services
- Financial Aid
- _ Health, Counseling and Wellbeing
- Student Government
- Tuition, Fees and Expenses
- Undergraduate Student Life
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

All undergraduates are members of the Rice Student Association (SA), which is governed through the Student Senate. The senate includes the president, two vice presidents, the secretary, the treasurer, the eleven college presidents, and eleven college senators. Each year committees are appointed within the SA to work on immediate projects. The SA strives to communicate with the Rice administration, faculty and staff to implement changes benefiting the Rice population and to collaborate with the eleven colleges to establish a Rice identity. The SA is also the umbrella organization for all registered undergraduate student clubs and is a constant resource for any student. Please visit http://sa.rice.edu 🗗 for more information about the SA.

Award Presentations—The Rice Student Association presents three coveted awards annually, two to students and one to a faculty or staff member. The Rice Outstanding Senior Awards are presented to graduating seniors who have contributed the most to excellence throughout their time at Rice. 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.

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			va17			

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Student Services and Organizations > Tuition, Fees and Expenses

Undergraduate Students

RICE

Tuition, Fees and Expenses

- Introduction
- Academic Opportunities
- Academic Policies and Procedures

Student Services and Organizations

- Clubs and Organizations
- Disability Support Services
- Financial Aid
- Health, Counseling and Wellbeing
- Student Government
- Tuition, Fees and Expenses
- Undergraduate Student Life
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Jump to: Tuition Required Fees Orientation Week Fees Room and Board Late Payment Fees Refund of Tuition and Fees Refund for Credit Balance on Student Accounts Part-Time Students Living Expenses Special Charges - Undergraduates Health Insurance Education Certification Program Fees Delinquent Accounts Transcripts

Charges for tuition, fees, room/board, and insurance are billed to students each semester. Students must pay the charges in full by the due date or enroll in a payment plan to avoid a late payment fee. Payment plans are only available at the beginning of a new term. Fall semester bills are due August 10. NOTE: Student accounts will not be charged until they have registered for classes (with the exception of first-time students). Students who register July 25 through the Add/Drop deadline on the Registrar's Academic Calendar must pay by September 10 to avoid a late payment fee.

Spring semester bills are due January 10. Students who register December 19 through the Add/Drop deadline on the Registrar's Academic Calendar must pay by January 30 to avoid a late payment fee.

Payments made in person must be received by the Cashier's office no later than 4pm on the payment due date. Payments made online via credit card or e-check must be made no later than 11:59pm on the payment due date.

The following costs apply to undergraduates in the 2016-17 school year:

Tuition	Hour*	Semester	Annual
Undergraduate tuition (entering & continuing)	\$1,801	\$21,610	\$43,220
*By special permission only			
Required Fees	Fall	Spring	Annual
Student activities**	\$56.50	\$56.50	\$113
Student Rec Center fee	\$49.50	\$49.50	\$99
Health and Wellness Support Services Fee	\$243	\$243	\$486
***Health Insurance - student premium only (unless waiver has been approved)	\$941	\$1,528	\$2,469
**Fifth-year students in professional degree programs and students working tow student activities fee of \$6.85 per semester, which covers the Student Associati Court, and Honor Council portions of the activity fee.		o . ,	
Orientation Week Fees			Fall
O-Week room and board – freshman			\$325
O-Week activity fee – freshman			\$310
iPrep Program fee (incoming international undergraduate and exchange studer	nts)		\$175
Room and Board		Semester	Annual
Room		\$4,707.50	\$9,415
		* ,	+-,

62 of 923

Telecommunication fee	\$15	\$30
Off-campus board–Plan B	\$730	\$1,460
Off-campus board–Plan C	\$1,340	\$2,680
Off-campus board–Plan D	\$680	\$1,360
Off-campus board–Plan E	\$400	\$800
Off-campus board–Plan F	\$200	\$400

Late Payment Fees

Late payment fees will be assessed monthly at the rate of 1.5% of the unpaid balance due on the e-bill. Any account with a past due amount will be charged a late payment fee. NO EXCEPTIONS.

Refund of Tuition and Fees

Students who withdraw during the first two weeks of the semester are not charged tuition or fees for that semester. Students who withdraw during the third 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 ninth 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 second week of classes in a semester, fees or special charges 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 \$300 enrollment deposit they paid as incoming students.

Refund for Credit Balance on Student Accounts

If you have a loan or federal money disbursed on your student account and you have a credit balance on your student account, the Cashier's office will automatically process a refund for you. Please know that there are certain charges that cannot be paid with loans or federal money such as printing, library fines, citations, etc. Therefore, your refund may be more than the credit balance on your student account resulting in a due balance for the charges not paid by the loan or federal money.

If you do NOT have a loan or federal money on your student account and you have a credit balance, you must submit a request for refund. Please click here 🗗 to submit your request.

Refunds are processed on Monday's and Thursdays. If you are NOT set up to receive your refund by direct deposit, a check will be mailed to your mailing address on record in Esther. JPMorgan Chase prints and mails paper check refunds every Tuesday afternoon for the previous week's requests. So please know it can take from 5 to 10 business days to receive your check in the mail. Therefore, the quickest way to receive a refund is by direct deposit and funds should appear in your bank account within 5 business days. You may find instructions on the Cashier's website refunds to receive up what is called an eRefund in Bill Payment Suite for direct deposit by clicking How to Tutorials-Bill Payment Suite refu

Part-Time Students

Students must receive approval to enroll with a course load of fewer than 12 hours. Approval must be received and the course schedule must be adjusted within the first two weeks of the semester. Students with part-time approval and a course load of fewer than 12 hours will be charged the per credit hour rate plus a part-time registration fee. There are no refunds for part-time enrollment or for students whose course load drops below 12 hours after the first two 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 2016–17, the annual room and board charge for residence in a residential college is \$13,750. This charge includes the room and all the meals eaten during the year.

Housing—When current students receive their residential college room assignments for the academic year to follow, they must sign a housing agreement electronically by accessing their Esther account online. To reserve their space, a housing agreement must be signed by the date established by their respective colleges but no later than April 30.

New students must make a \$100 housing deposit before May 1. These nonrefundable deposits are applied to the following semester's room and board charges.

For more information about housing, see Undergraduate Student Life.

Meal Plans—The College Food Service provides all-you-care-to-eat meals with the purchase of the meal plan. All students living on campus must purchase a meal plan. It is recommended that students living off-campus also purchase a meal plan. More information is available from the residential dining website (dining.rice.edu).

Payments and Refunds—Students may pay their residence fee in installments. The exact amounts and due dates appear on the student's e-bill in the Bill Payment Suite, which can be accessed through Esther. Students who move out of their college for any reason may receive a refund (or a credit to their account) equal to the difference between the payments received and the reduced room and board charges. They will be charged 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 - Undergraduates

Special Courses—Courses that require additional charges are noted on the Cashier's website 🗗. In some cases the associated charges may be in lieu of Rice tuition and/or required fees.

The following charges are separate from the regular fees. Charges due to late registration or course changes made after the deadline are described in the Registration section.

Internship per semester\$315Study Abroad fee per semester\$410Study Abroad fee for summer\$205Late payment fee (charged monthly)1.5% of balance dueUndergraduate application fee\$75Part-time registration\$150Orientation Week room and board (coordinators)\$190Late registration fee 1\$75Late registration fee 2\$125College withdrawal-suspension\$150College withdrawal-breaking of housing agreement\$750Diploma fee: parchment\$200Diploma fee: comestic\$300Diploma mailing fee: International\$500Transcript fee\$100Replacement ID\$100Readmission fee after withdrawal for nonpayment\$375Returned check fee\$300Late course change fee (add/drop)\$75						
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2 Student nine-month fee for membership paid with tuition.	Student only	\$32	\$99			
	2 Student nine-month fee for membership paid with tuition.					

*** Health Insurance

All students, full time or part time--including those on away status--must have appropriate health insurance. For information about health insurance, visit Health, Counseling and Wellbeing.

Education Certification Program Fees

Students enrolling in the summer student teaching apprenticeship must pay a \$90 registration fee. The registration fee for the internship is \$315. These fees are in lieu of tuition for the apprenticeship or internship. For more information, see Teacher Education.

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 campus housing agreement may be withdrawn from the university. Accounts not settled by the first day of classes incur a late payment penalty and are subject to a billing hold that prevents them from dropping or adding classes.

Transcripts

Transcripts can be ordered online through ESTHER and electronic transcripts can be ordered through the National Student Clearinghouse. There is a \$10 charge for each transcript ordered. Charges can be paid in advance using a major debit or credit card or eCheck. Current students can also have the charge added to their student account.

Back to top

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Student Services and Organizations > Undergraduate Student Life

Undergraduate Students

RICE

- Introduction
- Academic Opportunities
- Academic Policies and Procedures

Student Services and Organizations

- Clubs and OrganizationsDisability Support Services
- Financial Aid
- Health, Counseling and Wellbeing
- Student Government
- Tuition, Fees and Expenses
- Undergraduate Student Life
- Rights and Responsibilities
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Undergraduate Student Life

- Jump to:
 - Residential Colleges College Assignment Housing Meal Plans College Courses Rice Student Center

Residential Colleges

Each undergraduate student at Rice, whether living on campus or not, is a member of one of 11 residential colleges. All colleges are sex and gender neutral.

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 academic, 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.

Housing

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

The university guarantees housing for all incoming students. 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.

About 75 percent of Rice undergraduates live in the on-campus residential colleges. **On-campus housing is not guaranteed beyond the first year at Rice.** Although most of the students who want to live in the colleges can be accommodated, demand usually exceeds the available number of rooms. The determination of housing for sophomores, juniors, and seniors is made by their residential college government. Sophomores, juniors, and seniors draw for rooms according to the priority system of their residential college. Some students, while remaining full members of the college, choose voluntarily to live off-campus for one or more years. 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. 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 the Student Center Administration Office.

Meal Plans

The College Food Service provides all-you-care-to-eat meals with the purchase of the meal plan. All students living on campus must purchase meal plan A. It is recommended that students living off-campus also purchase a meal plan. Its other services include:

- Assistance with food allergies confirmed and clearly diagnosed 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

Meals are served cafeteria style. The colleges provide three 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, winter break, or spring break.

For more information on room and board, see Tuition, Fees and Expenses.

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.

For more information, see the College Courses listing.

Rice Student Center

The Student Center provides excellent services and developmental opportunities to build community and enrich the Rice experience through facilities, events, student run businesses, and student activities. It currently houses a variety of retail operations including the campus bookstore, a copy center, a convenience store, restaurant facilities, as well as student life and other offices. There are a variety of meeting rooms for departments, clubs and organizations. Visitors can also make use of a copier, fax machine, and ATM. Most popular stops are the student-run businesses. For example, students and visitors alike can enjoy a beverage of their choice and fellowship with their peers at the ever-bustling Rice Coffee House or Willy's Pub and can purchase or rent a bike for the semester from Rice Bikes.

For more information on the Student Center, go to http://studentcenter.rice.edu.

Back to top

Last Revised : August 12, 2016

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Rights and Responsibilities > Access to Student Records

Access to Student Records

- Introduction
- Academic Opportunities

Undergraduate Students

- Academic Policies and Procedures
- Student Services and Organizations
- Rights and Responsibilities
 - Access to Student Records
 - Code of Student Conduct
 - Honor System
 - Student Responsibility
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Notification of Rights under the Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act (FERPA) is a federal law designed to protect the privacy of, and limit access to, student education records. The law affords students the following rights with respect to their education records:

- 1. the right to inspect and review the student's education records within 45 days after the date Rice University ("Rice") receives a request for access;
- the right to seek amendment of the student's education records that the student believes are inaccurate, misleading, or otherwise in violation of the student's privacy rights under FERPA;
- the right to provide written consent to disclosures of personally identifiable information ("PII", as defined by law) contained in the student's education records, except to the extent FERPA authorizes disclosure without consent;
- 4. the right to file a complaint with the U.S. Department of Education concerning alleged failures by Rice to comply with the requirements of FERPA. The name and address of the federal office that administers FERPA is: Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Ave. S.W., Washington, DC 20202.

Inspect and review records: A student should make written request to any offices that maintain student education records, identifying the record(s) the student wishes to inspect. Though not exhaustive, as a guide for students, this is a list of the primary offices that maintain student education records: Office of the Registrar, Office of the Dean of Undergraduates, Office of Graduate and Postdoctoral Studies, Office of Student Judicial Programs, Office of Admission, Office of Financial Aid, Center for Career Development, Office of Student Activities, Office of Academic Advising, Office of International Students and Scholars, Cashier's Office, and departmental offices. The appropriate Rice official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the Rice official to whom the request is submitted, that Rice official will advise the student of the correct official to whom the request should be addressed.

Amendment of records: Any questions, problems, or written requests for amendment of records should be submitted to the Office of the Registrar. A student requesting to amend a record should clearly identify the part of the record the student wants changed and specify why it should be changed. If Rice decides not to amend the record as requested, Rice will notify the student in writing of the decision and of the student's right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when the student is notified of the right to a hearing.

Disclosure of information: As permitted by FERPA, Rice reserves the right to publish or release the following directory information without prior consent.

- 1. Name, permanent, local, mailing, and campus address, telephone and mobile number(s), campus email address(es), and instant messenger address(es)
- 2. Date and place of birth
- 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

Students who would like Rice to withhold this directory information may do so by logging in to ESTHER, clicking Personal Information, clicking Release or Withhold Directory Information, and indicating that the information should be withheld. Thereafter, Rice will withhold access to, or release of, the student's directory information until further written instruction is received. For more information regarding FERPA, please visit the U.S. Department of Education's website 🖗.

FERPA permits the disclosure of PII from students' education records, without consent of the student, if the disclosure meets certain conditions found in 34 C.F.R. §99.31 of the FERPA regulations. Except for disclosures to school officials, disclosures related

to some judicial orders or lawfully issued subpoenas, disclosures of directory information, and disclosures to the student, Section 99.32 of the FERPA regulations requires the institution to record the disclosure. Eligible students have a right to inspect and review the record of disclosures. A postsecondary institution may disclose PII from the education records without obtaining prior written consent of the student –

- To other school officials, within Rice whom Rice has determined have legitimate educational interests and require this information in order to perform instructional, supervisory, advisory, administrative, or other duties for Rice. These school officials include faculty, research personnel, staff (including law enforcement unit personnel and health staff), trustees, or students serving on official committees (such as disciplinary or grievance committees) or assisting another school official. A school official has a legitimate educational interest if the official needs to review an educational record in order to fulfill his or her professional responsibility to Rice. This includes contractors, consultants, auditors, attorneys, collection agents, volunteers, or other parties to whom Rice has outsourced institutional services or functions, provided that the conditions listed in §99.31(a)(1)(i)(B)(1) (a)(1)(i)(B)(2) are met. (§99.31(a)(1))
- To officials of another school where the student seeks or intends to enroll, or where the student is already enrolled if the disclosure is for purposes related to the student's enrollment or transfer, subject to the requirements of §99.34. Disclosures may be made and information forwarded by Rice without prior notification to the student. (§99.31(a)(2))
- To authorized representatives of the U. S. Comptroller General, the U. S. Attorney General, the U.S. Secretary of Education, or State and local educational authorities, such as a State postsecondary authority that is responsible for supervising the university's State-supported education programs. Disclosures under this provision may be made, subject to the requirements of §99.35, in connection with an audit or evaluation of Federal- or State-supported education programs, or for the enforcement of, or compliance with, Federal legal requirements that relate to those programs. These entities may make further disclosures of PII to outside entities that are designated by them as their authorized representatives to conduct any audit, evaluation, or enforcement or compliance activity on their behalf. (§§99.31(a)(3) and 99.35)
- In connection with financial aid for which the student has applied or which the student has received, if the information is necessary to determine eligibility for the aid, determine the amount of the aid, determine the conditions of the aid, or enforce the terms and conditions of the aid. (§99.31(a)(4))
- To organizations conducting studies for, or on behalf of, the school, in order to: (a) develop, validate, or administer predictive tests; (b) administer student aid programs; or (c) improve instruction. (§99.31(a)(6))
- To accrediting organizations to carry out their accrediting functions. (§99.31(a)(7))
- To parents of an eligible student if the student is a dependent for IRS tax purposes, though Rice limits such information to financial details of the student's enrollment. (§99.31(a)(8))
- To comply with a judicial order or lawfully issued subpoena. (§99.31(a)(9))
- To appropriate officials in connection with a health or safety emergency, subject to §99.36. (§99.31(a)(10))
- Information the school has designated as "directory information" above and pursuant to §99.37. (§99.31(a)(11))
- To a victim of an alleged perpetrator of a crime of violence or a non-forcible sex offense, subject to the requirements of §99.39. The disclosure may only include the final results of the disciplinary proceeding with respect to that alleged crime or offense, regardless of the finding. (§99.31(a)(13))
- To the general public, the final results of a disciplinary proceeding, subject to the requirements of §99.39, if the school determines the student is an alleged perpetrator of a crime of violence or non-forcible sex offense and the student has committed a violation of the school's rules or policies with respect to the allegation made against him or her. (§99.31(a)(14))
- To parents of a student regarding the student's violation of any Federal, State, or local law, or of any rule or policy of the school, governing the use or possession of alcohol or a controlled substance if the school determines the student committed a disciplinary violation and the student is under the age of 21. (§99.31(a)(15))

For further information regarding Rice's policy on student education records, please contact the Office of the Registrar.

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

69 of 9	923
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		Last Revised : Augu	st 23, 2016				
General A	nnouncem	ents 6100 Mai	n MS-10, Houston, Te	xas 77005-1827 M	Mailing Address: P.O. Bo	x 1892, Houston, Tex	as 77251-1892
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70 of 923

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Rights and Responsibilities > Code of Student Conduct

Code of Student Conduct

Undergraduate Students

- Introduction
- Academic Opportunities
- Academic Policies and Procedures
- Student Services and Organizations
- Rights and Responsibilities
 Access to Student Records
 - Code of Student Conduct
 - Honor System
 - Student Responsibility
- Honors and Distinctions

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

The Office of Student Judicial Programs oversees the judicial system and enforces the Code of Student Conduct, which governs the administration of student order and discipline, and may participate in Title IX investigations. The Code of Student Conduct applies to all students, including undergraduate, graduate, and transfer students; those enrolled in professional and Continuing Studies programs; and visiting students, Visiting Post Baccalaureates, second degree students, and auditors, from the time they arrive on campus until their degree is conferred or they have permanently left Rice. Organizations also are subject to this Code. All enrolled students also are subject to Rice University policies, rules, and regulations.

Alleged violations of university or college rules are handled in accordance with the Code of Student Conduct. Students may appeal decisions as described in the Code of Student Conduct. Rice retains ultimate authority in all matters of discipline and over all actions that affect its educational function or the safety and wellbeing of members of the university community. The Code is not intended to and does not confer any contractual rights on any individuals involved.

The Code of Student Conduct can be found here de-

After Rice's grievance process has been exhausted and documented, students may also pursue an external complaints process.

Last Revised : August 12, 2016

 General Announcements
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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

 va17
 va17<

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Rights and Responsibilities > Honor System

Undergraduate Students

RICE

Honor System

Introduction

- Academic Opportunities
- Academic Policies and Procedures
- Student Services and Organizations

Rights and Responsibilities

- Access to Student Records

- Code of Student Conduct
- Honor System
- Student Responsibility
- Honors and Distinctions

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

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 Office of Student Judicial Programs, which reviews the results of the investigations and hearings, considers the Council's recommendations when issuing penalties. Procedures for accusations arising out of summer classes may differ.

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://honor.rice.edu/ 4.

Last Revised : August 12, 2016

General Announce	ements 6100 M	lain MS-10, Houston,	Texas 77005-1827	Mailing Address: P.O. I	Box 1892, Houston, Te	xas 77251-1892
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72 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Rights and Responsibilities > Student Responsibility

Student Responsibility

Introduction

RICE

Academic Opportunities

Undergraduate Students

- Academic Policies and Procedures
- Student Services and Organizations
- Rights and Responsibilities
- Access to Student Records
- Code of Student Conduct
- Honor System
- Student Responsibility
- Honors and Distinctions
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

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for the law and for their contractual obligations, a consideration for the rights of others, and shared standards of considerate and ethical behavior.

The university expects all Rice students to exercise personal responsibility over their actions. Their behavior should reflect a respect

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 utilizes e-mail as an official form of communication and sends correspondence to a student's Rice email address. Students should frequently check and maintain their Rice email inbox. Failure to do so does not relieve students of the responsibility to act or respond in a timely manner to official notices sent via email.

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.

Last Revised : August 01, 2012

RICE

73 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Honors and Distinctions > Academic Honor Societies

Academic 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).
For more information on these honor societies, please visit the Rice Clubs page at the following link: http://clubs.rice.edu/ 🗗 or the department associated with the Honor Society.

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Rice Home

University Calendar

Maps-Directions Feedback

Rice A-Z



GENERAL ANNOUNCEMENTS 2016-2017

Honors Programs

2016-2017 > Undergraduate > Honors and Distinctions > Honors Programs

Undergraduate Students

RICE

Introduction

- Academic Opportunities
- Academic Policies and Procedures
- Student Services and Organizations
- Rights and Responsibilities
- Honors and Distinctions
 - Academic Honor Societies
 - Honors Programs
 - President's Honor Roll
 - University Honors
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

To enroll in the two 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 the 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.

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General Announcer	nents 6100 M	ain MS-10, Houston,	Texas 77005-1827	Mailing Address: P.O. I	Box 1892, Houston, Te	xas 77251-1892
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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Honors and Distinctions > President's Honor Roll

Undergraduate Students

RICE

President's Honor Roll

Introduction

- Academic Opportunities
- Academic Policies and Procedures
- Student Services and Organizations
- Rights and Responsibilities
- Honors and Distinctions
 - Academic Honor Societies
 - Honors Programs
 - President's Honor Roll
 - University Honors
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

General Announcements	6100 Main MS-10, Houston,	Texas 77005-1827	Mailing Address: P	.O. Box 1892, Houston, T	exas 77251-1892
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01/03/2017

The President's 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. Courses taken as Pass/Fail may not be counted for the purposes of this rule. Approximately the top 30 percent of undergraduates receive recognition each semester. While undergraduates enrolled in a four-year bachelor's degree program are always eligible for the President's Honor Roll, students enrolled in five-year bachelor's or master's programs are eligible only during their first eight semesters.

Last Revised : September 19, 2013



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Undergraduate > Honors and Distinctions > University (Latin) Honors

Undergraduate Students

RICE

University Honors

Latin Honors

Academic Opportunities

Introduction

- Academic Policies and Procedures
- Student Services and Organizations
- Rights and Responsibilities
- Honors and Distinctions
 - Academic Honor Societies
 - Honors Programs
 - President's Honor Roll
 - University Honors
- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Unlike the President's Honor Roll, which recognizes academic excellence achieved over a single semester, eligibility for the three categories of Latin Honors (summa cum laude, magna cum laude, and cum laude) are based on the cumulative grade point average for all undergraduate work at Rice. Recipients are determined at the end of the spring semester and after receipt of all grades. The grade point average within the highest five percent of the year's graduating majors within each school is recommended for the summa cum laude honor. The grade point average included within the next highest 10 percent is used to determine those eligible to graduate with the magna cum laude honor. Finally, the grade point average included within the next 15 percent is used to determine those majors eligible to graduate with the cum laude honor. Thus, approximately 30 percent of each graduating class, distributed approximately evenly across all schools, receives Latin Honors on graduation.

Distinction in Research and Creative Work

Distinction in Research and Creative Work is a university award for select undergraduates, granted at Commencement, which appears on the transcript and diploma. Students must apply to be considered for the award, and the application must be supported by a letter from a faculty member (or center director). The most common path of application would be to the student's major department. A student whose research or other creative project is in a field outside of his or her major should submit an application to the academic department or program most closely associated with the subject matter of their project.

Eligibility for the award extends widely to include a variety of research, design, and other creative projects, as well as persistent dedication to research. Projects completed in part or entirely at other institutions or with community partners will be eligible for consideration.

Applicants must be in good academic standing and have a cumulative GPA of at least 3.30 in courses completed at Rice at the time of their graduation. The award will be granted only to projects that produce a concrete outcome--e.g. an essay, invention, design, musical composition--and demonstrate commitment and/or achievement above and beyond the norm. Students who complete senior theses, senior design projects or other **required** senior capstone projects are eligible and may submit their thesis or capstone project for consideration; however, these students do not qualify automatically for consideration for this university distinction.

Responsibility for judging applications and determining those that merit the distinction award rests with the undergraduate degree programs or departments. Annually, departments and degree granting programs publish clear expectations and criteria for the research and design projects that will be considered for the award, as well as guidelines for what constitutes research or creative work above and beyond the norm within their respective fields. Departments may designate additional requirements as well, such as completion of a research seminar or oral defense.

Rice A-Z

Last Revised : August 03, 2015

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ty Rice Home

Web Services U

University Calendar

Maps-Directions Feedback

RICE



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Graduate Students Introduction > Introduction

Undergraduate Students	Introduction							
Graduate Students	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, graduate study							
Non-Traditional Students	has expanded to encompass the schools of architecture, engineering, humanities, management, music, natural sciences, and social sciences, as well as interdepartmental programs. Rice now enrolls approximately 2,300 graduate students and offers advanced degrees in 34 fields of study.							
► Faculty								
Programs 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).							
Administration and Faculty	Professional programs provide advanced course work in several disciplines but do not generally include independent research.							
Important Notices	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 5–11 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 graduate.rice.edu 🗗							

Last Revised : August 01, 2012

General Announceme	ents 6100 Mai	n MS-10, Houston, Tex	xas 77005-1827 Mailir	ng Address: P.O. B	ox 1892, Houston, Texa	as 77251-1892
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Home > Students > Calendars > Academic Calendar Fall 2016

Academic	Fall 2016 Aca	ademic Calendar				
Calendars	A printable PDF version 📆 of this calendar is available.					
Academic Honors	Sunday -	Orientation week for new students				
► Classrooms	Friday, August 14-19,					
Course Information	2016					
Course & Instructor Evaluations	Friday, August 19, 2016	Deadline: Last day for instructors to submit final grades to resolve "Other" (OT) grades for courses taken in Summer 2016				
 Degree Planning 	Monday, August 22, 2016	FIRST DAY OF CLASSES - START OF THE FALL SEMESTER				
Degree Works	Monday -	Fall Registration Continues: Registration continues for				
 Distribution Credit 	Friday, August 22 -	undergraduate, graduate, and visiting students				
Enrollment and Degree Verification	August 26, 2016					
► ESTHER	Friday, August 26, 2016	Deadline: Last day for instructors to submit final grades to resolve "Incomplete" (INC) grades for courses taken in Spring and Summer 2016				
Exam Credit (AP, etc.)	Friday, September 2,	Deadline: Last day to complete late registration Deadline: Last day to add courses (Please go to ESTHER > to add				
Final Exam Information	2016	courses) Deadline: Last day to adjust variable credit for courses online via ESTHER				
▶ Graduation		Deadline: Last day to designate a credit course as "Audit" or vice versa				
Inter-Institutional Graduate Students		Deadline: Last day to convert a "Pass/Fail" to an earned letter grade for courses taken in Spring or Summer 2016 Deadline: Last day to withdraw with a 100% refund of tuition and fees				
- OTR Fees		Deadline: Last day to drop to part-time status with refund of tuition				
Personal Information	Monday, September 5, 2016	LABOR DAY (HOLIDAY - NO SCHEDULED CLASSES)				
 Registration 	Friday, September 9,	Deadline: Last day to withdraw with a 70% refund of tuition				
- Summer Session	2016 Friday,	Deadline: Last day to withdraw with a 60% refund of tuition				
 Transcripts 	September 16, 2016	Deadine. Last day to withdraw with a 0076 ferding of talloff				
 Transfer Credit 	Friday,	Deadline: Last day to withdraw with a 50% refund of tuition				
Veterans	September 23, 2016					

2016-2017 General Announcements

Education Benefits Friday, **Deadline:** Last day to withdraw with a 40% refund of tuition and fees September 30, Visiting Students 2016 Friday, October Deadline: Last day to drop courses for full-term courses (Please go 7,2016 to ESTHER to drop courses) Deadline: Last day for instructors to submit Mid-semester Grades for first-year undergraduate students online via ESTHER **QUICK LINKS** Deadline: College course plans due to Dean of Undergraduates office for Spring 2017 Academic Calendars Deadline: Last day to withdraw with a 30% refund of tuition Classrooms MIDTERM RECESS (NO SCHEDULED CLASSES) Monday -Course Catalog Tuesday October 10 -Course Schedule 11, 2016 Data and Reporting Friday, October Deadline: Last day to withdraw with a 20% refund of tuition **Degree Works** 14, 2016 ESTHER 💿 Friday, October Deadline: Last day to withdraw with a 10% refund of tuition **Evaluations** 21, 2016 **FFRPA** Friday, October Deadline: Last day to designate a full-term course status to **Final Exams** 28, 2016 "Pass/Fail" option General **Deadline:** Last day to file an application for December 2016 degree conferral with the Office of the Registrar (Undergraduate and Announcements a Graduate Students) **Registrar Email Policy Deadline:** Last day to file an application for a May 2017 degree Summer Sessions conferral with the Office of the Registrar (Undergraduate Students Transcripts onlv) Deadline: Last day to file the following in the Office of Graduate and Verifications Postdoctoral Studies for December 2016 degree conferral: Thesis master's candidacy petitions Certification of non-thesis master's • Form for candidacy master's Ph.D. candidacy petitions Spring Registration: Spring 2017 Course Schedule J Published Monday, **Spring Registration**: ESTHER Course Registration Planner opens for October 31, currently enrolled undergraduates 2016 Wednesday, Deadline: Last day for instructors to submit textbook orders for November 9, Spring 2017 to bookstore@rice.edu 2016 Deadline: Last day for instructors to submit Spring semester classroom and lab software requests to edtech@rice.edu Sunday, Deadline: ESTHER Course Registration Planner closes at 11:59 PM November 13, 2016 Monday, **Spring Registration**: Spring 2017 registration begins for currently November 14, enrolled graduate and fifth-year students at 5:00 PM 2016 Wednesday, Spring Registration: Spring 2017 ADD/DROP begins for currently November 16, enrolled undergraduate students at 7:00 AM 2016 Friday, Deadline: Last day to register for Spring 2017 by 5:00 PM without a November 18, Late Registration Fee 2016 Saturday, Late Registration Begins: Continuing students that have not November 19, registered for any classes are charged a Late Registration Fee to add classes 2016

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Thursday - Friday, November 24 - 25, 2016	THANKSGIVING RECESS (HOLIDAY - NO SCHEDULED CLASSES)
Friday, December 2, 2016	LAST DAY OF CLASSES Deadline: Last day to drop courses (for Fall 2016 undergraduate matriculants only) - students must go to the Office of the Registrar by 4:00 PM Deadline: For a December conferral of degree, students must submit thesis to the Office of Graduate and Postdoctoral Studies by 12:00 noon
Saturday - Tuesday, December 3 - 6, 2016	STUDY DAYS - NO EXAMS
Wednesday - Wednesday, December 7 - 14, 2016	Final examinations for undergraduate courses
Wednesday, December 14, 2016	END OF THE FALL SEMESTER
Wednesday, December 21, 2016	Deadline: Last day for instructors to submit Final Grades online via ESTHER <i>></i>

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Contact Us Make an Appointment Staff Directory Feedback							
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Home > Students > Calendars > Academic Calendar Spring 2017

	Spring 2017 Academic Calendar					
Calendars	Monday,	FIRST DAY OF CLASSES - START OF THE SPRING SEMESTER				
 Academic Honors 	January 9, 2017					
 Classrooms 	Monday -	Spring Registration Continues: Registration continues for				
► Course Information	Friday, January 9 -	undergraduate, graduate, and visiting students				
Course & Instructor Evaluations	13, 2017 Friday,	Deadline: Last day for instructors to submit final grades to resolve				
► Degree Planning	January 13, 2017	"Other" (OT) grades for courses taken in Fall 2016				
► Degree Works	Monday, January 16,	MARTIN LUTHER KING, JR. DAY (HOLIDAY - NO SCHEDULED CLASSES)				
Distribution Credit	2017					
Enrollment and Degree Verification		Deadline: Last day to complete late registration Deadline: Last day to add courses online via ESTHER Deadline: Last day to adjust variable credit for courses online via				
▶ ESTHER	Friday,	ESTHER EST				
Exam Credit (AP, etc.)	January 20, 2017	Deadline: Last day to convert a "Pass/Fail" to an earned letter grade for courses taken in Fall 2016 Deadline: Last day to withdraw with a 100% refund of tuition and fees				
Final Exam Information		Deadline: Last day to drop to part-time status with a refund of tuition Deadline: Last day for instructors to submit final grades to resolve "Incompletes" (INC) grades for courses taken in Fall 2016				
Graduation	Friday, January 27, 2017	Deadline: Last day to withdraw with a 70% refund of tuition				
Inter-Institutional Graduate Students	Friday, February 3,	Deadline: Last day to withdraw with a 60% refund of tuition				
- OTR Fees	2017					
Personal Information	Thursday - Friday, February 9 - 10, 2017	SPRING RECESS (NO SCHEDULED CLASSES)				
Registration	Friday,	Deadline: Last day to withdraw with a 50% refund of tuition				
- Summer Session	February 10, 2017					
 Transcripts 	Friday, February	Deadline: Last day to withdraw with a 40% refund of tuition				
Transfer Credit	17, 2017					
Veterans	Friday, February	Deadline: Last day to drop full-term courses online via ESTHER <i>J</i> Deadline: Last day for instructors to submit Mid-Semester Grades for				

2016-2017 General Announcements

Education Benefits	24, 2017	first-year undergraduate students online via ESTHER <i>J</i> Deadline : College course plans due to Dean of Undergraduates office for
Visiting Students		Fall 2017
0		Deadline: Last day for instructors to submit textbook orders for Summer 2017 to bookstore@rice.edu
		Deadline: Last day to withdraw with a 30% refund of tuition
		Deadline: Last day to file an application for a May degree conferral with
QUICK LINKS		the Office of the Registrar (Graduate Students only)
JUICK LINKS		Deadline: Last day to file the following in the Office of Graduate and
Academic Calendars		Postdoctoral Studies for May degree conferral:Thesis master's candidacy petitions
Classrooms		 Certification of non-thesis master's
Course Catalog 🧔		 Form for candidacy master's
Course Schedule		 Ph.D. candidacy masters Ph.D. candidacy petitions
Data and Reporting		• Ph.D. candidacy petitions
Degree Works	Friday,	Deadline: Last day to withdraw with a 20% refund of tuition
ESTHER 💿	March 3,	
Evaluations	2017	
FERPA	Friday,	Deadline: Last day to withdraw with a 10% refund of tuition
Final Exams	March 10, 2017	
General	Saturday -	SPRING BREAK (NO SCHEDULED CLASSES)
Announcements 💿	Sunday,	
Registrar Email Policy	March 11 -	
Summer Sessions	19, 2017	
Transcripts	Monday,	Summer Registration Begins: Summer 2017 registration begins for
Verifications a	March 13, 2017	currently enrolled undergraduate, graduate and fifth-year students
		Deadline: Last day to designate a full-term course status to "Pass/Fail"
	Friday, March 24,	option
	2017	Deadline: Last day to drop courses (for previous Fall undergraduate
		matriculants only) - students must go to the Office of the Registrar by
		4:00 PM Deadline: Last day for second year students to declare majors with the
		Office of the Registrar
	Monday,	Fall Registration: Fall 2017 Course Schedule J Published
	March 27,	Fall Registration: ESTHER Course Registration Planner opens for
	2017	undergraduate students for Fall 2017 registration.
	Wednesday,	
	March 29,	2017 to bookstore@rice.edu
	2017	
	Wednesday, April 5,	Deadline: Last day for instructors to submit Fall semester classroom and lab software requests to edtech@rice.edu
	2017	ab software requests to editection detection
	Sunday,	Deadline: ESTHER Course Registration Planner closes at 11:59 PM
	April 9,	
	2017	
	Monday,	Fall Registration: Fall 2017 registration begins for currently enrolled
	April 10,	graduate and fifth-year students at 5:00 PM
	2017	
	Wednesday,	Fall Registration: Fall 2017 ADD/DROP begins for currently enrolled
	April 12, 2017	undergraduate students at 7:00 AM
	Friday,	Deadline: Last day to register for Fall 2017 by 5:00 PM without a Late
	i i uay,	Becamic. Last day to register for rail 2017 by 5.00 FW Without a Late
	April 14,	Registration Fee

3	
Saturday, April 15, 2017	Late Registration Begins: Continuing students that have not registered for any classes are charged a Late Registration Fee to add classes
Friday, April 21, 2017	 LAST DAY OF CLASSES Deadline: Last day to drop courses (for Spring 2017 undergraduate matriculants only) - students must go to the Office of the Registrar by 4:00 PM Deadline: Last day to submit theses in the Office of Graduate and Postdoctoral Studies for May degree conferral by 12:00 noon
Saturday - Tuesday, April 22 - 25, 2017	STUDY DAYS - NO EXAMS
Wednesday - Wednesday, April 26 - May 3, 2017	Final examinations for all undergraduate courses
Wednesday, May 3, 2017	END OF THE SPRING SEMESTER
Friday, May 5, 2017	Deadline: Last day for instructors to submit Final Grades for all degree candidates online via ESTHER by 5:00 PM Deadline: Last day for academic departments to submit their proposed list of degree candidates to receive the university honor of Distinction in Research and Creative Work to Provost's Office by 4:00 PM
Monday, May 8, 2017	Deadline (May 2017 Undergraduate Degree Candidates only): Last day to convert a "Pass/Fail" to an earned letter grade for courses taken in Spring 2017 by 12:00 noon
Friday - Saturday, May 12 - May 13, 2017	ONE HUNDRED AND FOURTH COMMENCEMENT
Wednesday, May 17, 2017	Deadline: Last day for instructors to submit Final Grades for all non- graduating students online via ESTHER <i>J</i>
Friday, June 9, 2017	Deadline: Last day for instructors to submit final grades to resolve "Other" (OT) grades for courses taken in Spring 2017

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du Rice A-Z

Maps-Directions

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Academic Opportunities > Admission

Undergraduate Students

Admission

Graduate Students

RICE

- Introduction
- Academic Opportunities
 - Academic Calendar 🚰
 - Admission
 - Auditing Courses
 - Graduate Degrees
 - Graduate Degree Chart
 - Non-Traditional Coursework
- Academic Policies and Procedures
- Student Services and Organizations
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

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 from a regionally accredited U.S. institution or an international institution officially recognized by that country's Ministry of Education or its equivalent as determined by the Office of Graduate and Postdoctoral Studies. For the Shepherd School of Music, the equivalent to the baccalaureate degree will be determined by the school's 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 also has links to the graduate departments' websites. The Graduate Degree Chart lists department chairs with department phone/fax numbers and email addresses.

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. Application deadlines vary by department and degree program. In general, these occur between December and February for fall semester admission, and departments may occasionally consider late applications. Some departments will also accept spring applications. See individual departmental websites for specific information regarding application deadlines.

Admission depends on students' previous academic records, available test scores, and letters of reference from scholars under whom they have studied. Writing samples, portfolios, statements of purpose, and work experience may be evaluated as part of the admissions decision. In general, applicants should have at least a 3.00 (B) grade point average, or the equivalent, in undergraduate work. Applicants who are foreign nationals or whose native language is not English must take either the TOEFL or IELTS test and must score at least 90 on the iBT TOEFL or at least 600 on the paper-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 are not necessary for an international student who has received a degree from a university in which English is the official language of communication. Waiver of the TOEFL and IELTS test may be requested by the admitting department if the department deems that the student has sufficient English communication skills to be successful in their degree program. If a student does not meet the minimum English language requirement above, then a formal request must be submitted to the Office of Graduate and Postdoctoral Studies by the graduate program. Letters of endorsement should be addressed to the dean of graduate and postdoctoral studies.

Graduate students seeking to transfer to another graduate department at Rice may do so after being admitted to the new degree program and being released from their current department. A student is not eligible to return to any Rice graduate program following a dismissal. Students previously on probation must petition the dean of graduate and postdoctoral studies for admission into any graduate program, regardless of their current enrollment status.

Last Revised : August 12, 2016

85 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Academic Opportunities > Auditing Courses

Undergraduate Students

RICE

Graduate Students

- Introduction
- Academic Opportunities
 - Academic Calendar 🚰
 - Admission
 - Auditing Courses
 - Graduate Degrees
 - Graduate Degree Chart
 - Non-Traditional Coursework

Academic Policies and Procedures

- Student Services and Organizations
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

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During the fall and spring semesters, currently enrolled degree-seeking Rice students may audit one or more courses at Rice without charge by securing permission of the instructor and by registering as an auditor with the Office of the Registrar. During the summer sessions, enrolled Rice students may audit one or more courses at Rice at the cost of the auditor fee for Rice alumni (see Cashier's website).

Upon completion, the audited course will appear on the student's transcript with a grade of either "AUD" or "NC" (see Grade Symbols). There are no credit hours associated with audited courses, and auditing a course does not affect a student's GPA. Requests to audit a class or to change from audit must be done by the dates and deadlines documented in the posted Academic Calendar (see Academic Calendar).

Last Revised : August 03, 2015

86 of 923



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Academic Opportunities > Graduate Degrees

Undergraduate Students

RICE

Graduate Degrees

Graduate Students

Introduction

- Academic Opportunities
 - Academic Calendar 🚰
 - Admission
 - Auditing Courses
 - Graduate Degrees
 - Graduate Degree Chart
 - Non-Traditional Coursework
- Academic Policies and Procedures
- Student Services and Organizations
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Research Degrees PhD ProgramsApplicable Academic Graduation Requirements **Professional Degrees** Graduate Program Major Concentrations Graduate Certificates Applicable Academic Graduation Requirements Rice Undergraduates Entering Graduate Professional Degree Program Transferring from Research/Thesis Program to Professional Program

other websites or publications, the GA shall prevail as the authoritative source.

Research Degrees

Specific requirements for advanced research degrees in each field of study appear in the appropriate departmental pages (see Departments and Programs). Students seeking additional material should contact the appropriate department (see Graduate Degree Chart).

PhD Programs

The PhD degree is awarded for original studies in the departments listed in the Graduate Degree Chart; in architecture, the equivalent degree is the DArch. Candidates receive a PhD degree after successfully completing at least 90 semester hours of graduate 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 and submit the approved thesis to the Office of Graduate and Postdoctoral Studies. (See also Candidacy, Oral Examinations and Thesis.) The residency requirement for the doctorate is four semesters of full-time study at the university.

Thesis Master's Programs

The MA degree is available in the departments listed in the Graduate Degree Chart, 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 graduate semester hours of study at the 500 level and above (including thesis hours), 24 hours of which must be taken at Rice. Thesis Master's programs require original work reported in a thesis and a public oral examination. Most students take three or four 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 one fall or spring semester of full-time study.

Nonthesis Master's Programs

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:

- At least 30 graduate semester hours of study
- At least 24 semester hours must be at Rice University
- Minimum residency is one fall or spring semester of full-time graduate study, with the exceptions of professional master's programs in the schools of engineering, natural sciences, and social sciences, as well as the Master's of Liberal Studies. For these programs, minimum residency is one fall or spring semester in full-time or part-time graduate study.
- At least 30 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 when they achieve candidacy for the doctoral degree. Students

Jump to

Research degrees are offered in seven of the eight schools at Rice, with some degrees combining studies in more than one school.

The General Announcements (GA) is the official Rice curriculum. In the event that there is a discrepancy between the GA and any

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 and Postdoctoral Studies by the deadline specified in the official academic calendar 🗗 for degree conferral in the year in which the degree is to be awarded. (See also Candidacy, Oral Examinations and Thesis and Course Numbering System.)

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 Chart. In some departments, the professional degree also prepares the student for a doctoral-level program. All professional degrees are master's degrees with two exceptions: candidates earn the Artist Diploma or Doctorate of Musical Arts after concluding a program of advanced music study.

Requirements for professional degrees include the successful completion of 30 graduate semester hours or more of courses at the 500 level or higher with at least 24 hours taken at Rice. Minimum residency for professional master's degrees in the schools of natural sciences and engineering, as well as the Master's of Liberal Studies, is one fall or spring semester of either full-time or part-time study. For all other professional master's degrees, minimum residency is one fall or spring semester of full-time study. All courses must be in the relevant field. Specific information and requirements for individual degrees appear in the Graduate Degree Chart. Program information and application materials also are available from the departments. (See also Course Numbering System.)

Institutional financial aid and tuition waivers are not available to professional master's students. This should be stated in the department's offer letter.

Graduate Program Major Concentrations

A graduate program concentration, otherwise known as a major concentration, is a formally recognized subfield of study within a discipline offered in a graduate program (masters or doctorate-level), and it represents a coordinated set of courses which emphasize a subfield within the graduate program. The major concentration indicates the student's focus according to research interests and/or professional goals. Students must apply for and obtain the approval of their Director of Graduate Studies or Department Chair to declare a major concentration, and students may, with departmental permission, apply for more than one major concentration for each graduate degree earned, assuming the program has multiple concentrations. A major concentration is available only to students in the graduate program within which the concentration is administered.

Graduate Certificates

Graduate certificate programs are formally recognized programs of study attesting to a level of competence or to the development of skills in a particular area or field. They are intended only for students already enrolled in graduate degree-granting programs at Rice, and are awarded when the student's degree is conferred. Graduate certificates are offered both to recognize students who have achieved the defined level of competence or skill, as well as to encourage students to pursue additional areas of interest. A certificate comprises a specific grouping of courses and related activities (such as internships) that either:

- 1. form a coherent yet distinctive complement to a degree program, or
- 2. leads to the acquisition of specific skills or professional expertise

The certificate would include, but not be limited to the following requirements:

1. Minimum standards: twelve graduate (12) credits, or nine such (9) credits plus a graduate-level internship or other experiential learning opportunity. Each department or program is responsible for determining the number of credits and the courses that are acceptable for satisfaction of the certificate requirements.

- All departments are eligible to submit proposals for the granting of certificates. Programs eligible to submit applications for certificates are restricted to faculty-based centers, institutes or other consortia reporting directly to one or more of the deans of the university or the vice provost of research.
- All courses counting toward the certificate must be taken on either a letter-grade or S/U basis. Courses taken for a letter grade must be completed with a grade of B- or better.
- No more than one-third of the credit hours required for the certificate may be taken on an S/U basis.
- No more than one-third of the credit hours required for the certificate may be transfer credit.
- Students must obtain the approval of their director of graduate studies to apply for a certificate.

2. A certificate program is not intended to substitute for a graduate degree but may be taken by graduate students to complement their graduate program.

3. Multiple certificates: Students may acquire more than one certificate provided that the credits in each certificate are unique and non-redundant with those of any other certificate.

Additional information on graduate certificates can be found here

Applicable Academic Graduation Requirements

Students enrolled in graduate programs at Rice may decide whether to follow the graduation general and degree program requirements in effect when they first matriculated at Rice or those in effect when they graduate. If a student has been separated from the university due to a voluntary or involuntary withdrawal, students must graduate under the regulations in effect at the time of their last readmission or those in effect when they graduate unless granted an exception by the dean of graduate and postdoctoral studies An archive of General Announcements is available online: http://www.rice.edu/catalog/archive.shtml 🗗

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

Rice Undergraduates Entering Graduate Professional Degree Program

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 graduate program. Graduate programs may consider counting courses taken by the students while an undergraduate as credit toward the degree, if the credit was not already counted towards the undergraduate degree. With these requirements, the student will complete a combined minimum of 150 semester hours for the baccalaureate and masters degrees, including a minimum of 30 graduate semester hours.

The graduate program has authority to accept or reject a particular graduate level course to meet the degree requirements for the master's degree. For more information, see "Coursework Taken While an Undergraduate at Rice" in the Registration section. In addition, the graduate program also must include in the offer letter a list of those courses taken by the student as an undergraduate that the graduate program will accept to meet the degree requirements for the master's degree. These courses must be verified and approved by the Office of the Registrar and accepted by the graduate program.

Transferring from Research/Thesis Program to Professional Program

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 and Postdoctoral 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 apply for admission into a research program.

Back to top

 Last Revised : August 24, 2016

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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

 va17



GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Academic Opportunities > Graduate Degree Chart

Graduate Degree Chart

Jump to:

School of Architecture Susanne M. Glasscock School of Continuing Studies George R. Brown School of Engineering School of Humanities Jesse H. Jones Graduate School of Business Shepherd School of Music Wiess School of Natural Sciences School of Social Sciences

School of Architecture	
- Master of Architecture (MA	ch)
- Master of Architecture in U	ban Design (MAUD)**
- Master of Arts (MA), Archit	cture
- Doctor of Architecture (DA	ch)
SUSANNE M. GLASSCOCK	CHOOL OF CONTINUING STUDIES
School of Continuing Studies	
- Master of Arts in Teaching	MAT)
- Master of Liberal Studies (/LS)
GEORGE R. BROWN SCHOO	OF ENGINEERING
Department of Bioengineeri	3
- Master of Bioengineering	/BE)
- Master of Science (MS)*, A	oengineering
- Doctor of Philosophy (PhD	, Bioengineering
Department of Chemical and	Biomolecular Engineering
- Master of Chemical Engin	ering (MChE)
- Master of Science (MS)*, 0	
- Doctor of Philosophy (PhD	
Department of Civil and Env	
	mental Engineering (MCEE), Civil Engineering
	mental Engineering (MCEE), Environmental Engineering
- Master of Science (MS), C	ril Engineering
- Master of Science (MS), E	vironmental Engineering
- Doctor of Philosophy (PhD	, Civil Engineering
- Doctor of Philosophy (PhD	, Environmental Engineering
Department of Computation	and Applied Mathematics
- Master of Computational a	d Applied Mathematics (MCAAM)
- Master of Arts (MA), Comp	tational and Applied Mathematics
- Doctor of Philosophy (PhD	, Computational and Applied Mathematics
Department of Computer Sc	ence
- Master of Computer Scien	e (MCS)
- Master of Science (MS), C	mputer Science
- Doctor of Philosophy (PhD	, Computer Science
Department of Electrical and	Computer Engineering
- Master of Electrical Engine	ering (MEE)

2016-2017 General Announcements

Department of Ma	terials Science and NanoEngineering
- Master of Mate	rials Science and NanoEngineering (MMSNE)
- Master of Scier	nce (MS), Materials Science and NanoEngineering
- Doctor of Philo	sophy (PhD), Materials Science and NanoEngineering
Department of Me	chanical Engineering
- Master of Mech	anical Engineering (MME)
	nce (MS), Mechanical Engineering
	sophy (PhD), Mechanical Engineering
Department of Sta	
- Master of Statis	
- Master of Arts (
	sophy (PhD), Statistics
Interdisciplinary G	raduate Degrees (from the School of Engineering)
- Master of Com	putational Science and Engineering (MCSE)
- Master of Arts (MA)*, Computational Science and Engineering
- Doctor of Philo	sophy (PhD), Computational Science and Engineering
- Master of Scier	nce (MS)*, Systems, Synthetic and Physical Biology
- Doctor of Philo	sophy (PhD), Systems, Synthetic and Physical Biology
SCHOOL OF HUM	NITIES
Department of Ar	t History
- Master of Arts (MA)*, Art History
- Doctor of Philo	sophy (PhD), Art History
Department of Cla	assical and European Studies
- N/A: no gradua	te degrees offered
Department of En	glish
- Master of Arts (MA)*, English
- Doctor of Philo	sophy (PhD), English
Department of His	story
- Master of Arts (- Doctor of Philo	MA)*, History sophy (PhD), History
Department of Ph	ilosophy
	MA)*, <i>Philosophy</i> sophy (PhD), <i>Philosophy</i>
Department of Re	ligion
- Master of Arts (MA)*, Religion
- Doctor of Philo	sophy (PhD), <i>Religion</i>
Department of Sp	anish and Portuguese, and Latin American Studies
- N/A: no gradua	te degrees offered
Department of Vis	sual and Dramatic Arts
- N/A: no gradua	te degrees offered
JESSE H. JONES	CHOOL OF BUSINESS
School of Busines	is a second s
- Master of Acco	unting (MAcc)
	ness Administration (MBA)
- Master of Arts (
	sophy (PhD), Business
SHEPHERD SCHO	OL OF MUSIC
School of Music	
	c (MMus) Bassoon Performance
	c (MMus), Bassoon Performance
`	(AD), Bassoon Performance
	c (MMus), Cello Performance
	(AD), Cello Performance
- Doctor of Musi	cal Arts (DMA), Cello Performance
	c (MMus), Clarinet Performance

2016-2017 General Announcements

- Artist Diploma (AD), Clarinet Performance

- Artist Diploma (AD), Clarinet Performance
- Doctor of Musical Arts (DMA), Clarinet Performance
- Master of Music (MMus), Composition
- Doctor of Musical Arts (DMA), Composition
- Master of Music (MMus), Double Bass Performance
- Artist Diploma (AD), Double Bass Performance
- Doctor of Musical Arts (DMA), Double Bass Performance
- Master of Music (MMus), Flute Performance
- Artist Diploma (AD), Flute Performance
- Doctor of Musical Arts (DMA), Flute Performance
- Master of Music (MMus), Harp Performance
- Artist Diploma (AD), Harp Performance
- Master of Music (MMus), Horn Performance
- Artist Diploma (AD), Horn Performance
- Master of Music (MMus), <i>Musicology</i>
- Master of Music (MMus), Oboe Performance
- Artist Diploma (AD), Oboe Performance
- Doctor of Musical Arts (DMA), Oboe Performance
- Master of Music (MMus), Orchestral Conducting
- Artist Diploma (AD), Orchestral Conducting
- Master of Music (MMus), Organ Performance
- Artist Diploma (AD), Organ Performance
- Doctor of Musical Arts (DMA), Organ Performance
- Artist Diploma (AD), Opera Performance
- Master of Music (MMus), Percussion Performance
- Artist Diploma (AD), Percussion Performance
- Doctor of Musical Arts (DMA), Percussion Performance
- Master of Music (MMus), Piano Chamber Music and Accompanying
- Master of Music (MMus), Piano Performance
- Artist Diploma (AD), Piano Performance
- Doctor of Musical Arts (DMA), Piano Performance
- Master of Music (MMus), String Quartet Performance
- Master of Music (MMus), Trombone Performance
- Artist Diploma (AD), Trombone Performance
- Master of Music (MMus), Trumpet Performance
- Artist Diploma (AD), Trumpet Performance
- Master of Music (MMus), Tuba Performance
- Artist Diploma (AD), Tuba Performance
- Master of Music (MMus), Viola Performance
- Artist Diploma (AD), Viola Performance
- Doctor of Musical Arts (DMA), Viola Performance
- Master of Music (MMus), Violin Performance
- Artist Diploma (AD), Violin Performance
- Doctor of Musical Arts (DMA), Violin Performance
- Master of Music (MMus), Vocal Performance
- Doctor of Musical Arts (DMA), Vocal Performance
WIESS SCHOOL OF NATURAL SCIENCES
Department of Biosciences
- Master of Arts (MA), Biochemistry and Cell Biology
- Master of Science (MS)*, Biochemistry and Cell Biology
- Doctor of Philosophy (PhD), Biochemistry and Cell Biology
- Master of Arts (MA), Ecology and Evolutionary Biology
- Master of Science (MS)*, <i>Ecology and Evolutionary Biology</i>
- Doctor of Philosophy (PhD), Ecology and Evolutionary Biology
Department of Chemistry

Department of Chemistry

Department of Earth Science	
- Master of Science (MS), Earth Science	
- Doctor of Philosophy (PhD), Earth Science	
Department of Kinesiology	
- N/A: no graduate degrees offered	
Department of Mathematics	
- Master of Arts (MA)*, <i>Mathematics</i>	
- Doctor of Philosophy (PhD), Mathematics	
Department of Physics and Astronomy	
- Master of Science Teaching (MST)	
- Master of Science (MS)*, <i>Physics</i>	
- Doctor of Philosophy (PhD), Physics	al of Network Chiencock
Interdisciplinary Graduate Degrees (from the Scho	· · · · · · · · · · · · · · · · · · ·
- Master of Science in Bioscience and Health Policy	
- Master of Science in Environmental Analysis and	Decision Making (MSEADM)
- Master of Science in Nanoscale Science (MSNS)	
- Master of Science in Space Studies (MSSpS)	20
- Master of Science in Subsurface Geoscience (MS	SG)
 Master of Science (MS)*, Applied Physics Doctor of Philosophy (PhD), Applied Physics 	
SCHOOL OF SOCIAL SCIENCES	
Department of Anthropology	
 Master of Arts (MA)*, Anthropology 	
- Doctor of Philosophy (PhD), Anthropology	
- Doctor of Philosophy (PhD), Anthropology Department of Economics	
Doctor of Philosophy (PhD), Anthropology Department of Economics Master of Energy Economics (MEECON)	
- Doctor of Philosophy (PhD), Anthropology Department of Economics - Master of Energy Economics (MEECON) - Master of Arts (MA)*, Economics	
Doctor of Philosophy (PhD), Anthropology Department of Economics Master of Energy Economics (MEECON) Master of Arts (MA)*, Economics Doctor of Philosophy (PhD), Economics	
Doctor of Philosophy (PhD), Anthropology Department of Economics Master of Energy Economics (MEECON) Master of Arts (MA)*, Economics Doctor of Philosophy (PhD), Economics Department of Linguistics	
Doctor of Philosophy (PhD), Anthropology Department of Economics Master of Energy Economics (MEECON) Master of Arts (MA)*, Economics Doctor of Philosophy (PhD), Economics	
Doctor of Philosophy (PhD), Anthropology Department of Economics Master of Energy Economics (MEECON) Master of Arts (MA)*, Economics Doctor of Philosophy (PhD), Economics Department of Linguistics Master of Arts (MA)**, Linguistics	
Doctor of Philosophy (PhD), Anthropology Department of Economics Master of Energy Economics (MEECON) Master of Arts (MA)*, Economics Doctor of Philosophy (PhD), Economics Department of Linguistics Master of Arts (MA)**, <i>Linguistics</i> Doctor of Philosophy (PhD)**, <i>Linguistics</i> Department of Political Science	
- Doctor of Philosophy (PhD), Anthropology Department of Economics - Master of Energy Economics (MEECON) - Master of Arts (MA)*, Economics - Doctor of Philosophy (PhD), Economics Department of Linguistics - Master of Arts (MA)**, Linguistics - Doctor of Philosophy (PhD)**, Linguistics	
Doctor of Philosophy (PhD), Anthropology Department of Economics Master of Energy Economics (MEECON) Master of Arts (MA)*, Economics Doctor of Philosophy (PhD), Economics Department of Linguistics Master of Arts (MA)**, <i>Linguistics</i> Doctor of Philosophy (PhD)**, <i>Linguistics</i> Department of Political Science Master of Arts (MA)*, <i>Political Science</i>	
Doctor of Philosophy (PhD), Anthropology Department of Economics Master of Energy Economics (MEECON) Master of Arts (MA)*, Economics Doctor of Philosophy (PhD), Economics Department of Linguistics Master of Arts (MA)**, <i>Linguistics</i> Doctor of Philosophy (PhD)**, <i>Linguistics</i> Department of Political Science Master of Arts (MA)*, <i>Political Science</i> Doctor of Philosophy (PhD), <i>Political Science</i>	
Doctor of Philosophy (PhD), Anthropology Department of Economics Master of Energy Economics (MEECON) Master of Arts (MA)*, Economics Doctor of Philosophy (PhD), Economics Department of Linguistics Master of Arts (MA)**, <i>Linguistics</i> Doctor of Philosophy (PhD)**, <i>Linguistics</i> Department of Political Science Master of Arts (MA)*, <i>Political Science</i> Doctor of Philosophy (PhD), <i>Political Science</i> Department of Psychology	
Doctor of Philosophy (PhD), Anthropology Department of Economics Master of Energy Economics (MEECON) Master of Arts (MA)*, Economics Doctor of Philosophy (PhD), Economics Department of Linguistics Master of Arts (MA)**, <i>Linguistics</i> Doctor of Philosophy (PhD)**, <i>Linguistics</i> Department of Political Science Master of Arts (MA)*, <i>Political Science</i> Doctor of Philosophy (PhD), <i>Political Science</i> Doctor of Philosophy (PhD), <i>Political Science</i> Doctor of Philosophy (PhD), <i>Political Science</i> Master of Arts (MA)*, <i>Psychology</i> Master of Arts (MA)*, <i>Psychology</i>	
 Doctor of Philosophy (PhD), Anthropology Department of Economics Master of Energy Economics (MEECON) Master of Arts (MA)*, Economics Doctor of Philosophy (PhD), Economics Department of Linguistics Master of Arts (MA)**, <i>Linguistics</i> Doctor of Philosophy (PhD)**, <i>Linguistics</i> Department of Political Science Master of Arts (MA)*, <i>Political Science</i> Doctor of Philosophy (PhD), <i>Political Science</i> Master of Arts (MA)*, <i>Psychology</i> Master of Arts (MA)*, <i>Psychology</i> Doctor of Philosophy (PhD), <i>Psychology</i> Department of Sociology Master of Arts (MA)*, <i>Sociology</i> 	
Doctor of Philosophy (PhD), Anthropology Department of Economics Master of Energy Economics (MEECON) Master of Arts (MA)*, Economics Doctor of Philosophy (PhD), Economics Department of Linguistics Master of Arts (MA)**, <i>Linguistics</i> Doctor of Philosophy (PhD)**, <i>Linguistics</i> Department of Political Science Master of Arts (MA)*, <i>Political Science</i> Doctor of Philosophy (PhD), <i>Political Science</i> Master of Arts (MA)*, <i>Psychology</i> Master of Arts (MA)*, <i>Psychology</i> Master of Arts (MA)*, <i>Sociology</i> Master of Philosophy (PhD), <i>Sociology</i> Master of Arts (MA)*, <i>Sociology</i> Master of Arts (MA)*, <i>Sociology</i> Master of Philosophy (PhD), <i>Sociology</i> Mas	
 Doctor of Philosophy (PhD), Anthropology Department of Economics Master of Energy Economics (MEECON) Master of Arts (MA)*, Economics Doctor of Philosophy (PhD), Economics Department of Linguistics Master of Arts (MA)**, <i>Linguistics</i> Doctor of Philosophy (PhD)**, <i>Linguistics</i> Department of Political Science Master of Arts (MA)*, <i>Political Science</i> Doctor of Philosophy (PhD), <i>Psychology</i> Master of Arts (MA)*, <i>Psychology</i> Doctor of Philosophy (PhD), <i>Psychology</i> Doctor of Philosophy (PhD), <i>Sociology</i> Doctor of Philosophy (PhD), <i>Sociology</i> Doctor of Philosophy (PhD), <i>Sociology</i> 	
Doctor of Philosophy (PhD), Anthropology Department of Economics Master of Energy Economics (MEECON) Master of Arts (MA)*, Economics Doctor of Philosophy (PhD), Economics Department of Linguistics Master of Arts (MA)**, <i>Linguistics</i> Doctor of Philosophy (PhD)**, <i>Linguistics</i> Department of Political Science Master of Arts (MA)*, <i>Political Science</i> Doctor of Philosophy (PhD), <i>Political Science</i> Master of Arts (MA)*, <i>Psychology</i> Master of Arts (MA)*, <i>Psychology</i> Master of Arts (MA)*, <i>Sociology</i> Master of Philosophy (PhD), <i>Sociology</i> Master of Arts (MA)*, <i>Sociology</i> Master of Arts (MA)*, <i>Sociology</i> Master of Philosophy (PhD), <i>Sociology</i> Mas	

*Students accepted into PhD program only; MA or MS may be earned by students as they work towards PhD. **No applications being accepted at this time.

Back to top

Last Revised : September 09, 2016

- N/A: no graduate degrees offered	
Interdisciplinary Graduate Degrees (from the School of Social Sciences)	
- Master of Arts in Global Affairs (MAGA)	

93 of 923

*Students accepted into PhD program only; MA or MS may be earned by students as they work towards PhD. **No applications being accepted at this time.

Back to top

	Last Revised : Au	gust 16, 2016				
General Annound	cements 6100 M	ain MS-10, Houston,	Texas 77005-1827 Mail	ing Address: P.O.	. Box 1892, Houston, Tex	xas 77251-1892
©2015 Rice University	Rice Home	Web Services	University Calendar va17	Rice A-Z	Maps-Directions	Feedback

94 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Academic Opportunities > Non-Traditional Coursework

Non-Traditional Coursework

Graduate Students

Undergraduate Students

RICE

- Introduction
- Academic Opportunities
 - Academic Calendar 🚰
 - Admission
 - Auditing Courses
 - Graduate Degrees
 - Graduate Degree Chart
 - Non-Traditional Coursework

Academic Policies and Procedures

- Student Services and Organizations
- ▶ Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

General Announcements	6100 Main MS-10, Houston,	Texas 77005-1827	Mailing Address: P.O. B	ox 1892, Houston, Te	exas 77251-1892
©2015 Rice University Rice H	ome Web Services	University Calendar va17	Rice A-Z	Maps-Directions	Feedback

Courses tailored for individual students provide a valuable opportunity for them to pursue an academic or professional interest under the supervision of a Rice faculty member. Such courses are typically titled as independent study or research, directed reading, or internships. Although the organization of these courses is quite variable, they are subject to the same basic requirements as other course offerings. In particular:

- The subject matter and intellectual level of the course must be appropriate for Rice.
- The instructor of record must hold a regular faculty appointment at Rice. This instructor is responsible for submitting the final grade, in consultation with the student's immediate supervisor, if appropriate.
- The course must have a written syllabus that meets published Rice Syllabus Standards. In addition, the syllabus must include a description of anticipated activities and topical content.
- Credit hours assigned are subject to the same amount-of-work considerations as other courses. Credit hours will be awarded in accordance with the Rice credit hour guidelines d and fixed at the time of registration.
- All Registrar deadlines for registration, add/drop, completion of course work, and grade submission must be met.

Last Revised : October 13, 2015

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Academic Policies and Procedures > Academic and Judicial Discipline

Undergraduate Students

Academic and Judicial Discipline

- Graduate Students

RICE

- Introduction
- Academic Opportunities

Academic Policies and Procedures

Academic and Judicial Discipline

Academic Regulations and Good Standing

Candidacy, Oral Examinations and Thesis

- Grades
- Leaves, Interruptions of Study and Withdrawals
- Registration
- Transfer Credit
- Veterans Information
- Student Services and Organizations
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

- Jump to: Academic Probation Dismissal Disciplinary Probation, Suspension and Expulsion Termination of Financial Support
 - Degree Revocation

See also Academic Regulations and Grades.

Academic Probation

Graduate students are placed on academic probationary status by the Office of Graduate and Postdoctoral Studies if their cumulative grade point average falls below 2.67 or their semester GPA falls below 2.33. The period of probation extends to the end of the next semester in which the student is enrolled. If that probationary semester results in cumulative grade point average below 2.67 or semester grade point average below 2.33, the student will be immediately dismissed without further warning. As a courtesy, students will be notified of their probationary status once final grades have been received and posted to their records. S/U grades cannot be used to end probationary status for low GPA.

A degree program can define stricter standards by publishing those expectations in its graduate student handbook. A program can dismiss a student without a probationary semester by faculty vote.

Dismissal

The two most common grounds for dismissal of a graduate student are (1) inadequate academic progress and (2) a disciplinary violation. The latter is discussed in detail under Disciplinary Probation, Suspension and Expulsion. The following relates to academic progress.

Graduate programs must provide students upon entry to the program with detailed requirements, deadlines, and other program policies. Students are then responsible for meeting program and university requirements in their program of education. A student who is failing to meet departmental or university requirements, such as failing to meet grade requirements, failing to pass required examinations by the required time, or failing to advance to candidacy or defend her/his thesis within the required time, is subject to dismissal without further warning.

When a student is judged not to be making adequate academic progress, he or she must be warned in writing of the possibility of dismissal and given clear information about what must be done within a specified time period to alleviate the problem. These expectations must be reasonable and consistent with expectations held for all students similarly situated in the program. If the student does not meet the stated requirements within the time frame specified, he or she will be dismissed by the graduate program. A student is not eligible to return to Rice following a dismissal.

It is difficult to give a precise and general definition of "adequate academic progress" for graduate students, due to the variation in requirements among different graduate programs. Nevertheless, some general principles do apply. For example, most graduate programs consist of two stages. The first stage, preceding candidacy, typically consists of explicit requirements and milestones, such as course requirements, exams, research projects, and the like. In this stage, adequate academic progress typically means compliance with the requirements and milestones of the program, as well as research progress when applicable. The second stage, post-candidacy, is often referred to as "all but dissertation" (ABD). In this stage, graduate students are expected to conduct research and write and defend their theses/dissertations. As the second stage typically lacks explicit intermediate milestones, it is harder to assess academic progress during this stage. It is extremely important, therefore, for graduate programs to make their expectations explicit for post-candidacy graduate students.

Post-candidacy graduate students often enroll only in research courses. Such courses can offer standard letter grades or satisfactory/unsatisfactory (S/U) grades. Grading mode, however, must be uniform within a section of a research course. Thus, all students in such a section should receive letter grades or all should receive S/U grades.

Graduate programs must establish mechanisms for tracking, reviewing, and documenting academic progress of graduate students on an ongoing basis and must provide graduate students a written assessment of their academic progress at least annually. In some graduate programs this ongoing progress review is carried out by a student's thesis committee, while in others it is carried out by a standing faculty committee. Although a student's supervisor plays an important role in reviewing the student's academic progress, the responsibility for conducting the review process lies with the program and requires the involvement of additional faculty members in the program. For graduate students who are primarily engaged in coursework, for example, professional master's students, the transcript is an adequate form of written assessment.

Dismissal of a graduate student requires that the student be notified of his/her dismissal from the graduate program. Such a notice is distinct from any earlier warning, which lets the student know of the possibility of dismissal. All dismissal notices, as well as warnings of possible dismissal, must be in writing, with a copy sent to the Office of Graduate and Postdoctoral Studies. Email communication is considered to be "in writing". (Academic units should archive copies of all email communications pertaining to student dismissal.)

Because of the serious consequences of dismissal from a graduate program, dismissed students must receive a 15-day notice of the dismissal. Such a notice may precede the trigger for the dismissal. For example, a program can notify a student 15 days before an examination that failure to pass the examination with a certain minimal grade would result in dismissal. In general, dismissal should not take effect during a semester in which the student is enrolled. Dismissals that take effect during a semester are exceptional and must be approved by the Dean of Graduate and Postdoctoral Studies. A dismissal will be held in abeyance until the petition and appeal process is concluded, as students may petition for a dismissal to be revoked as described in the Dispute Resolution section .

Disciplinary Probation, Suspension and Expulsion

The Code of Student Conduct applies to all Rice students and applies to conduct both on and off campus. The Office of Student Judicial Programs may sanction students including implementing disciplinary probation, or suspension or expulsion for violations of the Code of Student Conduct or the Honor Code. Students who have been expelled, who are serving a suspension, who are under investigation for disciplinary violations, or who have Code of Conduct or Honor Code proceedings pending against them may not receive their degree even if they have met all academic requirements for graduation. Students who are suspended or expelled must leave the university within the timeframe specified by Student Judicial Programs, generally 48 hours of being informed of the decision, though in cases of unusual hardship, Student Judicial Programs may extend the deadline. Any tuition refund will be prorated from the official date of suspension or expulsion. A grade of "W" will be awarded to all enrolled courses regardless of when the suspension or expulsion began. Expelled students will have the expulsion noted on their transcript.

While on disciplinary probation or 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, including, but not limited to, the student center, the colleges, the playing field, the recreation center, and the computer labs, are limited to enrolled students.

Students seeking readmission after a suspension for Honor Code or Code of Conduct violations or other nonacademic action should submit a petition in writing to the Office of Student Judicial Programs by emailing SJP@rice.edu. That petition should include information on what the student did while away from Rice, including any schooling or employment; how the student met any requirements described by Rice at the time of separation; what the student did to address any issues leading to the separation; and what the student learned from the separation. Once approved by Student Judicial Programs, the petition is forwarded to the dean of graduate and postdoctoral studies for final readmission approval and action.

Termination of Financial Support

Graduate students often receive financial support in the form of graduate stipend and tuition waivers. The termination of financial support to a graduate student, while not equivalent to dismissal, is a serious action that could deprive students of their financial ability to continue graduate studies. Consequently, the procedure to terminate a student's financial support before the end of the financial-support commitment period should be analogous to those for dismissal as described above. Therefore, termination of financial support of a graduate student requires that the student be notified of the termination 15 days prior to the cancellation of support. Such a notice is distinct from any earlier warning, which lets the student know of the possibility of support termination. All termination of support notices, as well as warnings of possible termination, must be in writing, with a copy sent to the Office of Graduate and Postdoctoral Studies.

Active participation in required academic activities (for example, laboratory work in certain science and engineering programs) is a basic condition for continued financial support. Students who are absent from such required activities for contiguous two weeks without permission and without mitigating circumstances may be subject to termination of financial support. In addition, they may be judged to be not making adequate academic progress. Thus, if absences have to occur, they must be pre-arranged with the student's supervisor, except for medical and family emergencies, in which cases timely notification is required. Graduate advisors and programs should be aware of unexplained student absences and must provide immediate written warnings when students are not present and carrying out required academic activities for more than one week.

When the source of a graduate stipend is an externally sponsored research grant, the principal investigator is responsible for certifying that compensation paid to those who are supported by the grant faithfully corresponds to actual effort in carrying out the sponsored research. This process is referred to as "effort certification." The requirements above to give students warnings and notices before dismissal or termination of stipend are separate and independent of the effort-certification requirement. If a principal investigator determines that a graduate student is not contributing to the sponsored project that is the source of the student's stipend, then the charge for the affected pay period must be reallocated to another fund by the program.

Degree Revocation

Rice University reserves the right to revoke any degrees granted. A degree awarded may be revoked if the university becomes aware that the degree should not have been granted, such as a degree that was obtained by violating the Honor Code or Code of Student Conduct or by deception, misrepresentation, falsification of records, academic misconduct, research misconduct, or if the work submitted in fulfillment of -- and indispensable to -- the requirements for the degree are determined to fail to meet the academic standards that were in effect at the time the degree was awarded. Notification of the date of revocation will appear on the student's transcript, and the student will be asked to return the diploma. The Provost receives all recommendations for revocation of degrees and, after consideration and review, forwards to the President any recommendations deemed to be warranted. The Provost may also initiate and forward to the President his or her own recommendation for a degree revocation. The President will consider all recommendations forwarded by the Provost and effectuate those he or she determines to be warranted. Procedures governing degree revocations may be obtained from the offices of the Registrar, Provost or President.

The university also reserves the right to withdraw a degree to correct an administrative error, such as an incorrectly listed degree, or in a situation where it was found that a student had not actually fulfilled all graduation requirements.

Rice A-Z

Back to top

Last Revised : August 12, 2016

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Rice Home

Web Services

University Calendar va17

Maps-Directions

Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Academic Policies and Procedures > Academic Regulations and Good Standing

Academic Regulations and Good Standing

- Graduate Students

RICE

- Introduction
- Academic Opportunities

Undergraduate Students

- Academic Policies and Procedures
- Academic and Judicial Discipline
- Academic Regulations and Good Standing
- Candidacy, Oral Examinations and Thesis
- Grades
- Leaves, Interruptions of Study and Withdrawals
- Registration
- Transfer Credit
- Veterans Information
- Student Services and Organizations
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Jump to: Good Standing Residency Full-Time Study Part-Time Study Minimum Hours Time to Degree Time to Candidacy Time to Defense Time to Thesis Submission Deadlines Departmental Duties Research and Scholarly Activities Non-course Training Employment Second Degree Programs Continuous Enrollment

See also Registration, Grades, Academic and Judicial Standings, and Code of Student Conduct.

Good Standing

Graduate students must meet the minimum deadlines and course or grade requirements detailed on this page and the Grades page to remain in good standing and to graduate from the university. Graduate students must meet other requirements specifically mandated as essential for good standing by the graduate student handbook published by the relevant department or program. Failure to remain in good standing may result in probation, separation from the university or dismissal.

Residency

PhD and DMA students must complete at least four full fall and/or spring semesters in full-time study at Rice University. Minimum residency for master's programs is one fall or spring semester of full-time graduate study, with the exceptions of professional master's programs in the schools of engineering, natural science, and social sciences, as well as the Master's of Liberal Studies. For these programs, minimum residency is one fall or spring semester in full-time or part-time graduate study.

Full-Time Study

Semester course load for full-time students is nine hours or more as required by specific departments for the fall and spring semesters. Full-time enrollment during the summer semester is at least six hours. Graduate programs at Rice generally require full-time study. For information about dropping below full-time or changing to part-time status, see below.

Part-Time Study

Part-time students must register for at least three hours in a semester. All time boundary and degree requirements apply to parttime students. Students who wish to become part-time time in the upcoming semester must obtain written permission from the academic department before the semester begins. Students who wish to obtain part-time status after the semester has started must also obtain the approval of the Office of Graduate and Postdoctoral Studies. In order for students to receive the part-time tuition rate, they must obtain verification of part-time approval from the Office of the Registrar by the end of the second week of classes. Part-time students are not eligible to receive fellowships, assistantship aid, tuition scholarships, or reduced rate tuition from Rice. See also Financial Aid. International students should consult the Office of International Students and Scholars about the possible impact on their visa status of dropping below full-time.

Minimum Hours

Time to Degree

PhD and DMA students are required to complete their program, including thesis defense, within 10 years of initial enrollment in the degree program. All master's students are required to complete their program, including thesis defense, within five years of initial enrollment. In both cases, students have a limit of six additional months from the date of defense to submit their theses to the Office of Graduate and Postdoctoral Studies. These time boundaries include any period in which the student was not enrolled or enrolled part time, for whatever reason. Failure to meet any university time to degree deadline may result in the student not being able to continue in their degree program.

Time to Candidacy

PhD and DMA students must be approved for candidacy before the beginning of the ninth semester of their enrollment at Rice. MArch students must be approved for candidacy before the October 31st prior to their juried defense. All other master's students must be approved for candidacy before the beginning of the fifth semester of their enrollment at Rice. See Candidacy, Oral Examinations and Thesis.

Time to Defense

PhD and DMA students must defend their theses before the end of the 16th semester of their enrollment at Rice. Master's students must defend their theses before the end of the eighth semester of their enrollment at Rice. See Candidacy, Oral Examinations and Thesis.

Time to Thesis Submission

Candidates who successfully pass the oral examination in defense of the thesis must submit the thesis must submit the thesis to the Office of Graduate and Postdoctoral Studies no later than six months from the date of the examination. See Candidacy, Oral Examinations and Thesis.

Deadlines

Students must observe all deadlines listed in the Academic Calendar.

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 eight semesters.

Standard of Conduct

Students are expected to live up to the high standards Rice sets for its community members, as described in the Code of Student Conduct \mathbf{e} . Graduate students should be in compliance with the Code of Student Conduct at all times and not have holds from Student Judicial Programs or other offices.

Research and Scholarly Activities

Research and other scholarly activities of all students must conform to 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) 🖗.

Non-course Training

Within their first semester of enrollment, graduate students are expected to complete some non-course training:

- Orientation New graduate students are expected to attend all orientation events.
- Preventing Sexual Harassment New graduate students are required to complete this online training.
- Responsible Conduct of Research All graduate students are required to complete this online training. Students in the MBA and MLS programs are exempt from this training.
- Lab Safety Training Lab Safety training is mandatory for all new students in the School of Engineering; in the School of Natural Science, with the exception of the Mathematics Department; and any student outside those schools who will be working in a laboratory at Rice. This training is provided through the Office of Environmental Health and Safety.

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.

Second Degree Programs

Graduate students may enroll in a second degree program only with the approval of their home academic department.

Continuous Enrollment

Students must maintain continuous program involvement and enrollment during fall and spring semesters unless granted an official leave of absence. See Leaves, Interruptions of Study and Withdrawals for more information.

Back to top

Last Revised : August 12, 2016

General Announce	ements 6100 M	ain MS-10, Houston,	Texas 77005-1827	Vailing Address: P.O.	Box 1892, Houston, Te>	kas 77251-1892
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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Academic Policies and Procedures > Candidacy, Oral Examinations, and Thesis

Undergraduate Students

- Graduate Students

RICE

- Introduction
- Academic Opportunities

Academic Policies and Procedures

- Academic and Judicial Discipline
- Academic Regulations and Good Standing
- Candidacy, Oral Examinations and Thesis
- Grades
- Leaves, Interruptions of Study and Withdrawals
- Registration
- Transfer Credit
- Veterans Information
- Student Services and Organizations
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Candidacy, Oral Examinations and Thesis

- Jump to:
 - Approval of Candidacy Thesis Committee Announcement of Thesis Defense Oral Examination in Defense of Thesis Thesis Submission Regulations and Procedures

Approval of Candidacy

Candidacy marks a midpoint in the course of graduate education. Achieving candidacy for the PhD/DMA signals 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. The department is also authorized to grant waivers or substitutions of specific course requirements, but not to make exceptions to university requirements.

Students enrolled in research degree programs submit their petitions for candidacy for a master's or doctoral degree through the department chair to the dean of graduate and postdoctoral studies. In the petition sent to the dean, 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 in nonthesis master's programs, including professional master's programs, must submit a certification of nonthesis master's through their department chair to the Office of Graduate and Postdoctoral Studies.

PhD/DMA students must be approved for candidacy before the beginning of the ninth semester of their enrollment at Rice. Master's students must be approved for candidacy before the beginning of the fifth semester of their enrollment at Rice. However, in order to qualify for a given commencement, they must meet the submission deadline for that commencement per the Academic Calendar 🗗 . This date falls at the end of October for December degree conferral and the end of February for May degree conferral.

Students who are unable to meet the university time boundary for candidacy may petition the dean of graduate and postdoctoral studies or his/her designee for an extension of time to candidacy. Students who exceed their time boundaries without an approved extension request will be charged a fee of \$125 for reinstatement to good standing. Students who exceed their time boundaries and do not receive an extension to their time to candidacy are subject to immediate dismissal by the Office of Graduate and Postdoctoral Studies.

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 one member must have his or her primary appointment in another department within the university. At least three members of the committee must meet one 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
- Qualified individuals who have been certified as thesis committee members by the dean of graduate and postdoctoral studies

The composition of the thesis committee must always meet the guidelines mentioned above, with the following exceptions: • Interdisciplinary programs (Applied Physics & SSPB)- The chair of the thesis committee is either the advisor or in the host department of the student, and is affiliated with the program. The second member of the committee is affiliated with the program. The third committee member is neither in the student's host department nor affiliated with the program. Thesis committee make-up is approved by both the head of the host department and the program. The formal structure of the thesis committee for the programs is in the General Announcements and regularly reviewed by the Office of Graduate and Postdoctoral Studies. • Master of Architecture- The committee chair must be a tenured or tenure-track faculty member. Other committee members can be tenured, tenure-track, or non-tenure track Rice faculty.

The thesis director must be a tenured or tenure-track member of the Rice University faculty or a research faculty holding the rank of faculty fellow, or distinguished faculty fellow. Faculty whose primary appointment is at another institution may serve as thesis director if approved by the dean of graduate and postdoctoral studies. Emeritus professors may not accept new graduate students without the approval of the dean of graduate and postdoctoral studies and an appointment letter from the school dean.

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 student's major department. In addition to the three required members, additional members of the committee may be selected with the approval of the department chair.

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.

Announcement of Thesis Defense

Oral examinations for the doctoral degree must be announced at least 14 days in advance. Oral examination announcements are to be submitted to the Office of Graduate and Postdoctoral Studies by entering the information into the Graduate Students Thesis Defense Announcement form at http://events.rice.edu/rgs 🗗.

Oral examinations for the master's degree must be announced at least 7 days in advance in the same manner as the doctoral defense.

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 thesis is essentially completed. Students may take the final oral examination in defense of their thesis only after the dean of graduate and postdoctoral studies approves their candidacy. All regulations in this section apply to both masters and doctoral theses, unless otherwise noted.

At least one 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. The length of the oral examination and the subject matter on which the candidate is questioned are left to the judgment of the committee. 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 oral thesis defenses must take place on the Rice University campus with the candidate and all thesis committee members in physical attendance. In exceptional cases, appeals to this requirement can be made in writing to the dean of graduate and postdoctoral studies. A candidate must be enrolled in the semester in which his or her oral examination is held. Students who defend during the summer must enroll in the summer session of classes. 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. Students passing the oral examination on or before the end of the first 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 second examination. Students who fail a second time will be dismissed from the university.

Students must submit a copy of their approval of candidacy form, signed by the thesis committee signifying successful defense of the thesis, to the Office of Graduate and Postdoctoral Studies within one week after the oral examination. Instructions to submit this form are located online at graduate.rice.edu/thesis 🗗. The original approval of candidacy form must be turned in when the thesis is submitted.

PhD and DMA students must defend their theses before the end of the 16th semester of their enrollment at Rice. Master's students must defend their theses before the end of the eighth semester of their enrollment at Rice. Students who are unable to meet the university time boundary for thesis defense may petition the dean of graduate and postdoctoral studies or his/her designee for an extension of time to defense. Students who exceed their time boundaries without an approved extension request will be charged a fee of \$125 for reinstatement to good standing. Students who exceed their time boundaries and do not receive an extension to their time to defense are subject to dismissal by the Office of Graduate and Postdoctoral Studies.

Thesis Submission Regulations and Procedures

The thesis is the principal record of a student's work for an advanced degree. Instructions for online thesis submission and guidelines for thesis formatting are available at: graduate.rice.edu/thesis/ 🗗.

Candidates who successfully pass the oral examination in defense of the thesis must submit the thesis to the Office of Graduate

103 of 923

and Postdoctoral Studies no later than six months from the date of the examination. If the thesis is not submitted by the end of the six-month period, the "pass" will be revoked and an additional oral defense will need to be scheduled. Applications for an extension without reexamination must be made by the candidate with the unanimous support of the thesis committee, endorsed by the school dean, and approved by the Office of Graduate and Postdoctoral Studies. Extensions of this six-month period for completion without reexamination will be granted only in rare circumstances. Approved petitions for extension without reexamination received after the 6 month time boundary expired will be charged a fee of \$125 for reinstatement to good standing.

Students must have the original signatures of each member 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 ProQuest/University Microfilms International (UMI) publishing contract. Students must pay their thesis submission fee before submitting the thesis to the Office of Graduate and Postdoctoral Studies for degree approval.

All theses are permanently preserved in Rice's Institutional Repository and are available via scholarship.rice.edu 🗗 shortly after the final submission of the thesis. In limited cases, a student's advisor may request an embargo of six months, one year, or two years; this is subject to approval by the dean of graduate and postdoctoral studies or his/her designee.

Students have six months from the date of their defense to submit their thesis. However, in order to qualify for a given commencement, they must meet the submission deadline for that commencement per the Academic Calendar. This date falls on the last day of classes in the Fall and Spring semesters.

Rice A-Z

Back to top

Last Revised : August 12, 2016

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- - - -

University Calendar va17 Maps-Directions Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Academic Policies and Procedures > Grades

Undergraduate Students

Graduate Students

RICE

Introduction

Academic Opportunities

Academic Policies and Procedures

- Academic and Judicial Discipline

Academic Regulations and Good Standing

Candidacy, Oral Examinations and Thesis

- Grades

Leaves, Interruptions of Study and Withdrawals

- Registration

- Transfer Credit

- Veterans Information

Student Services and Organizations

- Rights and Responsibilities
- Non-Traditional Students
- Faculty

Programs of Study

Administration and Faculty

Important Notices

Jump to:

Satisfactory/Unsatisfactory Audit Grade Symbols Grade Designations Grade Points

See also Faculty Grading Guidelines and Syllabus Standards.

Minimum GPA

To remain in good standing, graduate students must maintain a cumulative grade point average (GPA) at or above the 2.67 minimum institutional threshold and any department or program thresholds. The term GPA must be at or above the 2.33 institutional threshold and any additional department or program thresholds. See also Academic and Judicial Discipline.

In addition to the minimum institutional cumulative GPA requirement of 2.67, students must achieve a 2.67 GPA among courses required for their chosen program of study to graduate. Each department or program can identify and define stricter standards than the institutional cumulative 2.67 minimum and institutional term 2.33 minimum, and should communicate these requirements in their General Announcements Programs of Study listing.

Pass/Fail Option

Graduate students may not take a course pass/fail within their graduate degree requirements. Courses outside of their degree requirements must be designated as pass/fail no later than the end of the 10th week of classes; however, a pass/fail course may later be converted to a graded course by submitting the proper online form with the Office of the Registrar by the end of the second week of the following semester. Students wishing to designate a course as pass/fail during the summer sessions should see Registration During Summer Sessions.

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. Graduate students cannot use a course taken pass/fail toward a graduate certificate. Visiting Post Baccalaureates cannot take courses on a pass/fail grading basis.For more information, see The Pass/Fail Option 🗗

Satisfactory/Unsatisfactory

Satisfactory/unsatisfactory courses are those that do not use traditional grading procedures and instead assign a grade of S or U rather than a letter grade. With S/U courses, instructors report the S if the student successfully completes the course, or the U if they have not. 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. Visiting Post Baccalaureates cannot take courses on a satisfactory/unsatisfactory grading basis.

Audit

Students have the option of auditing courses. For auditing students, instructors report either the AUD or the NC grade symbol, the AUD if the student met the audit requirements of the class, or the NC if they have not. There are no credit hours associated with audited courses, and auditing a course does not affect a student's GPA. Request to audit a class or to change from audit to credit or vice versa must be done by the end of the second week of the semester. (See Grade Designations AUD and NC below.)

Grade Symbols

Instructors are required to report a grade for all students whose names appear on the class roster. They grade their students using the following conventional symbols: A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F.

Grades Pass/Fail Option

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:

AUD ("Audit")—This designation is only used for people auditing the course, and specifically where the auditing student has met the audit requirements of the course. A grade designation of "NC" (No Credit) is given to students who do not meet the audit requirements. There are no credit hours associated with an AUD grade designation. (See Audit above.)

INC ("Incomplete")—Instructors report this designation to the Office of 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. For an INC received in the fall semester, students must complete the work by the end of the first week of the spring semester or an earlier date as defined by the instructor, and instructors must submit a revised grade by the end of the fall semester or an earlier date as defined by the instructor, and instructors must complete the work before the start of the fall semester or an earlier date as defined by the instructor, and instructors must submit a revised grade by the end of the first week. If a grade is not submitted by the appropriate deadline, the INC will be autmatically converted to a failing grade.

Students with an INC 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 according to the timeline previously stated, 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 two or more INC 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 INC is changed to a grade, either by an instructor or by default.

NC ("No Credit")—This designation signals that no credit was granted for the course. It is used in situations where a person auditing a course has not met the audit requirements of the course as defined by the instructor.

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 first week of the spring semester or by the end of the fourth week after Commencement, whichever is applicable. An OT awarded during a summer semester must be resolved and the grade submitted by the start of orientation week. If a grade is not sumbitted by the appropriate deadline, the OT will be automatically converted to a failing grade. Students should be aware that they may be placed on probation or suspension when the OT is changed to a grade, either by an instructor or by default.

W ("Official Withdrawal from University")—Students who officially withdraw from the university after the designated drop deadline, the seventh week of classes, will receive a final grade of "W" for each course in which they were enrolled at the time of withdrawal.

Students who officially withdraw from the university before the drop deadline 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 Office of Graduate and Postdoctoral Studies 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, the Office of 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. Graduate students are reminded that the rule allowing new matriculants in their first semester at Rice to drop a class up until the last day of classes applies only to undergraduates.

Grade Points

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

A+	4.33*	С	2.00
Α	4.00	C-	1.67
A-	3.67	D+	1.33
B+	3.33	D	1.00
в	3.00	D-	0.67
B-	2.67	F	0.00
C+	2.33		

* Effective in Fall 2018 semester, the grade A+ will be worth 4.0, not 4.33, in calculating the GPA.

Grade Point Average Calculation—For each course carrying standard letter grades, the credit hours attempted and the points for the grade earned are multiplied. The grade 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. Courses taken on a S/U or pass/fail basis are excluded from the grade point average calculation.

Back to top

	Last Revised : A	ugust 15, 2016					
General Annour	ncements 6100 M	Main MS-10, Houston,	Texas 77005-1827 Maili	ng Address: P.O.	Box 1892, Houston, Tex	xas 77251-1892	
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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Academic Policies and Procedures > Leaves, Interruptions of Study and Withdrawal

Undergraduate Students

Leaves, Interruptions of Study and Withdrawal

Graduate Students

RICE

Introduction

Academic Opportunities

Academic Policies and Procedures

- Academic and Judicial Discipline
- Academic Regulations and Good Standing
- Candidacy, Oral Examinations and Thesis
- Grades
- _ Leaves, Interruptions of Study and Withdrawals
- Registration
- Transfer Credit
- Veterans Information
- Student Services and Organizations
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

- Jump to: Short-Term Medical and Parental Release Voluntary Separations Involuntary Separations Resignation
 - Nonenrollment Restrictions

There are two types of interruptions in study: short-term releases and separations. Both releases and separations may be either voluntary or involuntary. Separations are periods of nonenrollment and require specific reinstatement or readmission processes.

Short-Term Medical and Parental Release

There are two types of short-term releases: medical and parental. Short-term releases can be up to six weeks in length.

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, the student may be temporarily released from their academic responsibilities.

Enrollment and stipend support may be continued for up to six weeks or until the appointment expires (whichever occurs first). A student may apply for short-term medical or parental release at any time during the semester. Complete guidelines for obtaining a medical or parental release are available at http://graduate.rice.edu/leaves 🗗. Students taking a voluntary short-term release should make arrangements with their advisor and instructors to complete their academic responsibilities in a timely way.

The university may also insist on a student's short-term medical release if, in the judgment of the dean of graduate and postdoctoral studies, or her/his designee, the student has a serious medical or psychological condition that the student cannot effectively address while enrolled or which is likely to be severely exacerbated by the Rice academic and/or living environment.

Students may not do degree work or work involving Rice faculty or facilities while on short-term medical release. Students returning from a short-term medical release will be required to provide documentation that they are able to return to their studies.

Voluntary Separations

Voluntary separations include leaves of absence (generally one to two semesters in length) and withdrawals (medical and nonmedical). Students on a leave of absence are not required to petition for readmission. Withdrawn students are eligible to reapply. If students voluntarily withdraw for medical or psychological/psychiatric reasons, however, they must meet the readmission conditions for a medical or involuntary withdrawal.

Leave of Absence—A leave of absence allows a student to take time off from their studies and later resume study without having to petition for readmission to the university. Normally, students may take a leave of absence for no more than two consecutive semesters. The semesters that a student is on leave do not count against the time to candidacy or the time to defense. They do, however, count against time to degree.

A leave of absence is granted only by the Office of Graduate and Postdoctoral 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 beginning of the academic semester in which the leave is taken. Leave requests, endorsed by the department, must be received in the Office of Graduate and Postdoctoral Studies prior to the first day of classes. (see Leaves 🗗)

Medical Leave of Absence—Students who take a leave of absence for medical/health issues must submit documentation of treatment and demonstration of medical stability from their treating healthcare provider prior to returning from leave.

Students must pay a reinstatement fee of \$125 on their return from an official leave.

Nonmedical Withdrawal and Readmission-Students who wish to withdraw from Rice during the semester, for any nonmedical

reason, are to notify the chair of their academic department in writing (see Refund of Tuition and Fees). Failure to register before the end of the fourth week of classes without a leave of absence granted by the Office of Graduate and Postdoctoral Studies constitutes a de facto withdrawal.

Students who later wish to resume study after a voluntary or de facto withdrawal must petition for readmission to the university. Petitions must be submitted to the Office of Graduate and Postdoctoral Studies no later than August 1st for Fall, December 15th for Spring and April 1st for Summer readmissions. The petition must include an academic plan devised in consultation with the student's advisor, advising committee, or director of graduate studies (depending upon the graduate program's advising structure). The semesters that a student is not enrolled do not count against the time to candidacy or the time to defense. They do, however, count against time to degree. Readmission requires the recommendation of the department chair and the approval of the dean of graduate and postdoctoral studies. Readmitted students must pay a readmission fee of \$350.

Medical Withdrawal and Readmission—Graduate students may request a medical withdrawal from the university by applying in writing to the Office of Graduate and Postdoctoral Studies at any time during the semester, up until the last day of classes; the withdrawal does not take effect until approved in writing. Email communication is considered to be "in writing." Students considering taking time off for personal reasons related to their wellbeing and mental health are also encouraged to contact the graduate affairs manager or the Student Wellbeing Office about the roadmap back to Rice. The Student Wellbeing Office serves as a liaison to the medical readmission process during the separation process and when students are ready to return.

Graduate students who wish to seek readmission following a medical withdrawal must submit to the Office of Graduate and Postdoctoral Studies a written petition for readmission no later than June 1 for the fall semester and November 1 for the spring semester, and April 1 for summer semester after the medical withdrawal. This petition must include documentation of treatment provided and demonstration of medical stability (usually six months); students may also be required to interview with the director of the Rice Counseling Center or Student Health Services or their designees. The petition also must include an academic plan devised in consultation with the student's advisor, advising committee, or director of graduate studies (depending upon the graduate program's advising structure) and approved by the department chair. Detailed petition requirements can be found on the Graduate and Postdoctoral Studies website 🖗.

Students who withdraw for psychological reasons within the last five weeks of a semester are strongly encouraged to focus on their wellbeing needs and will not be eligible to apply for immediate readmission the following semester. Students who withdraw for psychological reasons while enrolled during the summer session are not eligible to apply for immediate readmission in the fall.

The semesters that a student is not enrolled do not count against the time to candidacy or the time to defense. They do, however, count against the time to degree. Readmission requires the approval of the dean of graduate and postdoctoral studies, and readmitted students must pay a readmission fee of \$350.

Involuntary Separations

Sometimes, the university will require a student to withdraw, which requires a specific readmission process. An involuntary separation may result from a disciplinary and/or a medical reason.

The university may insist on a student's involuntary separation from the university if, in the judgment of the dean of graduate and postdoctoral studies or her/his designee, or, in the case of disciplinary action, of Student Judicial Programs, the student's behavior includes, but is not limited to, the following:

- Poses a threat to the safety or welfare of him/herself or other members of the Rice community;
- Has a serious medical or a psychological condition that the student cannot effectively address while enrolled or that is likely to be severely exacerbated by the Rice academic and/or living environment;
- Demonstrates behavior that seriously interferes with the education of other members of the Rice community; behavior that violates the Rice Code of Student Conduct, the Rice Honor Code, the Rice Sexual Misconduct Policy, the Rice Weapons Policy; or other relevant policies, or behavior that otherwise requires disciplinary action;
- Is not able to continue functioning as a student.

An involuntary separation can be the result of an interim decision or a final decision. An interim decision is usually a summary process that may result in a temporary separation.

A final decision comes after a process that includes notification, opportunity to respond, and opportunity to appeal. It can result in a suspension (i.e. temporary separation) or in an expulsion (i.e. permanent separation), as well as other sanctions.

Readmission following Involuntary Separations—Following an involuntary separation, graduate students who wish to seek readmission must submit a written petition for readmission to the Office of Graduate and Postdoctoral Studies no later than June 1 for the fall semester, November 1 for the spring semester, and April 1 for summer semester. Petitions for return following a medical withdrawal must include documentation of treatment provided and demonstration of medical stability (usually six months); students may be required to interview with the director of the Rice Counseling Center or Student Health Services or their designees. The

petition also must include an academic plan devised in consultation with the student's advisor, advising committee, or director of graduate studies (depending upon the graduate program's advising structure) and approved by the department chair.

Students who are involuntarily separated from the university for psychological reasons within the last 5 weeks of either the fall or spring semester are not be eligible to apply for readmission for the following semester. Students who are withdrawn for psychological reasons while enrolled during the summer session are not eligible to apply for immediate readmission in the fall; they must wait to reapply for readmission for the spring semester.

Students taking time off due to an involuntary withdrawal are also encouraged to contact the graduate affairs manager or the Student Wellbeing Office 🗗 about the roadmap back to Rice. The Student Wellbeing Office serves as a liaison to the readmission process, during the separation process and when students are ready to return.

Students involuntarily separated from the university for violations of the Code of Student Conduct or other disciplinary reasons, including honor code violations, must submit a petition to the Office of Student Judicial Programs and receive approval prior to returning to the university or for the award of a degree (See Academic and Judicial Discipline).

The semesters that a student is not enrolled do not count against the time to candidacy or the time to defense. They do, however, count against the time to degree. Readmission requires the approval of the dean of graduate and postdoctoral studies, and readmitted students must pay a readmission fee of \$350.

Further information is available by contacting the Office of Graduate and Postdoctoral Studies &

Resignation

A student may resign from the university by notifying the dean of graduate and postdoctoral studies in writing. Resignation means the student is withdrawing, is no longer a student at Rice, and will not return to Rice. A resignation becomes effective when accepted by the dean of graduate and postdoctoral studies. In general, if a student is under investigation for a potential Code of Student Conduct violation or has charges pending under the Code, disciplinary proceedings will terminate upon acceptance of the resignation by the dean of graduate and postdoctoral studies. A student who resigns is not eligible to receive a degree from Rice, even if the student has otherwise met all of the requirements for the degree.

Nonenrollment Restrictions

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.

All separated students must return their student ID to the Office of Graduate and Postdoctoral Studies. All university keys must be returned to the appropriate offices. Participation in student activities on and off campus and use of Rice facilities, including, but not limited to, the student center, the playing fields, the recreation center, and the computer labs, are limited to enrolled students.

Separated students are expected to be away from Rice during the term of the separation. If the student is employed by Rice at the time of separation, he or she must relinquish such employment or petition the Office of Graduate and Postdoctoral Studies for written permission to continue the on-campus employment. Noncompliance with these requirements may delay or prevent readmission.

Rice A-Z

Back to top

Last Revised : August 12, 2016

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Rice Home

University Calendar

Maps-Directions Feedback

va17

Directions

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Academic Policies and Procedures > Registration

Undergraduate Students

Registration

- Graduate Students

RICE

- Introduction
- Academic Opportunities
- Academic Policies and Procedures
- Academic and Judicial Discipline
- _ Academic Regulations and Good _ Standing
- Candidacy, Oral Examinations and Thesis
- Grades
- Leaves, Interruptions of Study and Withdrawals
- Registration
- Transfer Credit
- Veterans Information
- Student Services and Organizations
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Jump to: Drop/Add Course Registration Course Numbering System Repeated Courses

Repeated Courses Coursework Taken While an Undergraduate at Rice Final Examination In Graduate Courses Application for Degree

See also Academic Regulations.

Drop/Add

During the first two weeks of classes, students may change their registration, add or drop courses without penalty. After the second week, the following conditions apply for adds and drops. Graduate students:

- May not add courses after the second week of classes, except in extenuating circumstances and with the approval of the Office of Graduate and Postdoctoral Studies (a \$75 penalty fee per course will be assessed). The student's request to add a course first must be supported and approved by the student's advisor along with the course instructor and then forwarded to the Dean of Graduate and Postdoctoral Studies for consideration.
- May drop courses through the seventh week without penalty.
- May not drop courses after the end of the seventh week of classes, except in extenuating circumstances and with the final approval of the Office of Graduate and Postdoctoral Studies (a \$75 penalty fee per course will be assessed). The student's request to drop a course first must be supported and approved by the student's advisor, the course instructor, the appropriate department chair, and the school dean. Afterward, it should be forwarded to the Dean of Graduate and Postdoctoral Studies for consideration. Students who receive approval to drop a course after the designated drop deadline will receive a grade of "W" for that course.

Graduate students that drop a class after the second week should keep in mind that there is no refund of tuition, assuming the student continues to be enrolled in at least one other class.

Course Registration

Currently enrolled students register in April for the fall semester and in November for the spring semester. Students are strongly encouraged to meet with their advisor to discuss their courses for the upcoming semester. Please see the Drop/Add section below for requirements for adding or dropping a course after the semester has begun.

Course Numbering System

Courses numbered 100-499 are generally considered undergraduate level, with the 100-299 sequence classified as lower-level (freshman/sophomore) and the 300-499 sequence classified as upper-level (junior/senior). Courses numbered 500 and above are generally considered to be at the post-baccalaureate or graduate level. Graduate and undergraduate students may, with departmental approval, take certain courses outside their designated level.

Coursework Taken While an Undergraduate at Rice

Departments may consider counting courses taken by a student while an undergraduate at Rice as credit toward a master's degree.

The following guidelines must be followed:

- The courses must be chosen from those that normally satisfy requirements for the advanced degree
- No course can be used simultaneously to satisfy both an undergraduate and a graduate degree requirement

- Coursework taken as an undergraduate does not indicate the student's matriculation term for the graduate program—the
 matriculation term will be the term the student officially enters the program as a graduate student after completing all
 undergraduate requirements
- Regardless of the number of graduate courses taken at the undergraduate level, a student must spend at least one semester (fall or spring) studying at Rice as a graduate student

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 then 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 three 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.

Final Examination In Graduate Courses

Graduate courses, especially those with significant undergraduate student enrollment, should follow the guidelines for undergraduate courses (see Final Examinations section) 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.

Application for Degree

All students must complete and submit an Application for Degree Form available in ESTHER. This form is required for all students who plan to complete their degree requirements at the end of the fall or spring semester. A late fee will be assessed for applying after the deadline (please consult the semester-specific Academic Calendar for deadline).

Back to top

Last Revised : August 24, 2015

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892 ©2015 Rice University Rice Home Web Services University Calendar Rice A-Z Maps-Directions Feedback

va17

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Academic Policies and Procedures > Transfer Credit

Transfer Credit

- Graduate Students

RICE

Introduction

Academic Opportunities

Undergraduate Students

Academic Policies and Procedures

- Academic and Judicial Discipline

Academic Regulations and Good Standing

- Candidacy, Oral Examinations and Thesis
- Grades
- _ Leaves, Interruptions of Study and Withdrawals
- Registration
- Transfer Credit
- Veterans Information
- Student Services and Organizations
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Courses taken at another accredited college or university are not automatically approved for transfer credit. Transfer credit is only granted with the approval of the student's major department. Transfer credits are subject to the following restrictions:

- Courses must be from a regionally accredited U.S. institution or an international institution officially recognized by that country's Ministry of Education or equivalent.
- The course must be recorded on an official transcript sent directly from the original institution to Rice or hand-delivered by the student in an official sealed envelope.
- The minimum grade for transferred credits is a C- or equivalent. Some departments or programs may set a higher standard.
- The major department must approve the credits.
- Students seeking transfer credit must submit an approved Graduate Request for Transfer Credit form to the Office of the Registrar.

Please note that all transferable credits will be converted to semester hours. In no instance will a course transfer in with credit greater than the semester hour equivalent originally earned for the coursework.

Last Revised : July 20, 2011

General Announce	ements 6100 N	/lain MS-10, Houston,	Texas 77005-1827 Ma	ailing Address: P.O.	Box 1892, Houston, Te>	as 77251-1892
©2015 Rice University	Rice Home	Web Services	University Calendar va17	Rice A-Z	Maps-Directions	Feedback

SEARCH GA

Previous Editions

Feedback

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Academic Policies and Procedures > Veterans Information

Undergraduate Students

Veterans Information

- Graduate Students

RICE

Introduction

- Academic Opportunities
- Academic Policies and Procedures
- Academic and Judicial Discipline
- Academic Regulations and Good Standing
- Candidacy, Oral Examinations and Thesis
- Grades
- _ Leaves, Interruptions of Study and Withdrawals
- Registration
- Transfer Credit
- Veterans Information
- Student Services and Organizations
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

following programs while attending Rice University:

- Chapter 30: Montgomery G.I. Bill-Active Duty/Discharged
- Chapter 31: Vocational Rehabilitation
- Chapter 32: Veterans Educational ssistance Program (VEAP)
- Chapter 33: Post 9/11 G.I. Bill
- Chapter 35: Dependents Education Assistance
- Chapter 1606: Montgomery G.I.Bill-Selected Reserve
- Chapter 1607: Reserve Education Assistance Program (REAP)

At Rice University, veterans' benefits are managed through the Office of the Registrar. This office assists all veterans and their dependents who wish to receive Veterans Administration (VA) educational benefits

Qualified veterans, dependents of deceased or disabled veterans whose death or disability is a direct result of their military service,

or dependents in receipt of transferred benefits from a veteran may be eligible for VA educational benefits under one of the

Please see http://registrar.rice.edu/students/veterans/ regarding the documentation required to obtain educational allowances from the VA.

Veterans who are planning to attend the university should contact Rice University's Veterans Affairs Representative at least two 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, students should have an enrollment of at least half time (4.5 credits for graduate students).

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

Last Revised : August 12, 2013

General Announcements	6100 Main MS-10, Houston, Texas 77005-1827	Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Student Services and Organizations > Clubs and Organizations

Undergraduate Students

Clubs and Organizations

Graduate Students

RICE

- Introduction
- Academic Opportunities
- Academic Policies and Procedures

Student Services and Organizations

- Clubs and Organizations
- Disability Support Services
- Financial Aid
- Graduate Student Government
- Graduate Student Life
- _ Health, Counseling and Wellbeing
- Tuition, Fees and Expenses
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

o to: Office of Student Activities Rice Student Volunteer Program

Intercollegiate Speech and Debate Office of Multicultural Affairs

Office of Student Activities

The Office of Student Activities A located in the Rice Student Center, oversees the activities of various campus wide student organizations, student requests for facilities usage, and coordination of various leadership development programs.

In addition to managing the registration process, finances, and general advising for the 250 plus registered clubs at Rice University, Student Activities provides direct advising to the following organizations:

- Student Association (SA) 🖉 Undergraduate student government, including college presidents
- Graduate Student Association (GSA) & Graduate student government
- Impact Rice Retreat (IRR) & freshmen and sophomore leadership development retreat
- Leadership Summit & advanced leaders' retreat
- Rice Program Council

The Rice University clubs are divided into eleven genres: Academic/Honorary, Cultural/International, Departmental GSA, Environmentalism and Sustainability, Political, Recreational/Sport, Religious/Spiritual, Service, Social/Special Interest, STEM and Visual/Performing Arts. Additional information about the clubs can be found online 🗗. Student Activities also provides leadership development opportunities in the form of Lunch and Lead Programs, the Impact Rice Retreat, the Leadership Summit, the Women LEAD program, and the Club Development program.

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 College Republicans. There also are numerous sport related clubs such as sailing, rugby, volleyball, and soccer. Some of the special-interest groups include a pre-med society, a pre-law society, and Habitat for Humanity.

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

Student Activities also recognizes a number of religious and spiritual organizations. These include, but are not limited to, Chi Alpha Christian Ministries, the Baptist Student Ministry, Catholic Student Association, Hillel Foundation, the Muslim Student Association, and an Interfaith association. Many of these clubs are assisted by local clergy or staff, and form the Joint Campus Ministers.

The Clubs Office is located in the basement of the Rice Memorial Center and provides computers, workspace, storage, and a color copier for club convenience.

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. To learn more about the programs sponsored by the Rice Student Volunteer Program, visit http://www.rice.edu/rsvp 🗗.

Intercollegiate Speech and Debate

Jump to: Office of S

Office of S Rice Stude 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 admission 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:www.ruf.rice.edu/~forensic/

Office of Multicultural Affairs

The Office of Multicultural Affairs (OMA) has, as its primary mission, coordinating and implementing comprehensive educational, cultural and social programs designed to emphasize inclusiveness, while promoting intercultural dialogue, awareness and respect for diversity. Through advocacy, cultural programs and education, OMA also helps students understand and appreciate racial, ethnic, gender and other differences, while creating opportunities for students to challenge prejudice and expand their cultural knowledge and appreciation. OMA utilizes its programming and support systems to provide an optimum developmental environment where all members of the University community may develop to the highest level of their potential in an atmosphere free from harassment and bias, thereby ensuring Rice's standing as an intellectually and culturally vibrant community. Cultural student clubs, such as the Black Student Association, the Hispanic Association for Cultural Enrichment at Rice and the Rice Native American Student Association, meet regularly with OMA to discuss programming logistics and other issues. OMA also directly advises ADVANCE (Advancing Diversity and the Need for Cultural Exchange), a student club that hosts a weekly discussion on a topical issue and organizes an annual cultural fair. Other programs for students under OMA include HARAMBE, (Swahili for "working together in unity" or "let's pull together") a group that seeks to create a unifying event for entering African-American students, allowing them to build social and academic connections with peers, faculty, and staff, and FRESH, a group dedicated to forming relationships through education, scholarship and heuristics at Rice. For more information about OMA, please visit this website transmenter at Rice.

Back to top

Last Revised : August 12, 2016

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892
©2015 Rice University Rice Home Web Services University Calendar Rice A-Z Maps-Directions Feedback
va17

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Student Services and Organizations > Disability Support Services

Undergraduate Students

RICE

Disability Support Services

- Graduate Students

- Introduction
- Academic Opportunities
- Academic Policies and Procedures

Student Services and Organizations

- Clubs and Organizations
- Disability Support Services
- Financial Aid
- Graduate Student Government
- Graduate Student Life
- Health, Counseling and Wellbeing
- Tuition, Fees and Expenses
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

|--|--|

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Rice Home Web Services

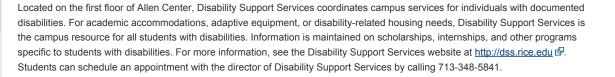
University Calendar va17

ar Rice A-Z

Maps-Directions

Feedback

01/03/2017



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 🗗 205 Allen Center, 713-348-4930.

Last Revised : August 23, 2013

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Student Services and Organizations > Financial Aid

Undergraduate Students

Financial Aid

- Graduate Students

RICE

- Introduction
- Academic Opportunities
- Academic Policies and Procedures
- Student Services and Organizations
- Clubs and Organizations
- Disability Support Services
- Financial Aid
- Graduate Student Government
- Graduate Student Life
- Health, Counseling and Wellbeing
- Tuition, Fees and Expenses
- Rights and Responsibilities

Non-Traditional Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Jump to: Fellowships, Scholarships, and Assistantships Rice Graduate Fellowships Research and Teaching Assistantships Summer Assistance Loans Federal Student Loans Loan Counseling Private Loan Programs Special Loan Programs Adams/Moseley Graduate Loan Funds Emergency Loan Fund Student On Campus Employment Deferred Payment Plan Satisfactory Academic Progress Appeal Financial Aid after Academic Suspension Return of Title IV Funds Other Fellowships, Honors, and Prizes

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 nine-month academic period.

Research and Teaching Assistantships

Usually funded from grants and contracts, research assistantships are available in many departments. Qualified students (usually second-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. In most cases, these assistantships provide a stipend plus tuition.

Fellowship, scholarship, and assistantship recipients are selected by the individual departments, subject to the approval of the Office of Graduate and Postdoctoral 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.

Please see the Graduate and Postdoctoral Program website 🗗 for more information.

Summer Assistance

Graduate students may register for summer research hours at no charge.

However, with limited exception, tuition is charged for all other courses offered in the summer semester. As with fall and spring, the Office of the Registrar manages the summer course schedule, and any questions on course offerings should be directed to that office. Tuition waivers are not available for summer classes, even for students who receive full tuition waivers during the fall and spring semesters.

Graduate students are eligible to apply for private educational loans if they are registered during the summer semester.

Loans

In addition to fellowships, scholarships, and assistantships, the Office of Financial Aid 🗗 offers assistance in the form of loans. Interested students must file a Free Application for Federal Student Aid (FAFSA). If selected for federal verification, students may also be required to submit copies of income tax transcripts and W-2's. The priority deadline to apply is May 15. (Loan assistance through Rice is not available to Master of Liberal Studies students.)

To be eligible to apply for loans, 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 suspended. Graduate students who enroll for less than 4.5 hours in a term will not be eligible for financial aid.

Loans cannot exceed the student's cost of education, as determined by Rice, minus other resources. Loans may be adjusted or canceled due to changes in eligibility or other resources.

Federal Student Loans

These are loans made to students attending the university at least half time. Federal Direct Unsubsidized Loans and PLUS Loans are available to all students regardless of need. Loan eligibility is subject to annual and lifetime borrowing limits; Federal Direct PLUS Loans require a satisfactory credit check. In addition, loans cannot exceed the student's cost of education, as determined by Rice, minus other resources.

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; the funds are limited. Interested students may contact the Office of Financial Aid 🗗.

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, with the exception of MBA and MLS students. 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 \$2,000.
- 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 Office of Graduate and Postdoctoral Studies for approval.
- Loans are available during the full course of the academic year.
- Loans must be repaid in full before graduation.
- Registration, transcripts, and diplomas will be held for students and former students who are in arrears on these loans.

For more information, visit http://graduate.rice.edu/mosleyadams.

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 \$500 and must be repaid within 90 days. In lieu of interest, a charge of 2% of the principal loan is assessed to maintain the fund.

Student On Campus Employment

Opportunities for employment are available to students during the academic year. Students are eligible to work under either the Federal Work-Study Program or the Rice University Work Program. Students interested in employment should access the Office of Financial Aid 🗗 webpage.

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 four installments. Details are available to eligible students each semester at the time of billing. Students arrange for deferred payment through the Cashier's Office.

Satisfactory Academic Progress

Federal regulations (CRF § 668.34) require that graduate students demonstrate satisfactory academic progress toward completion of their degree to continue to receive federal and state financial aid. In addition to meeting the standard for receiving financial aid, students must also meet the academic standards of Rice University.

Satisfactory academic progress is comprised of three areas as required by federal regulations. A student must complete their degree within a specified period that does not exceed 150% of the published length of the program, demonstrate they are making progress towards the completion of their degree by successfully completing 66% percent of all attempted courses, and meet the minimum cumulative GPA requirement for the program in which they are enrolled. This regulation applies to each financial aid applicant, whether a previous recipient or not.

Credits counted in the maximum time are all attempted credits (even when not a financial aid recipient). Attempted credits include:

- Earned credits Passed (A through D-), Satisfactory (S)
- Repeated courses
- Withdrawal
- Failures Failed (F), Unsatisfactory (U)
- Incomplete
- All accepted transfer credits toward the degree program

If a student fails to meet the satisfactory academic progress standards by the end of the academic year, the student will be placed on Financial Aid Suspension and will not be eligible for aid until the satisfactory academic progress standards are met.

Appeal—Students are allowed to appeal their Financial Aid Suspension in cases of the death of a relative, an injury or illness of the student, or other special circumstances. Students must submit a letter discussing why the student failed to make satisfactory academic progress, and what has changed in the student's situation that will allow the student to demonstrate satisfactory academic progress at the next evaluation. Supporting documentation (doctor's letter or academic plan) must accompany the appeal letter and must be submitted to the Office of Financial Aid 🗗 prior to the beginning of the subsequent term. The Appeals Committee will review appeals on a case-by-case basis.

If an appeal is approved by the Appeals Committee, the student will be placed on financial aid probation and may receive financial aid for one probationary semester. At the end of the probationary semester, the student must meet the satisfactory academic progress standards or meet the requirements of an approved academic plan developed by the student's department or program.

Financial Aid after Academic Suspension—Students who have been suspended by the university for academic reasons need to be aware that if they are readmitted, they may not be eligible for financial aid based on their prior academic performance. Students who are petitioning for readmission are advised to contact the Office of Financial Aid 🗗 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 the Office of Financial Aid 🗗 for information about policies and procedures regarding the return of Title IV funds.

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.

Back to top

	Last Revised : Au	gust 12, 2016					
General Announce	ements 6100 Ma	ain MS-10, Houston, ⁻	Fexas 77005-1827 Mailin	ng Address: P.O.	Box 1892, Houston, Tex	as 77251-1892	
©2015 Rice University	Rice Home	Web Services	University Calendar va17	Rice A-Z	Maps-Directions	Feedback	



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Student Services and Organizations > Graduate Student Government

Undergraduate Students

Graduate Students

RICE

- Introduction
- Academic Opportunities
- Academic Policies and Procedures

Student Services and Organizations

- Clubs and Organizations
- Disability Support Services
- Financial Aid
- Graduate Student Government
- Graduate Student Life
- Health, Counseling and Wellbeing
- Tuition, Fees and Expenses
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Graduate Student Government

Graduate Student Association

All full-time students in graduate programs are members of the Graduate Student Association (GSA). The mission of the GSA is to enrich the graduate student experience and to represent, support, and promote graduate student interests and values. An integral and essential part of the Rice community, the GSA provides programs and services aiding in recruitment and retention of graduate students, represents graduate student interests to the University administration, and builds a strong sense of community both on and off campus.

The GSA represents all graduate students and is comprised of two branches: the Council and the Executive. The Council consists of representatives from all departments who serve as the voting body for the graduate students. The Executive is led by the president, internal vice president, external vice president, secretary, and treasurer, and these positions are 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 function of the GSA is to promote academic, professional, and personal development of graduate students. The association accomplishes this by supporting professional development opportunities, alumni networking, and well-being programs for students. Another function of the GSA is to encourage social interaction among graduate students from different departments and cultures. To that end, the association organizes a variety of social activities, including picnics, intramural sports, and volunteer opportunities, that are open to all members of the graduate student body. For more information on the Graduate Student Association, see gsa.rice.edu 🗗.

School and Department Graduate Student Associations

A second strata of graduate student governance on campus are the specific GSAs of schools and departments who represent particular concerns and interests of students to the deans, to the chairs, and to the larger GSA. Each school and/or department is encouraged to develop its own governing structure to advocate for graduate concerns and initiatives at Rice.

Last Revised : August 03, 2015

(General Announcem	ents 6100 Main	MS-10, Houston, Tex	as 77005-1827	Mailing Address: P.O. Bo	x 1892, Houston, Texas	77251-1892
©2015	Rice University	Rice Home	Web Services	University Calendar va17	Rice A-Z	Maps-Directions	Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Student Services and Organizations > Graduate Student Life

Undergraduate Students

Graduate Student Life

Housing for Graduate Students

Graduate students have three different housing facilities: Rice Graduate Apartments, Rice Village Apartments, and Morningside Square Apartments. All three properties are within walking distance from the campus, and also provide easy transportation to and from campus and all shopping needs on the weekend through a shuttle service. They also provide social activities and events to help students take a break from their studies. Each community is unique in its own way and provides a broad living environment. For all property information, please visit http://campushousing.rice.edu/graduate

Rice Graduate Apartments is a garden style complex located just north of campus on Bissonnet. The community includes quick and easy access to campus, study rooms, laundry facilities, bike rooms, two courtyards, and recreational areas. Electronically controlled access gates for pedestrian and vehicular paths are provided. ADA accessible units are available to students requesting reasonable accommodations. Each apartment is furnished with a bed, desk, desk chair, night stand, chest of drawers, and a bookshelf. In addition, each unit includes basic cable, water, and Wi-Fi Internet. Housing is assigned through a lottery, with a high placement rate given to incoming graduate students. For further information, visit the website above, call 713-348-GRAD (4723), or email gradapts@rice.edu.

The Morningside Square Apartments is a two-story 1950's building located in a quiet neighborhood adjacent to Rice Village on Shakespeare Street at Morningside Drive. The community is a short walking distance to campus, restaurants, and shopping areas. The bedrooms are furnished with a bed, desk, desk chair, chest of drawers, and a nightstand. Basic cable TV is provided and onsite laundry is available. Controlled access gates for pedestrian and vehicular use are included. Family housing is available and apartments are assigned according to availability to fully enrolled graduate students. Call 713-348-4050 or email msapts@rice.edu for further information.

The Rice Village Apartments is a four-story contemporary style community located on Shakespeare Street across from Morningside Square Apartments and within a short walk of the Village. It offers four ADA accessible units for students requesting reasonable accommodations, and also offers family housing. Each unit offers appliances equipped with Energy Star efficiency to conserve energy and protect the environment. In addition, it is furnished with a dresser, nightstand, desk, chair, and bed. Basic cable, Wi-Fi Internet, and water also are included. The laundry facility has a system that can email alert you when your laundry is done. Other amenities include common areas, study rooms, a recreational area, bike room, and a community herb garden. Controlled security access is provided by a keyless front door using either a biometric fingerprint or a key fob system. Housing is assigned through a lottery, with a high placement rate given to incoming graduate students. For more information, call 713-348-4050, or email rvapts@rice.edu.

For more information regarding services and resources for graduate students, please visit http://graduate.rice.edu/studentlife 🗗

Last Revised : August 12, 2016

 General Announcements
 6100 Main MS-10, Houston, Texas 77005-1827
 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

 ©2015 Rice University
 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

 va17

RICE

Graduate Students

- Introduction
- Academic Opportunities
- Academic Policies and Procedures

Student Services and Organizations

- Clubs and Organizations
- Disability Support Services
- Financial Aid
- Graduate Student Government
- Graduate Student Life
- Health, Counseling and Wellbeing
- Tuition, Fees and Expenses
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Student Services and Organizations > Health, Counseling and Wellbeing

Undergraduate Students

Health, Counseling and Wellbeing

Graduate Students

RICE

- Introduction
- Academic Opportunities
- Academic Policies and Procedures
- Student Services and Organizations
- Clubs and Organizations
- Disability Support Services
- Financial Aid
- Graduate Student Government
- Graduate Student Life
- Health, Counseling and Wellbeing
- Tuition, Fees and Expenses
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Jump to: Health and Wellness Support Services Fee Student Health Services Health Insurance Wellbeing and Counseling Center Services

Sexual Violence Prevention and Support

Health and Wellness Support Services Fee

By paying an annual Health and Wellness Support Services Fee, all students gain access to the Student Health Services \mathbf{A} , Rice Counseling Center \mathbf{A} and the Student Wellbeing Office \mathbf{A} . Detailed information on the care and services each provide is available from these centers. The Health and Wellness Support Services Fee is a required fee for all enrolled students, except those in "away" status. See Away Status for more information.

Student Health Services

Student Health Services, an outpatient medical clinic, is located in the Morton L. Rich Health Center. The clinic is staffed by primary care physicians, nurses, and ancillary support staff. More information can be found at health.rice.edu 🖗.

Clinic hours are from 8:00 a.m. to 5:00 p.m., 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 (guidance on self-care as well as local healthcare options can be found on the website). 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 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 winter break. The clinic also is open for reduced hours during the summer months.

The Student Health Service provides the following:

- Medical 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

Confidentiality for Health Services

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. Physicians with Student Health Services are considered confidential employees under Title IX, meaning that should a student wish to speak about domestic or sexual violence or stalking with their physician, his/her information is confidential and will not be released without their expressed written consent. The only exception to this is for students under the age of 18.

Health Insurance

All registered students are required to maintain health insurance coverage, compliant with the Affordable Care Act, while enrolled at Rice University with the exception of visiting post baccalaureates, auditors, and students enrolled in the part-time Masters of Liberal

Studies program through the Glasscock School of Continuing Studies.

Students are required to either enroll in the Rice student health insurance plan, administered by Aetna Student Health, or complete an online waiver application demonstrating comparable insurance coverage. Every eligible student will have an Insurance Hold placed on their account until they have actively enrolled in insurance coverage or submitted a waiver. Once a student enrolls or waives coverage, the tuition bill will be updated based on the selection. Insurance and waiver applications, as well as specific dates for enrolling, frequently asked questions, and more can be found on the Rice Student Insurance website: http://studenthealthinsurance.rice.edu

Fall semester students who do not complete an enrollment or waiver application by September 2nd will be automatically enrolled in the annual insurance plan. The deadline to enroll or waive for the spring semester is January 20th. Please note the automatic enrollment process does require additional processing time. The premium amount will not be prorated. Once enrolled in coverage, students are unable to cancel coverage for any reason.

For questions concerning the Rice plan, please contact studentinsurance@rice.edu or call (713) 348-5544.

NOTE: If you waive coverage in the fall, you are still expected to have ACA compliant insurance coverage for the spring. If you experience a qualifying life event and need to enroll in coverage mid-year, please email studentinsurance@rice.edu.

International students that have an F1 or J1 visa are subject to the Rice University International Student Health Insurance Policy. For more information on the policy, please visit the OISS website &. Here students will find detailed information concerning the approved alternative insurance option through Student Assurance Services (SAS), as well as application and rate information.

Wellbeing and Counseling Center Services

Center contact information

The Wellbeing and Counseling Center provides confidential counseling treatment as well as wellbeing case management services and Title IX support for graduate and undergraduate students. The Center also provides mental health and wellbeing related education for the student body. The Wellbeing and Counseling Center is located in the Barbara and David Gibbs Recreation and Wellness Center. The Center is open Monday - Friday from 8:30a.m. to 5:00p.m. Walk-ins are available during business hours. For appointments contact the Wellbeing and Counseling Center at 713-348-3311 (24/7) or visit http://wellbeingandcounseling.rice.edu/

General information about counseling

The Rice Counseling Center addresses students' psychological needs with various programs and services. Services are confidential. Student information is not released to anyone without the student's written consent. There are no costs for Counseling Center services.

Typically, 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 and relationship 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 long term 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 and Wellness Support Services Fee are eligible for initial assessment sessions, consultations, crisis intervention, and educational programming. Individual or group counseling may also be available, if appropriate.

Students who have worked with a mental health professional prior to enrolling at Rice are encouraged to make contact with the Rice Counseling Center prior to coming to Rice. This will allow the student to make arrangements for a continued care plan. This plan may involve working with the Rice Counseling Center or working with the center to find a suitable off-campus provider.

The Rice Counseling Center can be contacted at 713-348-3311 and at http://wellbeingandcounseling.rice.edu/rcc². The Rice Counseling Center provides the following services:

- Psychological crisis intervention, on a walk-in emergency basis during regular office hours or by phone at any time, 24 hours a day, by calling 713-348-3311. This includes after hours and weekends.
- Brief initial assessments, in person to quickly receive information about a situation and assign an appropriate counselor
- Short-term individual and couples counseling
- Group therapy and support groups
- Medication consultations with the center's 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)

Confidentiality for counseling

Rice Counseling Center services are confidential; information about a student is not released without the student's written consent. Before entering a therapeutic relationship with a counselor, students may review and discuss confidentiality with their counselor, ask all necessary questions, and be certain they understand how confidentiality will be applied in their case. As detailed in RCC's treatment agreements, state law does not extend confidentiality to several circumstances, including 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; or (4) the counselor suspects that the student has been the victim of sexual exploitation by a former health care provider during the course of treatment with that provider. In addition, RCC sometimes provides de-identified information to administrative officials who are in a need-to-know capacity. In some cases the terms of the treatment engagement with RCC may require a student to share assessments, diagnoses, or treatment plans from non-Rice treating professionals with Rice counselors.

Therapists with Rice Counseling Services are considered "confidential" employees under Title IX, meaning that should a student wish to speak about domestic or sexual violence or stalking with their therapist, their information is confidential and will not be released without his or her written consent. The only exception to this is for students under the age of 18.

General information for wellbeing case management

The Student Wellbeing Office provides case management services and supports students who have experienced wellbeing challenges that may be impacting their personal and/or academic goals and overall success at Rice. Wellbeing case managers connect students to university resources and procedural options to help students during their enrollment. When students decide to take time off to focus on their well-being needs, the office works with them and serves as a liaison to the medical readmission process when students are ready to return. The Student Wellbeing Office also coordinates with the Rice Counseling Center to provide mental health and wellbeing related education for the student body. The Student Wellbeing Office is located in the Barbara and David Gibbs Recreation and Wellness Center. For appointments or more information, contact the Student Wellbeing Office at 713-348-3311, wellbeing@rice.edu or at http://wellbeingandcounseling.rice.edu/

General information about Title IX Support

Rice encourages any student who has experienced an incident of sexual, relationship, or other interpersonal violence, harassment or gender discrimination to seek support. There are many options available both on and off campus for all students, regardless of whether the perpetrator was a fellow student, a staff or faculty member, or someone not affiliated with the university. Students should be aware when seeking support on campus that most employees are required by Title IX to disclose all incidents of non-consensual interpersonal behaviors to Title IX professionals on campus who can act to support that student and meet their needs. The therapists at the Rice Counseling Center and the doctors at Student Health Services are 'confidential' employees, meaning that Rice will not be informed about the incident if a student discloses to one of these Rice staff members. Rice prioritizes student privacy and safety, and only shares disclosed information on a need-to-know basis. Students who have been accused of committing interpersonal violence or harassment can also seek support under Title IX. The student will be assigned a Title IX Resource Navigator who will assist the student through the process.

Privacy for wellbeing case management and Title IX Support

Wellbeing staff follow FERPA d guidelines. These staff members may inform others on the campus who have a legitimate educational interest in knowing about a student's general situation in order to perform their work to address the safety of the student or the community. This includes contacting a student's emergency contact(s) in the event of a health and safety emergency. Wellbeing staff are considered 'responsible' employees under Title IX, meaning that should a student wish to speak about domestic or sexual violence or stalking with their staff member, the staff is required by law to report the information to a Title IX Coordinator who may assign a Title IX Navigator to assist the student, including helping the student choose the best path for him or her.

Back to top

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892 ©2015 Rice University Rice Home Web Services University Calendar Rice A-Z Maps-Directions Feedback va17

Last Revised : August 12, 2016

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Student Services and Organizations > Tuition, Fees and Expenses

Tuition, Fees and Expenses

- Graduate Students

RICE

- Introduction
- Academic Opportunities

Undergraduate Students

Academic Policies and Procedures

Student Services and Organizations

- Clubs and Organizations
- Disability Support Services
- Financial Aid
- Graduate Student Government
- Graduate Student Life
- _ Health, Counseling and _ Wellbeing
- Tuition, Fees and Expenses
- Rights and Responsibilities
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Jump to: Graduate Programs MLS Graduate Program MAT Graduate Program Jones School MBA MBA/PSM Program Jones School MBA for Professionals (Evening) Jones School MBA for Professionals (Weekend) Jones School MBA for Professionals Extended Jones School MBA for Executives Away Status **Reduced Tuition** Health Insurance Late Payment Fees Refund of Tuition and Fees Refund for Credit Balance on Student Accounts Part-Time Students **Delinguent Accounts** Special Charges

Tuition and fee charges for graduate students are billed to students each semester. Students must pay the charges in full by the due date or enroll in a payment plan to avoid a late payment fee. Payment plans are only available at the beginning of a new term. Fall semester bills are due August 10. NOTE: Student accounts will not be charged until they have registered for classes (with the exception of first-time students). Students who register July 25 through the Add/Drop deadline on the Registrar's Academic Calendar must pay by September 10 to avoid a late payment fee.

Spring semester bills are due January 10. Students who register December 19 through the Add/Drop deadline on the Registrar's Academic Calendar must pay by January 30 to avoid a late payment fee.

Payments made in person must be received by the Cashier's office no later than 4pm on the payment due date. Payments made online via credit card or e-check must be made no later than 11:59pm on the payment due date.

Tuition and fees for all graduate students for academic year 2016-17 are:

Tuition	Hour	Semester / Reduced*	Annual / Reduced*	
Graduate Programs				
Architecture	\$1,678	\$15,100 / \$839*	\$30,200 / \$1,678*	
Shepherd School of Music	\$1,528	\$13,745 / \$764*	\$27,490 / \$1,528*	
Professional Master's in Natural Science				
Entered Fall '14	\$1,612	\$14,500	\$29,000	
Entered Fall '15	\$1,667	\$15,000	\$30,000	
Entering Fall '16	\$2,000	\$18,000	\$36,000	
Professional Master's in Engineering	\$2,223	\$20,000	\$40,000	
All other graduate students	\$2,402	\$21,610 / \$1,201*	\$43,220 / \$2,402*	

	12	27 of 923
Jones School PhD	\$21,610	\$43,220
Required Fees		
Graduate Student Association	\$22	\$44
Student organization fund	\$4	\$8
Honor Council	\$1	\$2
Humanities GSA (School of Humanities only)	\$2.50	\$
Health and Wellness Support Services Fee (no spouses)	\$243	\$486
**Health Insurance - student premium only	Fall: \$941	\$2469
(unless waiver has been approved)	Spring: \$1528	φ2408
MLS Graduate Program	Per Course	
Master's of Liberal Studies and Postgraduate Program	\$2,750	
Required Fees	Session	Annual
MLS student activity fee	\$42	
Graduate Student Association (annual max \$44)	\$22	\$44
MAT Graduate Program	Per Course	
Master of Arts in Teaching	\$2,750	
Required Fees	Semester	Annual
MAT student activity fee	\$42	\$84
Graduate Student Association	\$22	\$44
**Health Insurance - student premium only	Fall: \$941	\$2469
(unless waiver has been approved)	Spring: \$1528	\$2468
Jones School MBA	Semester	Annual
Entering Fall '16	\$26,500	\$53,000
Required Fees		
Graduate Student Association	\$22	\$44
Student organization fund	\$4	\$8
Honor Council	\$1	\$2
Health and Wellness Support Services Fee (no spouses)	\$243	\$486
Jones School student activity fee	\$100	\$200
Jones School material fee	\$1,066	\$2,132
Jones School admission administrative fee -	¢225	
new students - Fall only	\$225	
**Health Insurance - student premium only	Fall: \$941	\$2469
(unless waiver has been approved)	Spring: \$1528	¢2100
MBA/PSM Program (3 Year Program)	Semester	Annual
Year 1 will be at the Professional Masters in Natural Science rate for Entering Fall '16 (Year 3	\$18,000	\$36,000
will be locked into this same rate)		
Year 2 will be at the MBA Entering Fall '17	TBD	TBD
Required Fees Year 1		
Graduate Student Association	\$22	\$44
Student organization fund	\$4	\$8
Honor Council	\$1	\$2
Health and Wellness Support Services Fee (no spouses)	\$243	\$486
**Health Insurance - student premium only (unless waiver has been approved)	Fall: \$941 Spring: \$1528	\$2469
Required Fees Year 2 (Entering Fall '17)	TBD	TBD
Required Fees Year 3 (Entering Fall '18)	TBD	TBD
Jones School MBA for Professionals (Evening)		2-Year Rate
Entered Fall '15		\$95,500
Entering Fall '16		\$98,500
Required Fees		
	\$50 per	

**Health Insurance - student premium only (unless waiver has been approved)	Fall: \$941 Spring: \$1528	\$2469
Jones School MBA for Professionals (Weekend)		
Entered Fall '15		\$99,000
Entering Fall '16		\$102,000
Required Fees		
Jones School MBA for Professionals Student Activity Fee	\$50 per semester	
**Health Insurance - student premium only (unless waiver has been approved)	Fall: \$941 Spring: \$1528	\$2469
Jones School MBA for Professionals Extended		
Entering Fall '16	\$1,825 per credit	
Entered Fall '15	\$1,769 per credit	
**Health Insurance - student premium only (unless waiver has been approved)	Fall: \$941 Spring: \$1528	\$2469
Jones School MBA for Executives		2-Year Rate
Entered Fall '15		\$111,000
Entering Fall '16		\$115,000
Required Fees		
**Health Insurance - student premium only (unless waiver has been approved)	Fall: \$941 Spring: \$1528	\$2469

Away Status

Graduate students pursuing their studies outside of the Houston area (graduate students on "away" status) must be registered and pay tuition. Humanities students in away status must pay the Humanities GSA fee. Students on away status must carry health insurance. With these exceptions, graduate students in away status are exempt from the other required fees listed above.

* Reduced Tuition

After 10 semesters of full-time study in one doctoral degree program (excluding the summer semesters), continuing students may be eligible for 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. Students in the Shepherd School of Music and the School of Architecture are eligible for reduced rate tuition after six semesters of full-time study.

** Health Insurance

All students, full time or part time—including those on away status—must carry health insurance. For further information, visit the Health Insurance section.

Late Payment Fees

Late payment fees will be assessed monthly at the rate of 1.5% of the unpaid balance due on the e-bill. Any account with a past due amount will be charged a late payment fee. NO EXCEPTIONS.

Refund of Tuition and Fees

Students who withdraw during the first two weeks of the semester are not charged tuition or fees for that semester. Students who withdraw during the third week must pay fees and 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 ninth 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 (Federal Perkins Loan, Unsubsidized loans or Federal PLUS Loans) 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.

Fees and special charges are not refunded for students withdrawing after the second week of classes in a semester. Similarly, students withdrawing or taking leaves of absence in the spring semester do not receive any refund of fees paid for the full year.

Refund for Credit Balance on Student Accounts

If you have a loan or federal money disbursed on your student account and you have a credit balance on your student account, the Cashier's office will automatically process a refund for you. Please know that there are certain charges that cannot be paid with loans or federal money such as printing, library fines, citations, etc. Therefore, your refund may be more than the credit balance on your student account resulting in a due balance for the charges not paid by the loan or federal money.

If you do NOT have a loan or federal money on your student account and you have a credit balance, you must submit a request for refund. Please click here 🗗 to submit your request.

Refunds are processed on Mondays and Thursdays. If you are NOT set up to receive your refund by direct deposit, a check will be mailed to your mailing address on record in Esther. JPMorgan Chase prints and mails paper check refunds every Tuesday afternoon for the previous week's requests. So please know it can take from 5 to 10 business days to receive your check in the mail. Therefore, the quickest way to receive a refund is by direct deposit and funds should appear in your bank account within 5 business days. You may find instructions on the Cashier's website 🗗 on how to set up what is called an eRefund in Bill Payment Suite for direct deposit by clicking How to Tutorials-Bill Payment Suite 🗗.

Part-Time Students

Students must receive approval from their department to enroll with a course load of fewer than nine hours. Approval must be received and the course schedule must be adjusted within the first two weeks of the semester. Students with part-time approval and a course load of fewer than nine hours will be charged at the per-hour rate plus a part-time registration fee. There are no refunds for part-time enrollment or for students whose course load drops below nine hours after the first two weeks of the semester.

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 may be withdrawn from the university. Accounts not settled by the first day of classes incur a late payment penalty and are subject to a billing hold that prevents those students from dropping or adding classes.

Special Charges

Special Courses—Courses that require additional charges are noted on the Cashier's website 🗗. In some cases the associated charges may be in lieu of Rice tuition and/or required fees.

Audit fee: Rice alumni (per course)	\$470
Audit fee: All others (per course)	\$915
Late registration I (see academic calendar)	\$75
Late registration II (see academic calendar)	\$125
Part-time registration fee	\$150
Visiting Post Baccalaureate application fee	\$100
Visiting Post Baccalaureate registration fee	\$75
Visiting Post Baccalaureate late registration fee	\$125
Late payment fee (charged monthly)	1.5% of balance due
Late application for graduation fee	\$75
Returned check fee	\$30
Summer Health and Wellness Support Services Fee***	\$135
Diploma fee: parchment	\$50
Diploma mailing fee: Domestic	\$30
Diploma mailing fee: International	\$50
Diploma fee: facsimile	\$20
Transcript fee	\$10
Letter of standing	\$10

Intramural fees		\$20			
Readmission fee: graduate students			\$375		
Readmission fee: graduate students - after withdrawal for non-pay	ment		\$375		
Reinstatement fee: graduate students - following leave of absence			\$125		
Reinstatement fee: graduate students - after exceeding time bound	laries to candida	acy or defense	\$125		
Replacement ID: faculty, staff, students, and dependents		\$10			
Graduate thesis submission fee	\$100				
Graduate application fee		\$85			
Jones School application fee-all MBA programs			\$125		
Jones School application fee-all EMBA programs			\$125		
Jones School application fee–all PMBA programs		\$125			
Late course change fee (add/drop)	\$75				
Recreation Center membership fees	Summer				
Student only	\$32				
*** Applies to early matriculants and summer returns from leave					

Back to top

Last Revised : August 12, 2016

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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			va17			

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Rights and Responsibilities > Access to Student Records

Access to Student Records

- Graduate Students

Introduction

Academic Opportunities

Undergraduate Students

Academic Policies and Procedures

Student Services and

Organizations

Rights and Responsibilities

- Access to Student Records

- Code of Student Conduct

- Dispute Resolution

- Honor System
- Student Responsibility

Non-Traditional Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Notification of Rights under the Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act (FERPA) is a federal law designed to protect the privacy of, and limit access to, student education records. The law affords students the following rights with respect to their education records:

- 1. the right to inspect and review the student's education records within 45 days after the date Rice University ("Rice") receives a request for access;
- the right to seek amendment of the student's education records that the student believes are inaccurate, misleading, or otherwise in violation of the student's privacy rights under FERPA;
- the right to provide written consent to disclosures of personally identifiable information ("PII", as defined by law) contained in the student's education records, except to the extent FERPA authorizes disclosure without consent;
- 4. the right to file a complaint with the U.S. Department of Education concerning alleged failures by Rice to comply with the requirements of FERPA. The name and address of the federal office that administers FERPA is: Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Ave. S.W., Washington, DC 20202.

Inspect and review records: A student should make written request to any offices that maintain student education records, identifying the record(s) the student wishes to inspect. Though not exhaustive, as a guide for students, this is a list of the primary offices that maintain student education records: Office of the Registrar, Office of the Dean of Undergraduates, Office of Graduate and Postdoctoral Studies, Office of Student Judicial Programs, Office of Admission, Office of Financial Aid, Center for Career Development, Office of Student Activities, Office of Academic Advising, Office of International Students and Scholars, Cashier's Office, and departmental offices. The appropriate Rice official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the Rice official to whom the request is submitted, that Rice official will advise the student of the correct official to whom the request should be addressed.

Amendment of records: Any questions, problems, or written requests for amendment of records should be submitted to the Office of the Registrar. A student requesting to amend a record should clearly identify the part of the record the student wants changed and specify why it should be changed. If Rice decides not to amend the record as requested, Rice will notify the student in writing of the decision and of the student's right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when the student is notified of the right to a hearing.

Disclosure of information: As permitted by FERPA, Rice reserves the right to publish or release the following directory information without prior consent.

- 1. Name, permanent, local, mailing and campus address, telephone and mobile number(s), campus email address(es), and instant messenger address(es)
- 2. Date and place of birth
- 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

Students who would like Rice to withhold this directory information may do so by logging in to ESTHER, clicking Personal Information, clicking Release or Withhold Directory Information, and indicating that the information should be withheld. Thereafter, Rice will withhold access to, or release of, the student's directory information until further written instruction is received. For more information regarding FERPA, please visit the U.S. Department of Education's website 🖗.

FERPA permits the disclosure of PII from students' education records, without consent of the student, if the disclosure meets certain conditions found in 34 C.F.R. §99.31 of the FERPA regulations. Except for disclosures to school officials, disclosures related

to some judicial orders or lawfully issued subpoenas, disclosures of directory information, and disclosures to the student, Section 99.32 of the FERPA regulations requires the institution to record the disclosure. Eligible students have a right to inspect and review the record of disclosures. A postsecondary institution may disclose PII from the education records without obtaining prior written consent of the student –

- To other school officials, within Rice whom Rice has determined have legitimate educational interests and require this information in order to perform instructional, supervisory, advisory, administrative, or other duties for Rice. These school officials include faculty, research personnel, staff (including law enforcement unit personnel and health staff), trustees, or students serving on official committees (such as disciplinary or grievance committees) or assisting another school official. A school official has a legitimate educational interest if the official needs to review an educational record in order to fulfill his or her professional responsibility to Rice. This includes contractors, consultants, auditors, attorneys, collection agents, volunteers, or other parties to whom Rice has outsourced institutional services or functions, provided that the conditions listed in §99.31(a)(1)(i)(B)(1) (a)(1)(i)(B)(2) are met. (§99.31(a)(1))
- To officials of another school where the student seeks or intends to enroll, or where the student is already enrolled if the disclosure is for purposes related to the student's enrollment or transfer, subject to the requirements of §99.34. (§99.31(a) (2)) Disclosures may be made and information forwarded by Rice without prior notification to the student.
- To authorized representatives of the U. S. Comptroller General, the U. S. Attorney General, the U.S. Secretary of Education, or State and local educational authorities, such as a State postsecondary authority that is responsible for supervising the university's State-supported education programs. Disclosures under this provision may be made, subject to the requirements of §99.35, in connection with an audit or evaluation of Federal- or State-supported education programs, or for the enforcement of, or compliance with, Federal legal requirements that relate to those programs. These entities may make further disclosures of PII to outside entities that are designated by them as their authorized representatives to conduct any audit, evaluation, or enforcement or compliance activity on their behalf. (§§99.31(a)(3) and 99.35)
- In connection with financial aid for which the student has applied or which the student has received, if the information is
 necessary to determine eligibility for the aid, determine the amount of the aid, determine the conditions of the aid, or enforce
 the terms and conditions of the aid. (§99.31(a)(4))
- To organizations conducting studies for, or on behalf of, the school, in order to: (a) develop, validate, or administer predictive tests; (b) administer student aid programs; or (c) improve instruction. (§99.31(a)(6))
- To accrediting organizations to carry out their accrediting functions. (§99.31(a)(7))
- To parents of an eligible student if the student is a dependent for IRS tax purposes, though Rice limits such information to financial details of the student's enrollment. (§99.31(a)(8))
- To comply with a judicial order or lawfully issued subpoena. (§99.31(a)(9))
- To appropriate officials in connection with a health or safety emergency, subject to §99.36. (§99.31(a)(10))
- Information the school has designated as "directory information" above and pursuant to §99.37. (§99.31(a)(11))
- To a victim of an alleged perpetrator of a crime of violence or a non-forcible sex offense, subject to the requirements of §99.39. The disclosure may only include the final results of the disciplinary proceeding with respect to that alleged crime or offense, regardless of the finding. (§99.31(a)(13))
- To the general public, the final results of a disciplinary proceeding, subject to the requirements of §99.39, if the school determines the student is an alleged perpetrator of a crime of violence or non-forcible sex offense and the student has committed a violation of the school's rules or policies with respect to the allegation made against him or her. (§99.31(a)(14))
- To parents of a student regarding the student's violation of any Federal, State, or local law, or of any rule or policy of the school, governing the use or possession of alcohol or a controlled substance if the school determines the student committed a disciplinary violation and the student is under the age of 21. (§99.31(a)(15))

For further information regarding Rice's policy on student education records, please contact the Office of the Registrar.

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

		Last Revised : Augu	st 31, 2016				
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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Rights and Responsibilities > Code of Student Conduct

Code of Student Conduct

Graduate Students

RICE

- Introduction
- Academic Opportunities

Undergraduate Students

- Academic Policies and Procedures
- Student Services and
- Organizations
- Rights and Responsibilities
 - Access to Student Records
 - Code of Student Conduct
 - Dispute Resolution
 - Honor System
 - Student Responsibility
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

The Office of Student Judicial Programs oversees the judicial system and enforces the Code of Student Conduct, which governs the administration of student order and discipline, and may participate in Title IX investigations. The Code of Student Conduct applies to all students, including undergraduate, graduate, and transfer students; those enrolled in professional and Continuing Studies programs; and visiting students, Visiting Post Baccalaureates, second degree students, and auditors, from the time they arrive on campus for orientation until their degree is conferred or they have permanently left Rice. Organizations also are subject to this Code. All enrolled students also are subject to Rice University policies, rules, and regulations.

Alleged violations of university or college rules are handled in accordance with the Code of Student Conduct. Students may appeal decisions as described in the Code of Student Conduct. Rice retains ultimate authority in all matters of discipline and over all actions that affect its educational function or the safety and wellbeing of members of the university community. The Code is not intended to–and does not–confer any contractual rights on any individuals involved.

The Code of Student Conduct can be found here de-

After Rice's grievance process has been exhausted and documented, students may also pursue an external complaints process.

Last Revised : July 25, 2016

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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Rights and Responsibilities > Dispute Resolution

Undergraduate Students

- Graduate Students

RICE

- Introduction
- Academic Opportunities
- Academic Policies and
- Procedures
- Student Services and
- Organizations
- Rights and Responsibilities
 - Access to Student Records
 - Code of Student Conduct
 - Dispute Resolution
 - Honor System
 - Student Responsibility
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Dispute Resolution

Jump to: Petitions and Appeals Petitions Appeals Guidelines Regarding Petitions and Appeals Grievances Problem Resolution

Petitions and Appeals

Graduate students may petition for exceptions to academic requirements, regulations, and judgments. A course requirement is an example of an academic requirement. Allowed time to degree is an example of an academic regulation. Course grades and dismissals from programs are examples of academic judgments. If a petition is denied, one level of appeal is allowed.

Petitions

In general, petitions will be handled at the lowest appropriate level. A petition regarding requirements, regulations, or judgments of a graduate program will be handled at that level, that is, by the program. Such petitions need to follow procedures established by these programs. A petition regarding University requirements, regulations, or judgment must be submitted to the Office of Graduate and Postdoctoral Studies; such a petition must be accompanied by a recommendation from the program. When the program's recommendation is negative, or when the petition requests a major exception—for example, an extension of allowed time to degree by more than 1/2 semester—the Office of Graduate and Postdoctoral Studies may also obtain the recommendation of the school overseeing the program (when relevant) and the Graduate Council with regard to such petitions.

Petitions for exceptions to academic requirements, regulations, and judgments should be viewed as unusual, rather than typical. Extensions of various time limits, such as time to candidacy or time to defense, will not be granted routinely. See Candidacy, Oral Examinations and Thesis. Students requesting such extensions have to document the unusual circumstances justifying their request, demonstrate their academic progress towards the goal, and provide a concrete plan for meeting the goal within the requested extension.

Petitions regarding academic decisions must be submitted in writing within 15 days from the time that the student knew or should reasonably have known of the decision being petitioned, or within 15 days after an informal effort to resolve the situation has not been successful. Petitions seeking exceptions to academic requirements or regulations should be submitted in writing at least 30 days before the requirement or regulation takes effect. For example, a petition to extend allowed time to degree should be submitted at least 30 days before the deadline in effect. Late petitions may be dismissed, except for unusual situations when a delay is found justifiable by the unit receiving the petition. Petitions must be acknowledged in writing immediately upon their receipt by the receiving unit. Email communication is considered to be "in writing."

Appeals

If a petition is denied, a student (or other parties affected by the decision) is allowed only one level of appeal. In general, the appeal process will be resolved at the lowest level possible. When the petition is decided at the department level, the appeal must be submitted to the school. When the petition is decided at a school level, the appeal must be handled by the Office of Graduate and Postdoctoral Studies. When the petition is decided by the Office of Graduate and Postdoctoral Studies, the appeal must be submitted within 15 days from receipt of the decision that is being appealed. Late appeals will be dismissed, except for unusual situations when a delay is justified. Appeals must be acknowledged in writing immediately upon their receipt by the receiving unit. Email communication is considered to be "in writing."

Guidelines Regarding Petitions and Appeals

All petitions and appeals should indicate the requirement, regulation, or judgment that is the subject of the petition/appeal, the specific exception requested, and the grounds for the request. Additionally, an appeal must indicate why the decision involving the earlier petition was incorrectly decided. Grounds for a petition/appeal could be procedural errors by academic or administrative

personnel or special circumstances found to be mitigating by the unit receiving the petition/appeal. Disagreement over evaluation of academic quality will not be considered as an appropriate basis for petitions/appeals unless the evaluation is found to be patently unreasonable by the unit receiving the petition/appeal. Petitions involving a violation of University policy or improper conduct by University personnel will be handled as grievances (see Grievances below).

Petitions and appeals should be resolved within 30 days of their submission. When such resolution cannot be achieved within 30 days, students will be informed of the delay before the 30 days are over. A resolution of the petition or appeal must be achieved within 60 days. A lack of resolution of a petition within 60 days is an acceptable cause for an appeal.

An academic program directly managing graduate students must establish a standing Petitions, Appeals, and Grievances Committee. A petition concerning a graduate program regulation by a student will be handled by a committee consisting of at least three faculty members. The committee must be independent of the cause for the petition. Members of a student's thesis committee must not participate in the handling of a petition by the student. (The department chair or dean may appoint ad-hoc members to the committee to ensure independence of the committee.) The committee will conduct an investigation of the circumstances and reach a decision regarding the petition. Their written report to the graduate director, and the chair (or dean) will describe the circumstances, the decision, and the rationale for the decision. The graduate director or chair (or dean) will convey the final decision to the student and include the committee report. (Redaction from the report is allowed to protect the privacy of other students.) In case of decisions by the faculty members of a graduate program acting as a committee of the whole, petitions will also be considered by the Petitions. Appeals, and Grievances Committee, which will reconsider the decision in view of the information provided in the petition. This committee may choose to bring the matter back for consideration by the faculty members of the academic program, acting as a committee of the whole. Petitions regarding University requirements, regulations or judgments submitted to the Office of Graduate and Postdoctoral Studies may be handled by the dean or her or his designee. The dean may, at her or his discretion, handle these in a similar manner by enlisting the assistance of a subcommittee of the Graduate Council, which will submit its report to the chair of the Council and to the dean of graduate and postdoctoral studies.

An appeal handled by a school may be handled by the school dean or by an associate dean. The handling officer may convene an ad-hoc faculty committee or establish a standing committee. An appeal handled by the Office of Graduate and Postdoctoral Studies may be referred to a subcommittee of the Graduate Council, composed of three faculty members (representing diverse disciplines within the university) and a graduate student. Such committees must be independent of the cause for the petition. In general, officers or committees handling the appeal should not try to substitute their judgment for that of the unit handling the petition. Rather, their task is to consider whether the petition was handled appropriately, whether all relevant circumstances have been considered, and whether University policy has been appropriately interpreted and applied. Nevertheless, a petition decision may be overturned if the officer or committee handling the appeal finds the petition decision to be patently unreasonable.

All time frames in this procedure refer to academic calendar days, and exclude mid-term, inter-term and summer recesses. This exclusion does not apply to a student who is enrolled during the summer. All petitions and appeals, as well as responses to petitions and appeals, must be in writing. Email communication is considered to be "in writing." Academic units should archive copies of all email communications pertaining to petitions and appeals.

Grievances

Grievances are different from petitions and appeals. Petitions and appeals involve exceptions to academic requirements, regulations, and judgments. A grievance is a complaint regarding inappropriate conduct by other students, faculty members, or staff. Inappropriate conduct encompasses both inappropriate personal conduct, such as sexual harassment, as well as inappropriate official conduct, such as violation of University policies. Specific policies exist to address grievances based on discrimination or sexual harassment and these policies must be followed in situations involving these issues. Grievances against another student may be raised with the director of student judicial programs and addressed under the Code of Student Conduct. In other cases, a student may present a grievance in writing at the lowest appropriate level, typically the department or school. If a satisfactory resolution is not obtained at that level, the student may appeal the outcome of the grievance by presenting the problem at the next administrative level, such as the school, Office of Graduate and Postdoctoral Studies, provost, or president. Grievances against non-faculty staff members may also be brought to the employee relations director in Rice's Human Resources office **f**.

The procedures for handling grievances are analogous to those for handling petitions and appeals. Students submitting grievances must so indicate in their submissions.

Problem Resolution

During the course of graduate studies, problems that do not fall under the category of grievances, described above, may arise in the relationship between a graduate student and his/her program or his/her advisor. Students should attempt to resolve such problems by informing the appropriate faculty members and working together to resolve the problem. When attempts to resolve the problem informally are unsuccessful, the following problem-resolution procedure will be used:

- 1. The student will submit the problem in writing to the graduate program chair, who will then attempt to resolve it.
- 2. If the student remains unsatisfied, the problem will be presented to a committee of the program for resolution. This committee

will be a standing committee and not the student's own thesis/dissertation committee. Both the student and the program chair will submit a written record of their views to this committee.

3. If the student remains unsatisfied, the problem will be referred to a standing subcommittee of the Graduate Council and composed of three faculty members (representing diverse disciplines within the university) and a graduate student, with the dean of graduate and postdoctoral studies as an ex-officio member. A written report of proceedings at stage 2 will 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 is considered final.

The time frame for handling problem resolution is similar to that for handling petitions, appeals, and grievances. Students may seek guidance on any of these procedures through discussions with the Office of Graduate and Postdoctoral Studies 🗗

After Rice's grievance process has been exhausted and documented, students may also pursue an external complaints process.

Rice A-Z

Back to top

Last Revised : August 03, 2015

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892 University Calendar

va17

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Web Services

Maps-Directions

Feedback

01/03/2017



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Rights and Responsibilities > Honor System

Undergraduate Students

RICE

Honor System

- Graduate Students

- Introduction
- Academic Opportunities
- Academic Policies and Procedures
- Student Services and
- Organizations

Rights and Responsibilities

- Access to Student Records
- Code of Student Conduct
- Dispute Resolution
- Honor System
- Student Responsibility
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

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 Graduate Honor Council (GHC) is responsible for investigating reported violations and for conducting a hearing when the facts warrant. The Office of Student Judicial Programs, which reviews the results of the investigations and hearings, considers the GHC's recommendations when issuing penalties. Procedures for accusations arising out of summer classes may differ.

The Graduate 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://honor.rice.edu/

Last Revised : August 12, 2016

General Announcem	nents 6100 M	lain MS-10, Houston,	Texas 77005-1827	Mailing Address: P.O. Box 1892, Houston, Texas 7725		
©2015 Rice University	Rice Home	Web Services	University Calendar va17	r Rice A-Z	Maps-Directions	Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Graduates > Rights and Responsibilities > Student Responsibility

Undergraduate Students

Graduate Students

RICE

- Introduction
- Academic Opportunities
- Academic Policies and Procedures
- Student Services and
- Organizations
- Rights and Responsibilities
 - Access to Student Records
 - Code of Student Conduct
 - Dispute Resolution
 - Honor System
 - Student Responsibility
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

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 utilizes e-mail as an official form of communication and sends correspondence to a student's Rice email address. Students should frequently check and maintain their Rice email inbox. Failure to do so does not relieve students of the responsibility to act or respond in a timely manner to official notices sent via email.

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.

Teaching Assistant Responsibility

Individuals appointed as teaching assistants must abide by the policies stated below.

TA Policy

Teaching assistants are graduate students who help faculty with the delivery of courses. Services provided by teaching assistants include, but are not limited to, grading, monitoring, leading labs and/or discussion sessions, offering office hour assistance to students, and performing clerical tasks associated with course instruction.

Teaching assistants are supervised by the course instructor of record and are subject to established departmental policy.

Although they are not members of the faculty, teaching assistants are expected to conform to the same standards of conduct in the performance of their academic duties as are members of the faculty and shall respect the rights and opinions of students and uphold the academic standards of the University.

Teaching assistants are subject to the guidelines stated in the University Amorous Relationship Policy 🗟 as well as the Family Educational Rights and Privacy Act (FERPA) 🗗.

When serving in the role of a teaching assistant, graduate students are considered responsible employees under the University Title IX Policy A as a responsible employee of Rice University, once a teaching assistant knows about any incident of sexual assault, harassment, relationship violence, stalking, or another non-consensual interpersonal behavior, Rice Title IX personnel need to know so they can act to support the student and keep our community safe. You can gain access to the Title IX Resource Navigator, Student Wellbeing, and the Rice Counseling Center by calling 713-348-3311. If a student wants to make a report through the university, wants Title IX accommodations without making a report, or isn't sure what to do, also call 713-348-3311 or extension 3311 on campus.

If the student wants to make a report through the legal system or is considering making a report, or needs immediate assistance, call the Rice University Police Department (RUPD) 713-348-6000 or extension 6000 on campus.

	Last Revised : Augu	ist 12, 2016				
General Announcem	ents 6100 Mai	n MS-10, Houston, Te	exas 77005-1827 Mailir	ng Address: P.O. E	3ox 1892, Houston, Tex	kas 77251-1892
©2015 Rice University	Rice Home	Web Services	University Calendar va17	Rice A-Z	Maps-Directions	Feedback

RICE

141 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Non-Traditional Students > Auditors

Undergraduate Students	Auditors				
Graduate Students	Any interested person may audit one or more courses at Rice by securing permission of the instructor and by registering as a auditor with the Office of the Registrar. Detailed instructions to apply as an auditor can be found on the Office of the Registrar				
 Non-Traditional Students 	website.				
- Auditors	Upon completion, the audited course will appear on the student's transcript with a grade of either "AUD" or "NC" (see Grade Symbols). There are no credit hours associated with audited courses, and auditing a course does not affect a student's GPA.				
Second Bachelor's Degree Students	During the fall and spring semesters, and/or during the summer sessions, an audit fee of \$915 per course per semester is charged				
Summer Sessions for Visiting Students	for the privilege of auditing (see Cashier's website). Rice alumni may audit a course at a reduced rate, \$470 per course per semester.				
- Visiting Post Baccalaureates	A request to audit a class to change from audit to credit or vice versa must be done by the deadlines as posted in the Academic				
 Visiting Undergraduate Students 	Calendar for the applicable semester.				
► Faculty	Current Rice students will find more information regarding auditing in the undergraduate and graduate sections.				
Programs of Study	Please note that financial assistance is not available for auditing students.				
Administration and Faculty					
Important Notices					

Last Revised : August 12, 2016

Web Services

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Rice Home

University Calendar va17 Rice A-Z

Maps-Directions

Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Non-Traditional Students > Second Bachelor's Degree Students

Undergraduate Students

Graduate Students

RICE

- Non-Traditional Students
 - Auditors

Second Bachelor's Degree Students

Summer Sessions for Visiting Students

- Visiting Post Baccalaureates
- Visiting Undergraduate Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Second Four-Year Bachelor's Degree for Rice Alumni

Rice alumni with a Rice bachelor's degree have the option of earning a *second* four-year bachelor's degree at Rice in a different discipline. In addition to being in a different discipline, the second degree must also 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 alumni with a Rice bachelor's degree desiring to earn a different four-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 (must include two full-time fall and/or spring semesters) upon their
 return to Rice and beyond their first bachelor's degree (these hours are applied to the second degree)

The entire undergraduate record for these students continues cumulatively. Those seeking admission to this program should complete the Second Four-Year Bachelor's Degree Application available on the Office of the Registrar registree. This 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 returning to Rice for a second degree. This letter of application and paperwork should be submitted to the Office of the Registrar no later than August 1 for the fall semester and November 1 for the spring semester.

Eligible students considering this option should note that coursework completed at Rice as visiting students can only be applied to the second degree with the approval of the major department for that degree. Additionally, coursework completed at Rice as Visiting Post Baccalaureates can only be applied to the second degree with the approval of the major department for that degree and the dean of graduate and postdoctoral studies.

Financial Aid

Students seeking information about financial aid available to participants in the second four-year bachelor's degree program should contact the Office of Financial Aid 🗗.

Second Four-Year Bachelor's Degree for Current Rice Undergraduates

Currently enrolled undergraduates who have not yet completed their first bachelor's degree and desire to concurrently earn a second four-year bachelor's degree, also known as a *dual degree*, should reference the Dual-Degree Requirements on the undergraduate Graduation Requirements page.

Rice A-7

Last Revised : May 05, 2015

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©2015 Rice University Rice Home

lome Web Services

University Calendar va17 Maps-Directions

Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Non-Traditional Students > Summer Sessions for Visiting Students

Undergraduate Students

Graduate Students

Non-Traditional Students

- Auditors

Second Bachelor's Degree Students

Summer Sessions for Visiting Students

- Visiting Post Baccalaureates

- Visiting Undergraduate Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Summer Sessions for Visiting Students

Rice's Summer Sessions offers courses for credit to Rice students, visiting undergraduates, and visiting post baccalaureates. Students can choose to take courses in combined summer sessions. Current Rice students follow the same registration policies and procedures that are in place for the fall and spring semesters and can find more information in Registration During the Summer Sessions.

Resources

- For a schedule of summer sessions, please refer to the Academic Calendar.
- For course offerings, please refer to courses.rice.edu.
- For information related to the Summer Sessions, please see http://registrar.rice.edu/students/summersessions/.

Enrollment Process for Visiting Students

To apply, students will need to submit the following materials to the Rice University Office of the Registrar. Applicants will be notified as soon as possible of acceptance or nonacceptance:

- Visiting Student Application
- Dean of Students Recommendation Form (visiting undergraduates from other institutions only)
- Application fee of \$100. This must be paid online on the OTR Fees website and may be paid by credit card or electronic check.
- Course deposit of \$200/course (payable by check or money order to Rice University)
- Official college transcript from all colleges or universities attended
- Official final high school transcript (waived if attended a college/university in the previous Spring semester) All transcripts must be mailed in and will not be accepted by fax or email.
- Proof of Meningococcal Vaccination Record or Waiver (required if under the age of 22)

Guidelines

- Tuition is due in full at registration before the beginning of classes.
- Enrollment in courses during the summer sessions carries no implications for regular admission to Rice.
- Visiting students wishing to enroll in summer session online courses for Rice credit must be residents of the State of Texas.
- Visiting students may not take courses on a pass/fail basis.

It is essential that students follow the deadlines listed on the summer school website at

http://registrar.rice.edu/students/summersessions/ and the Academic Calendar. Students may apply after the deadline (but before the start of classes) by paying a late fee. Courses that do not generate enrollments sufficient to cover their costs may be canceled.

Visiting Auditors

Auditors of summer school courses, who are considered visiting students, are charged the following rates: Rice alumni pay an audit fee of \$470 per semester, and all other visiting students are charged \$915 per course per semester for the privilege of auditing.

Applicants who wish to audit must follow the enrollment process for non-Rice students as listed at http://registrar.rice.edu/students/summersessions/, and also submit a Visiting Student Audit form, complete with the instructor's signature for each course that you wish to audit. Applicants will be notified as soon as possible of acceptance or non-acceptance.

For more information, including tuition and registration information, students should contact the Office of the Registrar at 713-348-4999, via email at summercredit@rice.edu, or online at http://registrar.rice.edu/students/summersessions/.

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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Non-Traditional Students > Visiting Post Baccalaureates

Undergraduate Students

Visiting Post Baccalaureates

Graduate Students

RICE

- Non-Traditional Students
 - Auditors
 - Second Bachelor's Degree Students
 - Summer Sessions for Visiting Students
 - Visiting Post Baccalaureates
 - Visiting Undergraduate Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Students with this 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 taking courses not for credit should audit the courses. (See Auditors.)

Applicants must have a 3.00 (B) or better grade average in the previous undergraduate or graduate program. Registration requires the permission of the course instructor or department chair and approval by the dean of graduate and postdoctoral studies. Visiting Post Baccalaureates must register for at least three hours and cannot take courses on a pass/fail basis. Visiting Post Baccalaureates must receive at least a B for all classes taken or they will not be allowed to remain in the 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. Former Visiting Post Baccalaureate students may request that their department allow up to three courses taken as Visiting Post Baccalaureates to count toward their graduate degree. Once approved by the department, the student must also obtain the approval of the dean of graduate and postdoctoral studies.

Applications for Visiting Post Baccalaureate Program

Applications are available from the Office of the Registrar & upon request. Official transcripts from all colleges and universities the student has attended should be mailed directly by the institutions to the Office of Graduate and Postdoctoral Studies. Students who were previously Visiting Post Baccalaureates must complete a new application (without transcripts) for each such semester. All application materials are due by the workday nearest to July 15 for fall semester courses and November 15 for spring semester courses. No late applications are accepted.

Individuals applying as Visiting Post Baccalaureates for the summer term should apply to enroll in Rice's Summer Sessions.

Tuition and Fees for Visiting Post Baccalaureate Program

Tuition and fee information can be found on the Cashier's Website. If a class fills with degree students, instructors may drop Visiting Post Baccalaureates up to the end of the second week of class. In that case, the tuition (less the nonrefundable application fee) will be refunded. If a Visiting Post Baccalaureate withdraws, drops, or adds classes, the same rules regarding grades, refunds, and applicable fees apply as for degree seeking graduate students. There is no refund for dropping a class after the second week, as long as the student stays enrolled in at least one other class. Pro-rated refunds for withdrawals are according to the deadlines listed on the academic calendar. Please visit the Summer Sessions for Visiting Students page for information pertaining to summer sessions

Rice A-Z

Please note that financial assistance is not available for Visiting Post Baccalaureate students.

Last Revised : August 23, 2016

Web Services

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Rice Home

University Calendar

Maps-Directions Feedback

va17

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Non-Traditional Students > Visiting Undergraduate Students

Visiting Undergraduate Students

Graduate Students

RICE

Non-Traditional Students

Undergraduate Students

- Auditors

- Second Bachelor's Degree Students
- Summer Sessions for Visiting Students
- Visiting Post Baccalaureates
- Visiting Undergraduate Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

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 12. The student's application should be accompanied by the \$75 application fee, an official high school transcript, an official transcript of college work to date, an SAT 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 are available on the Admission website 🗗 and should be submitted by March 15 for the fall 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 classes where enrollment is limited because of space or other considerations, candidates for Rice degrees have priority over visiting students for registration.

Rice A-Z

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

Please note that financial assistance is not available for visiting students.

Last Revised : August 12, 2016

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Rice Home Web Services University Calendar va17

Maps-Directions

Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Faculty > Faculty Grading Guidelines

Undergraduate Students

Graduate Students

RICE

- Non-Traditional Students
- Faculty
 - Faculty Grading Guidelines
 - Non-Traditional Coursework
 - Syllabus Standards
- Programs of Study
- Administration and Faculty
- Important Notices

Faculty Grading Guidelines

Jump to:

Academic Progress Reviews for Graduate Students

The Committee on Examinations and Standing has drawn up the following guidelines on grading. Additional information is available in both the undergraduate and graduate student sections under the heading of "Grades."

- 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 has been submitted to the Office of 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 Office of 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, incomplete, or other, 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 three-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 five hours.
- First-year undergraduate students receive mid-semester grades around the eighth week of the fall and spring semesters so that they can, if advisable, seek academic assistance 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 seventh 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, the Office of the Dean of Undergraduates, or the Dean of Graduate and Postdoctoral Studies will be glad to advise any faculty member faced with exceptional circumstances that may justify special consideration. Students may petition the committee or, for graduate students, their department chair concerning the application of these guidelines. Suspected or possible violations of the honor system should be submitted to the Honor Council.

Academic Progress Reviews for Graduate Students

Graduate programs must establish mechanisms for tracking, reviewing, and documenting academic progress of graduate students on an ongoing basis and must provide graduate students a written assessment of their academic progress at least annually. In some graduate programs this ongoing progress review is carried out by a student's thesis committee, while in others it is carried out by a standing faculty committee. Although a student's supervisor plays an important role in reviewing the student's academic progress, the responsibility for conducting the review process lies with the program and requires the involvement of additional faculty members in the program. For graduate students who are primarily engaged in coursework, for example, professional master's students, the transcript is an adequate form of written assessment.

Back to top

	Last Revised : Aug	ust 11, 2014					
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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Faculty > Non-Traditional Coursework

Non-Traditional Coursework

Graduate Students

RICE

Non-Traditional Students

Undergraduate Students

- Faculty
 - Faculty Grading Guidelines
 - Non-Traditional Coursework
 - Syllabus Standards
- Programs of Study
- Administration and Faculty

Important Notices

Courses tailored for individual students provide a valuable opportunity for them to pursue an academic or professional interest under the supervision of a Rice faculty member. Such courses are typically titled as independent study or research, directed reading, or internships. Although the organization of these courses is quite variable, they are subject to the same basic requirements as other course offerings. In particular:

- The subject matter and intellectual level of the course must be appropriate for Rice.
- The instructor of record must hold a regular faculty appointment at Rice. This instructor is responsible for submitting the final grade, in consultation with the student's immediate supervisor, if appropriate.
- The course must have a written syllabus that meets published Rice Syllabus Standards. In addition, the syllabus must include a description of anticipated activities and topical content.
- Credit hours assigned are subject to the same amount-of-work considerations as other courses. Credit hours will be awarded in accordance with the Rice credit hour guidelines and fixed at the time of registration.
- All Registrar deadlines for registration, add/drop, completion of course work, and grade submission must be met.

Last Revised : October 13, 2015

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 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

 va17

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Faculty > Syllabus Standards

Undergraduate Students

RICE

- Graduate Students
- Non-Traditional Students

Faculty

- Faculty Grading Guidelines
- Non-Traditional Coursework
- Syllabus Standards
- Programs of Study
- Administration and Faculty
- Important Notices

Syllabus Standards

Faculty members and course instructors are required to provide a course syllabus to students on or before the first day of class. The syllabus should be uploaded into ESTHER, and may additionally be distributed in hard copy and/or on OWL-Space. For archiving purposes, updated versions of the course syllabus can be uploaded into ESTHER through the end of the semester. Each syllabus must include the following instructions:

- Instructor's name, office number, and email address 1.
- 2. Office hours or a statement of either an "open-door" policy or hours by appointment
- Overall course objectives and expected learning outcomes 3.
- Grade policies 4.
- Absence policies 5.
- 6. List of required texts
- Special materials required for the class, if any 7.
- 8. Number of required examinations and papers
- 9. Statement of expectations regarding course work and the Rice Honor Code
- 10. A statement encouraging any student with a disability that requires accommodation to contact both the course instructor and Disability Support Services
- 11. It is permissible to include a statement indicating that the information contained in the course syllabus, other than the absence policies, may be subject to change with reasonable advance notice, as deemed appropriate by the instructor.

The Center for Teaching Excellence d provides a syllabus outline d that aids in meeting the above requirements.

Last Revised : March 10, 2016

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Maps-Directions Feedback

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Programs of Study Landing Page

Undergraduate Students

RICE

- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
 - Departments and Programs
 - Courses of Instruction
- Administration and Faculty
- Important Notices



Programs of Study

The contents of Rice's curricular programs are the collective responsibility of the faculty acting through their representatives in the Faculty Senate. There are specific guidelines for the creation, elimination, and modification of undergraduate \mathbf{B} and graduate \mathbf{B} programs, graduate major concentrations \mathbf{B} , as well as undergraduate certificates \mathbf{B} and graduate certificates \mathbf{B} .

The General Announcements (GA) is the official Rice curriculum. In the event that there is a discrepancy between the GA and any other websites or publications, the GA shall prevail as the authoritative source.

Last Revised : August 17, 2016

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GENERAL ANNOUNCEMENTS 2016-2017

Departments and Programs

The General Announcements (GA) is the official Rice curriculum. In the event that there is a discrepancy between the GA and any other websites or publications, the GA shall prevail as the authoritative source.

Program	School	Undergrad Programs	Masters Degrees	Doctora Degrees
African Studies	Humanities	Minor	-	-
Air Force Science	Other/Interdisciplinary	-	-	-
Ancient Mediterranean Civilizations	Humanities	BA	-	-
Anthropology	Social Sciences	BA, Minor	MA*	PhD
Applied Physics	Other/Interdisciplinary	-	MS*	PhD
Architecture	Architecture	BA, BArch	MA, MArch, MAUD**	DArch**
Art History	Humanities	BA	MA*	PhD
Asian Studies	Humanities	BA	-	-
Bioengineering	Engineering	BSBE	MBE, MS*	PhD
Bioscience and Health Policy	Natural Sciences	-	MSBHP	-
BioSciences	Natural Sciences	BA, BS, Minor	MA, MS*	PhD
Business	Business	Minor	MA*, MAcc, MBA	PhD
Chemical and Biomolecular Engineering	Engineering	BA, BSChE	MChE, MS*	PhD
Chemical Physics	Natural Sciences	BS	-	-
Chemistry	Natural Sciences	BA, BS	MA*	PhD
Civic Leadership	Other/Interdisciplinary	Certificate	-	
Civil and Environmental Engineering	Engineering	BA, BSCE	MCEE, MS	PhD
Classical and European Studies	Humanities	BA	-	-
Cognitive Sciences	Social Sciences	BA	-	-
College Courses	Other/Interdisciplinary	-	-	-
Computational and Applied Mathematics	Engineering	BA, Minor	MA, MCAAM	PhD
Computational Science and Engineering	Engineering	-	MA*, MCSE	PhD
Computer Science	Engineering	BA, BSCS	MCS, MS	PhD
Critical and Cultural Theory	Humanities	-	Certificate	Certificate
Earth Science	Natural Sciences	BA, BS	MS	PhD
Economics	Social Sciences	BA	MA*, MEEcon	PhD
Electrical and Computer Engineering	Engineering	BA, BSEE	MEE, MS*	PhD
Energy and Water Sustainability	Engineering	Minor	-	-
Engineering Leadership	Engineering	Certificate		
English	Humanities	BA	MA*	PhD
Environmental Analysis and Decision Making	Natural Sciences	-	MSEADM	-
Environmental Studies	Other/Interdisciplinary	BA, BS, Minor	-	-
Financial Computation and Modeling	Other/Interdisciplinary	Minor	-	-
Global Affairs	Social Sciences	-	MAGA	
Global Health Technologies	Other/Interdisciplinary	Minor	-	-
Gnosticism, Esotericism and Mysticism	Humanities	-	Certificate	Certificate

History	Humanities	BA	MA*	PhD
Humanities Research Center	Humanities	-	-	-
Jewish Studies	Humanities	Minor	-	-
Kinesiology	Natural Sciences	BA	-	-
Languages and Intercultural Communication	Humanities	Certificate	-	-
Latin American Studies	Humanities	BA	-	-
Liberal Studies	Continuing Studies	-	MLS	-
Lifetime Physical Activity Program	Other/Interdisciplinary	-	-	-
Linguistics	Social Sciences	BA	MA**	PhD**
Managerial Studies	Social Sciences	BA	-	-
Materials Science and NanoEngineering	Engineering	BA, BSMSNE	MMSNE, MS	PhD
Mathematics	Natural Sciences	BA, BS, Minor	MA*	PhD
Mechanical Engineering	Engineering	BA, BSME	MME, MS	PhD
Medical Humanities	Humanities	Minor	-	-
Medieval and Early Modern Studies	Humanities	BA	-	-
Military Science	Other/Interdisciplinary	-	-	-
Music	Music	BA, BMus	MMus	AD, DMA
Nanoscale Science	Natural Sciences	-	MSNS	-
Naval Science	Other/Interdisciplinary	Minor	-	-
Neuroscience	Natural Sciences	Minor	-	-
Philosophy	Humanities	BA	MA*	PhD
Physics and Astronomy	Natural Sciences	BA, BS, Minor	MS*, MST	PhD
Policy Studies	Social Sciences	BA	-	-
Political Science	Social Sciences	BA	MA*	PhD
Politics, Law and Social Thought	Other/Interdisciplinary	Minor	-	-
Poverty, Justice and Human Capabilities	Other/Interdisciplinary	Minor	-	-
Program in Writing and Communication	Other/Interdisciplinary	-	-	-
Psychology	Social Sciences	BA	MA*	PhD
Religion	Humanities	BA	MA*	PhD
Science Teaching	Natural Sciences	-	MST	-
Sociology	Social Sciences	BA, Minor	MA*	PhD
Space Studies	Natural Sciences	-	MSSpS	-
Spanish and Portuguese, and Latin American Studies	Humanities	BA	MA*	-
Sport Management	Social Sciences	BA	-	-
Statistics	Engineering	BA, Minor	MA*, MStat	PhD
Study of Women, Gender and Sexuality	Humanities	BA	Certificate	Certificate
Subsurface Geoscience	Natural Sciences	-	MSSG	-
Systems, Synthetic and Physical Biology	Other/Interdisciplinary	-	MS*	PhD
Teacher Education	Continuing Studies	-	MAT	-
Teaching and Learning	Other/Interdisciplinary	-	Certificate	Certificate
University Courses	Other/Interdisciplinary	-	-	-
Visual and Dramatic Arts	Humanities	BA	-	-

*Students accepted into PhD program only; MA or MS may be earned by students as they work towards PhD. **No applications being accepted at this time. *Students accepted into PhD program only; MA or MS may be earned by students as they work towards PhD. **No applications being accepted at this time.

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155 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > African Studies >

Undergraduate Students	African Studies					
Graduate Students	The School of Humanities and Soc	ial Sciences				
Non-Traditional Students		graduate Graduate Course				
Faculty	Info Requir	rements Requirements Listings				
Programs of Study	Director and Advisor Kerry Ward	Undergraduate Advisor Jeffrey Fleisher				
Administration and Faculty						
	Professors	Steering Committee				
Important Notices	Elias Bongmba	Elias Bongmba				
-	Susan McIntosh	Alexander Byrd				
		Jeffrey Fleisher				
	Associate Professors	Susan McIntosh				
	Kerry Ward	Kerry Ward				
	Jeffrey Fleisher					
	Lecturers					
	Jared Staller					
	Program (Undergraduate): Minor					
	Program (Graduate): N/A					
	African Studies is a broad-ranging field that is committed to an interdisciplinary approach to the study of African peoples and their complex histories, cultures, and languages. Drawn from the Schools of Social Science and Humanities, African Studies at Rice University has strengths in archaeological and anthropological research, historical studies, African religions and theology, African arts, and global health technologies. These foci provide a unique opportunity for students broadly interested in historical, cultural, African diaspora studies, and contemporary issues and will attract students preparing for career fields related to their interest in Africa, including academia (potential applicants to graduate school, Fulbright, or other competitive scholarships),					

The African Studies minor at Rice will benefit undergraduate students by providing a course of study to explore the richness and complexity of the continent and its place in issues of wider global concern and import. The interdisciplinary course will allow students to traverse departments and schools, creating links between diverse intellectual trajectories. Through study in the African Studies minor, students also can begin to appreciate the relationship contemporary Africa has with the large African Diaspora. Finally, the minor will help students to understand not only the place of Africa in global histories and networks, but the crucial role that it has played in them.

Last Revised : August 31, 2016

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development, diplomacy, business and finance, governance, global health, law, and others.

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University Calendar

Rice A-Z

Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > African Studies >

Indergraduate Students	Afric	an Studies				
araduate Students	The So	chool of Humanitie	es and Social Science	es		
on-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings	
culty	Brog			-		
ograms of Study		-	an Studies, students will be able		Anican Studies	
ministration and Faculty	1 De	monstrate the ability to cor	nplicate and challenge their und	lerstanding of African history	culture and politics by cri	itica
portant Notices	 Ur Afi tin Ide int De sp 	nderstand topics in African a rican religions, cultures, an ne. entify and explain key theor erdisciplinary methodologie emonstrate the ability to crit irituality and critically apply	icans' own historical and contern Studies in their interdisciplinary of d politics as well as understand retical developments in African S es to topics in African Studies. ically read and evaluate a variet their insights from these source	contexts, including being abl reasons for changes to these Studies, in addition to being a ty of sources on African religi rs.	e relationships across histo able to identify and apply ious thought, customs, and	orica
	_		can Studies (AFST) must compl			
	A No in stu po	minimum of 3 courses (9 cr o more than 3 courses (9 cr African languages may be Jdy in African languages wi wers or Arabic. Other langu	credit hours) to satisfy minor req redit hours) at the 300 level or at edit hours) as applied through tr applied to the minor. This may ir th advisor approval. 'African lang Jages spoken on the continent, i 3 credit hours) from the following	bove. ransfer credit. Additionally, u nclude courses on African la guages' does not include the including Afrikaans, will be a	nguages or other individua languages of European co ccepted.	lizec
	AN	NTH 312/MDEM 311 Africa	n Prehistory [<u>3 credit hours</u>]			

- HIST 231 Intro. to African History: North, West, and Central Africa, Early Times to Present [3 credit hours]
- HIST 232 Intro. to African History: East, Central, and Southern Africa, Early Times to Present [3 credit hours]
- RELI 111 Introduction to African Religions [3 credit hours]

ELECTIVES

To fulfill the remaining requirements for the minor in African Studies, students must complete a total of 5 additional courses (15 credit hours) as listed below. The courses chosen must be offered from at least 3 of the following 6 departments: Anthropology (ANTH), English (ENGL), French (FREN), Art History (HART), History (HIST), Religion (RELI).

100% African Content

Students must complete a total of 4 courses (12 credit hours) from the following. The selected course from the Core Requirement may also be applied towards the 100% African Content requirement.

- ANTH 312/MDEM 311 African Prehistory [3 credit hours]
- ANTH 364 African Archaeology [<u>1 6 credit hours</u>]
- ANTH 370 Archaeological Laboratory [<u>3 6 credit hours</u>]
- ANTH 463 West African Prehistory [<u>3 credit hours</u>]
- HIST 204 The Idea of Africa [<u>3 credit hours</u>]

- HIST 231 Intro. to African History: North, West, and Central Africa, Early Times to Present [3 credit hours]
- HIST 232 Intro. to African History: East, Central, and Southern Africa, Early Times to Present [3 credit hours]
- HIST 334 African Voices, History [3 credit hours]
- RELI 111 Introduction to African Religions [3 credit hours]
- RELI 113 Introduction to Christianity in Africa [<u>3 credit hours</u>]
- RELI 338 The Church of Africa [3 credit hours]
- RELI 340 Theology in Africa [<u>3 credit hours</u>]
- RELI 342 New Religious Movements in Africa [3 credit hours]
- RELI 348 Christianity and Islam in Africa [3 credit hours]
- RELI 423/ANTH 423 African Myths and Rituals [3 credit hours]
- RELI 424 Religion and Politics in Africa [<u>3 credit hours</u>]
- RELI 426 Religion and Literature in Africa [3 credit hours]

25% African Content

Students must complete a total of 2 courses (6 credit hours) from the following:

- ANTH 346/ARCH 310/COMP 316/HART 316 Virtual Reconstruction of Historical Cities [3 credit hours]
- ENGL 379 Introduction to Third World Literature [<u>3 credit hours</u>]
- FREN 324 From Decolonization to Globalization [3 credit hours]
- HIST 389 The Indian Ocean World [<u>3 credit hours</u>]
- HIST 439 Comparative Slavery [<u>3 credit hours</u>]

Description and Code Legend

*NOTE: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate minor in African Studies. The following is a quick reference:

Rice A-Z

Course Catalog/Schedule:

- Course offerings/subject code: Courses from other departments apply towards the minor in African Studies.

Department Description and Code:

- African Studies: AFST

Minor Description and Code:

- Minor in African Studies: AFST

Last Revised : August 17, 2016

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Maps-Directions Feedback

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > African Studies >

• •							
e Students	Afric	an Studies					
;	The So	chool of Humanitie	es and Social Science	95			
dents		Department	Undergraduate	Graduate	Course		
		Info	Requirements	Requirements	Listings		
	Prog	ram Learning Outo	comes for the Interdis	sciplinary Minor in	African Studies		
	Upon co	ompleting the minor in Africa	an Studies, students will be able	e to:			
ulty							
aouny			nplicate and challenge their und icans' own historical and contem		y, culture, and politics by cr	itica	
	examining the diversity of Africans' own historical and contemporary perspectives.2. Understand topics in African Studies in their interdisciplinary contexts, including being able to make connections between						
		•	d politics as well as understand	reasons for changes to thes	e relationships across histo	oric	
	tin 2 Id		ratical dovelopments in African S	Studios, in addition to boing	able to identify and apply		
			etical developments in African S es to topics in African Studies.	studies, in addition to being	able to identify and apply		
			ically read and evaluate a variet	ty of sources on African relig	jious thought, customs, and	t	
	sp	irituality and critically apply	their insights from these source	es.			
	Requ	irements for the Ir	nterdisciplinary Minor	r in African Studies	S		
	Students pursuing the minor in African Studies (AFST) must complete:						
	A	minimum of 6 courses (18 d	credit hours) to satisfy minor req	uirements.			
		· ·	edit hours) at the 300 level or at				
			edit hours) as applied through tr	•			
			applied to the minor. This may ir th advisor approval. 'African lang		0 0		
			uages spoken on the continent, i			2.01	
	CORE F	REQUIREMENT					
	Student	s must complete 1 course (3 credit hours) from the following	g to satisfy the African Studi	ies minor's Core Requirem	ent.	
	- AN	NTH 312/MDEM 311 Africal	n Prehistory [<u>3 credit hours</u>]				
		ST 231 Intro to African His	ton: North West and Control A	Africa Early Timos to Proso	nt [2 aradit haura]		

- HIST 231 Intro. to African History: North, West, and Central Africa, Early Times to Present [<u>3 credit hours</u>]
 HIST 232 Intro. to African History: East, Central, and Southern Africa, Early Times to Present [<u>3 credit hours</u>]
- FIGT 252 Intro. to Anican History. East, Central, and Southern Anica, Early Times to P DELL 111 Introduction to African Deliniona [2 credit hours]
- RELI 111 Introduction to African Religions [<u>3 credit hours</u>]

ELECTIVES

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Students must complete a total of 4 courses (12 credit hours) from the following. The selected course from the Core Requirement may also be applied towards the 100% African Content requirement.

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- ANTH 364 African Archaeology [<u>1 6 credit hours</u>]
- ANTH 370 Archaeological Laboratory [<u>3 6 credit hours</u>]
- ANTH 463 West African Prehistory [<u>3 credit hours</u>]
- HIST 204 The Idea of Africa [<u>3 credit hours</u>]

- HIST 231 Intro. to African History: North, West, and Central Africa, Early Times to Present [3 credit hours] HIST 232 Intro. to African History: East, Central, and Southern Africa, Early Times to Present [3 credit hours]
- HIST 334 African Voices, History [3 credit hours]
- RELI 111 Introduction to African Religions [3 credit hours]
- RELI 113 Introduction to Christianity in Africa [<u>3 credit hours</u>]
- RELI 338 The Church of Africa [3 credit hours]
- RELI 340 Theology in Africa [<u>3 credit hours</u>]
- RELI 342 New Religious Movements in Africa [3 credit hours]
- RELI 348 Christianity and Islam in Africa [3 credit hours]
- RELI 423/ANTH 423 African Myths and Rituals [3 credit hours]
- RELI 424 Religion and Politics in Africa [<u>3 credit hours</u>]
- RELI 426 Religion and Literature in Africa [3 credit hours]

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Students must complete a total of 2 courses (6 credit hours) from the following:

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- FREN 324 From Decolonization to Globalization [3 credit hours]
- HIST 389 The Indian Ocean World [<u>3 credit hours</u>]
- HIST 439 Comparative Slavery [<u>3 credit hours</u>]

Description and Code Legend

*NOTE: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate minor in African Studies. The following is a quick reference:

Course Catalog/Schedule:

- Course offerings/subject code: Courses from various subjects may apply toward the minor.

Department Description and Code:

- African Studies: AFST

Minor Description and Code:

- Minor in African Studies: AFST

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Maps-Directions Feedback

160 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > African Studies >

Undergraduate Students	Africa	an Studies					
Graduate Students	The Sc	hool of Humaniti	es and Social Scien	Ces			
		Department	Undergraduate	Graduate	Course		
▶ Faculty							
Programs of Study	African S	tudies does not offer an a	cademic program at the gradu	late level.			
 Graduate Students Non-Traditional Students Faculty Programs of Study Administration and Faculty 							
Important Notices	Traditional Students Ity rams of Study nistration and Faculty The School of Humanities and Social Sciences Ity Course Ity Ity						

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > African Studies >

Undergraduate Students	African Studies						
Graduate Students	The School of Humanities and Sc	cial Sciences					
Non-Traditional Students			duate Course				
Faculty	Info Requi	ements Requir	rements Listings				
Programs of Study	The official course offerings, including course descriptions, that are listed in the African Studies minor's Undergraduate						
Administration and Faculty	Requirements section can be found in Rice's Co	rse Catalog. 🗗					
Important Notices	To view the most recent course schedule for the	2016-2017 academic year, se	ee Rice's Course Schedule. 🗗				
	For additional information regarding the program	For additional information regarding the program, see the African Studies program's website.					
	Last Revised : August 24, 2016						

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University Calendar Rice A-Z

Maps-Directions Feedback

162 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Air Force Science >

Undergraduate Students	Air Force Science
Graduate Students	Department Undergraduate Graduate Course
Non-Traditional Students	Info Requirements Requirements Listings
► Faculty	Commander and Professor Associate Professors
Programs of Study	Lt. Colonel Lynn Bentley III Major Albert Meza Major Shawn Owens
Administration and Faculty	
Important Notices	Program (Undergraduate): N/A, no degree programs
	Program (Graduate): N/A
	The Air Force Reserve Officer Training Corps (ROTC) program prepares men and women of character, commitment, and courage to assume leadership positions as commissioned officers in the active duty United States Air Force. On completion of the curriculum, students will have a thorough understanding of the core values, leadership, teamwork, and other requirements to be an effective officer in the world's greatest Air Force. 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 or on-line at www.uh.edu/class/airforce
	All courses and physical training sessions take place at the University of Houston. Flight orientation occurs at airports in the Houston metro area.
	Last Revised - August 17, 2016

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Web Services

University Calendar

Maps-Directions

Feedback

Rice A-Z

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Air Force Science >

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- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Air Force Science

ents											
		Department	Undergraduate	Graduate	Course						
I Students		Info	Requirements	Requirements	Listings						
	Cours	Course Credit									
tudy		ROTC classes may be taken for elective credit toward any degree plan at the University of Houston. All academic courses are open to all students. ROTC scholarship students incur a military obligation.									
and Faculty	Four-	Four-Year Program									
ces) is the first half of the four-yea ows the student to experience		•						
		e ROTC scholarship).				on an					
	Each semester of the GMC consists of one classroom hour of instruction as well as Leadership Laboratory each week.										
	During th	he first two years, the stude	ent will learn about the Air Forc	e and the historical developme	ent of aerospace power.						
	During the summer preceding the junior year, the student will compete for the opportunity to attend a four-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 four-year program.										
	As a junior, the student will study the core values, leadership, teamwork, and management tools required to become an effective Air Force officer.										
	During the senior year, students study the national security policy process and regional and cultural studies, participate in a war- game, and complete final requirements for commissioning as second lieutenants.										
	Leadership Laboratory										
	As an Air Force ROTC cadet, each student is required to attend an additional two-hour class known as Leadership Laboratory.										
	Although not part of the academic class requirement, it is an essential element of officer training. Leadership Laboratory is an intensive military training program in which students gain invaluable leadership and managerial experience while learning about the Air Force way of life. Students have numerous opportunities to hear guest speakers and panel discussions, participate in field trips, and experience practical leadership exercises.										
	AFRO)TC Scholarship C)pportunities								

Air Force ROTC offers various scholarship opportunities for students at the University of Houston:

In-College Scholarship Program (ICSP) is 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 \$18,000 per year plus \$900 per year for books or \$9,000 per year plus \$900 per year for books.

The Express Scholarship Program is 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 covers full tuition per year and \$900 for books. Currently, majors that qualify include: Electrical and Computer Engineering, and Strategic foreign languages. For the most up-to-date information, visit www.AFROTC.com.

Stipend

All AFROTC scholarship recipients and POC cadets receive a nontaxable monthly stipend. The annual stipend amount ranges from \$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 Maxwell AFB, Alabama. 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 also receive survival and firearms training and career information. Cadets receive travel pay and daily pay for FT.

Flight Orientation Program

All cadets can volunteer to participate in a joint Air Force ROTC/Civil Air Patrol flight orientation program. This consists of eight flights, four in the front seat of a small passenger aircraft and four additional flights in the back seat as an observer. A soaring program also is available in which cadets get four sorties in gliders. In addition, an abbreviated flying ground school course is taught in the ROTC classrooms using FAA textbooks. The flight program and ground school course are both free for all cadets.

Physical Fitness Training

Cadets meet twice per week at the University of Houston Alumni Center to perform physical fitness training. The training is mandatory and emphasizes push-ups, sit-ups, and running in order to pass the USAF physical fitness test.

Professional Development Training (PDT)

Cadets are eligible to compete to attend PDT during the summer months. PDT consists of several programs, including:

- Tours of nearby active duty Air Force bases
- Soaring and free-fall parachuting at the United States Air Force Academy
- (USAFA)
- Cultural and Foreign Language Immersion
- Hands-on research at Air Force laboratories
- Shadowing a Air Force officer in Operation Air Force
- Internships at NASA and other government organizations

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

For more information contact the Unit Admissions Officer at 713-743-4932/3704 or visit the University of Houston Air Force website at www.uh.edu/class/airforce 🖗

Summary

During this time of war, our mission of producing Air Force second lieutenants of character, commitment, and courage is more important than ever.

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

Last Revised : August 12, 2016

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Maps-Directions

Feedback

165 of 923



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Air Force Science >

Undergraduate Students	Air Fo	orce Science							
Graduate Students		Department	Undergraduate	Graduate	Course				
Non-Traditional Students		Info Requirements Requirements Listings							
► Faculty	Gradu	ate Requirements	5						
Programs of Study	Air Force	Air Force Science does not offer an academic program at the graduate level.							
Administration and Faculty	Last Revise	ed : August 12, 2016							
Important Notices									

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166 of 923

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Air Force Science >

Undergraduate Students	Air F	Air Force Science						
Graduate Students		Department	Undergraduate	Graduate	Course			
Non-Traditional Students		Info	Requirements	Requirements	Listings			
► Faculty	Cours	Course Listings						
Programs of Study		The official course offerings, including course descriptions, for Air Force Science can be found in Rice's Course Catalog. 🗗						
Administration and Faculty			hedule for the 2016-2017 acao g Air Force Science, see the p		se Schedule. ⊠″			
Important Notices			edu/professor/Air_Force_Scie	•				
	Last Revise	ed : August 24, 2016						

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 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

167 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Air Force Science >

Undergraduate Students	Air Fo	Air Force Science					
Graduate Students		Department	Undergraduate	Graduate	Course		
Non-Traditional Students		Info	Requirements	Requirements	Listings		
► Faculty	Cours	se Listings					
Programs of Study					nd in Rice's Course Catalog.		
Administration and Faculty			hedule for the 2016-2017 acac g Air Force Science, see the p	•	se Schedule. 🕾		
Important Notices			edu/professor/Air_Force_Scien	•			
	Last Revise	ed : August 24, 2016					

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 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

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2016-2017 > Programs of Study > Ancient Mediterranean Civilizations >

Ancient Mediterranean Civilizations

The School of Humanities

Graduate Students

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Non-Traditional Students

Undergraduate Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings	
	noquironionio	noquironito	Liotingo	
Director and Advisor		Associate Professors		
Michael Maas	[David Cook		
		leff Fleisher		
Professors	ŀ	lilary S. Mackie		
April De Conick				
James D. Faubion		Assistant Professors		
Matthias Henze		lohn Hopkins		
Michael Maas	Γ	/laya Irish		
Scott McGill				
Susan Keech McIntosh	l	ecturers		
Donald Ray Morrison	٦	ed Somerville		
Paula Sanders	Γ	David R. Riesbeck		
Charles Siewert				
Harvey E. Yunis				

Program (Undergraduate): BA degree

Program (Graduate): N/A

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, the American Research Center in Sofia, 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.

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- University Calendar

Maps-Directions

Feedback

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Ancient Mediterranean Civilizations >

Undergraduate Students	Anci	Ancient Mediterranean Civilizations					
Graduate Students							
Non-Traditional Students		Department	Undergraduate	Graduate	Course		
▶ Faculty	Prog	Info ram Learning Outo	Requirements comes for the BA De	Requirements gree with a Major in	Listings Ancient		

Programs of Study

- Administration and Faculty
- Important Notices

Mediterranean Civilizations

Upon completing the BA Degree, a student majoring in Ancient Mediterranean Civilizations will be able to:

- 1. Explain the historical trajectory of at least two of these Ancient Mediterranean Civilizations: Graeco-Roman, Islamic, Jewish, Christian.
- 2. Identify and explain how cultural, political, intellectual, religious, and other aspects of Ancient Mediterranean Civilizations have affected aspects of contemporary societies.
- 3. Create convincing arguments about one or more aspects of Ancient Mediterranean Civilizations through the evaluation and critical analysis of textual and material evidence.

Requirements for the BA Degree with a Major in Ancient Mediterranean Civilizations

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Ancient Mediterranean Civilizations (AMCI) must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 5 courses (15 credit hours) at the 300-level or above.

Although not required, courses in ancient languages are recommended.

CORE REQUIREMENTS

Students must complete a total of 3 courses (9 credit hours) from 3 of the 5 following categories to satisfy the Ancient Mediterranean Civilizations major's Core Requirements (see below, under Electives, for course lists):

- 1. Graeco-Roman Civilization
- 2. Islamic Civilization
- 3. Jewish Civilization
- 4. Christian Civilization
- 5. Archaeological Methods and Theory

In addition to the 3 courses selected above, students must complete 1 course (3 credit hours) from each of the following categories to satisfy the Ancient Mediterranean Civilization major's Core Requirements (see below, under Electives, for course lists).

- 1. Themes Across Time
- 2. Comparative Studies

ELECTIVES

To fulfill the remaining Ancient Mediterranean Civilizations major requirements, students must complete a total of 5 additional courses (15 credit hours) from the lists of course offerings below.

Graeco-Roman Civilization

- ANTH 325/SWGS 332 Sex, Self, and Society in Ancient Greece [3 credit hours]
- ANTH 363 Early Civilizations [<u>3 credit hours</u>]
- CLAS 101/FSEM 101 Socrates: The Man and His Philosophy [3 credit hours]
- CLAS 107/HUMA 107 Greek Civilization and Its Legacy [3 credit hours]
- CLAS 108/HUMA 111 Roman Civilization and Its Legacy [3 credit hours]
- CLAS 225/SWGS 225 Women in Greece and Rome [3 credit hours]
- CLAS 235 Classical Mythology: Interpretation, Origins, and Influence [<u>3 credit hours</u>]
- CLAS 316/PLST 316 Democracy and Political Theory in Ancient Greece [3 credit hours]
- CLAS 318/HIST 316 The Invention of Paganism in the Roman Empire [3 credit hours]
- CLAS 336/LING 336 Intro to Indo-European [3 credit hours]
- GREE 101 Elementary Greek I [3 credit hours]
- GREE 102 Elementary Greek II [<u>3 credit hours</u>]
- GREE 201 Intermediate Greek I: Prose [<u>3 credit hours</u>]
- GREE 202 Intermediate Greek: Euripides Medea/Biblical Koine [3 credit hours]
- HART 320 Eighteenth Century European Art [3 credit hours]
- HIST 200 Origins of Western Civilizations: Ancient Empires [3 credit hours]
- HIST 307 Imperial Rome from Caesar to Diocletian [3 credit hours]
- HIST 308/MDEM 308 The World of Late Antiquity [3 credit hours]
- HIST 357/MDEM 357 Jews and Christians in Medieval Europe [3 credit hours]
- HIST 358 Humanitarianism from the 19th Century to the Present [3 credit hours]
- LATI 101/MDEM 101 Elementary Latin I [3 credit hours]
- LATI 102/MDEM 102 Elementary Latin II [3 credit hours]
- LATI 201/MDEM 211 Intermediate Latin I: Prose [3 credit hours]
- LATI 202/MDEM 212 Intermediate Latin II [3 credit hours]
- LATI 302 Advanced Latin: Roman Epic [3 credit hours]
- LATI 303 Advanced Latin: Plautus and Terence [3 credit hours]
- LATI 313 Cicero and Catullus: Literature and Society in the Roman Republic [3 credit hours]

Islamic Civilization

- ASIA 221/RELI 221 The Life of the Prophet Muhammad [3 credit hours]
- HIST 382 Cultural Trends in Medieval Islam 750-1400 [3 credit hours]
- RELI 223 Qur'an and Commentary [<u>3 credit hours</u>]
- RELI 225 Revolutionary Islam: Shi'ism [3 credit hours]
- RELI 440 Islam's Mystical and Esoteric Tradition [3 credit hours]

Jewish Civilization

- HIST 381/RELI 385 God, Time, and History [3 credit hours]
- RELI 104/MDEM 103 Introduction to Jewish Mysticism [3 credit hours]
- RELI 108 Introduction to Judaism [<u>3 credit hours</u>]
- RELI 122 The Bible and Its Interpreters [3 credit hours]
- RELI 125/HEBR 125 Introduction to Biblical Hebrew I [3 credit hours]
- RELI 126/HEBR 126 Introduction to Biblical Hebrew II [3 credit hours]
- RELI 127 Intermediate Biblical Hebrew III [<u>3 credit hours</u>]
- RELI 128/HEBR 128 Intermediate Biblical Hebrew IV [3 credit hours]
- RELI 203/HIST 201 Judaism of Jesus and Hillel [3 credit hours]
- RELI 382 Lost Judaisms: The Apocryphal Writings [3 credit hours]
- RELI 383 The Dead Sea Scrolls [3 credit hours]

Christian Civilization

- RELI 105/MDEM 105 Introduction to Medieval Christian Thought [3 credit hours]
- RELI 122 The Bible and Its Interpreters [3 credit hours]
- RELI 125/HEBR 125 Introduction to Biblical Hebrew I [3 credit hours]
- RELI 126/HEBR 126 Introduction to Biblical Hebrew II [3 credit hours]
- RELI 127 Intermediate Biblical Hebrew III [<u>3 credit hours</u>]
- RELI 128/HEBR 128 Intermediate Biblical Hebrew IV [3 credit hours]
- RELI 243 The Book of Genesis [3 credit hours]
- RELI 271/MDEM 271 Medieval Popular Christianity [3 credit hours]
- RELI 282 Introduction to Christianity [<u>3 credit hours</u>]
- RELI 304 Jesus and the Gospels [3 credit hours]
- RELI 307 Introduction to Coptic Language I [3 credit hours]
- RELI 308 Introduction to Coptic Language II [<u>3 credit hours</u>]

- RELI 309 Reading Coptic Texts [<u>3 credit hours</u>]
- RELI 365 Paul and The New Testament [<u>3 credit hours</u>]
- RELI 381 The Messiah [<u>3 credit hours</u>]
- RELI 383 The Dead Sea Scrolls [<u>3 credit hours</u>]
- RELI 449 Early Christian Controversies [<u>3 credit hours</u>]
- RELI 456 History of Western Christianity: Reformation to the Present [3 credit hours]

Archeological Methods and Theory

- ANTH 203 Human Antiquity: An Introduction to Physical Anthropology and Prehistory [3 credit hours]
- ANTH 205 Introduction to Archaeology [<u>3 credit hours</u>]
- ANTH 312/MDEM 311 African Prehistory [3 credit hours]
- ANTH 345 The Politics of the Past: Archaeology in Social Context [3 credit hours]
- ANTH 362 Archaeological Field Techniques [<u>3 credit hours</u>]
- ANTH 363 Early Civilizations [<u>3 credit hours</u>]
- ANTH 425 Advanced Topics in Archaeology [<u>3 credit hours</u>]
- ANTH 460 Advanced Archaeological Theory [3 credit hours]

Themes Across Time

Courses in this requirement address the creation, transmission, and reception of traditions in the Mediterranean world.

- ANTH 363 Early Civilizations [3 credit hours]
- FSEM 151/HIST 151 The Hero and His Companion from Gilgamesh to Sam Spade [3 credit hours]
- HART 101/CLAS 102/MDEM 111 Intro. to the History of Western Art: Prehistoric to Gothic [3 credit hours]
- HIST 200 Ancient Empires: Origins of Western Civilizations [3 credit hours]
- HIST 308/MDEM 308 The World of Late Antiquity [<u>3 credit hours</u>]
- HIST 381/RELI 385 God, Time, and History [3 credit hours]
- PHIL 201/CLAS 201/MDEM 201 History of Philosophy I [3 credit hours]
- PHIL 301/CLAS 301/MDEM 301 Ancient and Medieval Philosophy [3 credit hours]
- PHIL 307 Social and Political Philosophy [<u>3 credit hours</u>]
- PHIL 327 History of Social and Political Philosophy [<u>3 credit hours</u>]
- RELI 104/MDEM 103 Introduction to Jewish Mysticism [<u>3 credit hours</u>]
- RELI 315/ASIA 315/SWGS 315 Gender and Islam [3 credit hours]
- RELI 456 History of Western Christianity: Reformation to the Present [3 credit hours]

Comparative Studies

Students also must fulfill a comparative requirement by taking either one course that, in and of itself, treats two different cultural traditions (designated "Comparative") or two separate courses on similar themes but from different cultures (e.g. *Women in Greece & Rome*).

- CLAS 225/SWGS 225 Women in Greece and Rome [3 credit hours]
- CLAS 336/LING 336 Intro to Indo-European [3 credit hours]
- HIST 357/MDEM 357 Jews and Christians in Medieval Europe [3 credit hours]
- PHIL 301 Ancient and Medieval Philosophy [<u>3 credit hours</u>]
- RELI 112 Comparing Christianities [3 credit hours]
- RELI 213 The Prophet Jeremiah [3 credit hours]
- RELI 348 Christianity and Islam in Africa [3 credit hours]
- RELI 384 Pilgrimage and Crusade [3 credit hours]
- RELI 392 Jerusalem [3-4 credit hours]
- RELI 443 Maimonides "Guide for the Perplexed" [3 credit hours]

Description and Code Legend

***NOTE:** Internally, the university uses the following abbreviations (4-digit codes) to identify the Ancient Mediterranean Civilizations undergraduate degree and major. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses from other academic departments apply towards the major in Ancient and Mediterranean Civilizations

Department Description and Code

- Ancient Mediterranean Civilizations: AMCI

Degree Description and Code

- Bachelor of Arts degree code: BA

Major Description and Code

- Major in Ancient Mediterranean Civilizations: AMCI

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Ancient Mediterranean Civilizations >

Undergraduate Students	Ancient Mediterranean Civilizations						
▶ Graduate Students	The School of Humanities						
Non-Traditional Students	Department	Undergraduate	Graduate	Course			
▶ Faculty	Info Program Learning Out	Requirements	Requirements	Listings			

- Programs of Study
- Administration and Faculty
- Important Notices

-	Requirements	Requirements	
Out	comes for the BA De	gree with a Major in	

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- 3. Jewish Civilization
- 4. Christian Civilization
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- HIST 357/MDEM 357 Jews and Christians in Medieval Europe [3 credit hours]
- HIST 358 Humanitarianism from the 19th Century to the Present [3 credit hours]
- LATI 101/MDEM 101 *Elementary Latin I* [<u>3 credit hours</u>]
- LATI 102/MDEM 102 Elementary Latin II [3 credit hours]
- LATI 201/MDEM 211 Intermediate Latin I: Prose [3 credit hours]
- LATI 202/MDEM 212 Intermediate Latin II [3 credit hours]
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- RELI 304 Jesus and the Gospels [3 credit hours]
- RELI 307 Introduction to Coptic Language I [3 credit hours]
- RELI 308 Introduction to Coptic Language II [3 credit hours]

- RELI 309 Reading Coptic Texts [<u>3 credit hours</u>]
- RELI 365 Paul and The New Testament [<u>3 credit hours</u>]
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- RELI 383 The Dead Sea Scrolls [<u>3 credit hours</u>]
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- FSEM 151/HIST 151 The Hero and His Companion from Gilgamesh to Sam Spade [<u>3 credit hours</u>]
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- RELI 348 Christianity and Islam in Africa [3 credit hours]
- RELI 384 Pilgrimage and Crusade [3 credit hours]
- RELI 392 Jerusalem [3-4 credit hours]
- RELI 443 Maimonides "Guide for the Perplexed" [3 credit hours]

Description and Code Legend

***NOTE:** Internally, the university uses the following abbreviations (4-digit codes) to identify the Ancient Mediterranean Civilizations undergraduate degree and major. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses from various subjects apply toward the major.

Department Description and Code

- Ancient Mediterranean Civilizations: AMCI

- Degree Description and Code
 - Bachelor of Arts degree: BA
- Major Description and Code
 - Major in Ancient Mediterranean Civilizations: AMCI

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Rice Home Web Services University Calendar

Rice A-Z

Maps-Directions

Feedback

176 of 923

177 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

Web Services

2016-2017 > Programs of Study > Ancient Mediterranean Civilizations >

Undergraduate Students	Ancie	Ancient Mediterranean Civilizations					
Graduate Students	The Sc	The School of Humanities					
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings		
▶ Faculty	Gradu	late Requirement		Requirements	Listiligs		
Programs of Study	Ancient N	Mediterranean Civilizations	s does not offer an academic p	program at the graduate level.			
Administration and Faculty							
Important Notices							
	Last Revise	ed : August 12, 2016					

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Rice Home

University Calendar

Rice A-Z

Maps-Directions Feedback

178 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Ancient Mediterranean Civilizations >

Undergraduate Students	Ancie	Ancient Mediterranean Civilizations					
Graduate Students	The Sc	chool of Humaniti	es				
Non-Traditional Students		Department	Undergraduate	Graduate	Course		
▶ Faculty	Cours	Info se Listings	Requirements	Requirements	Listings		
Programs of Study		Course Listings The official course offerings, including course descriptions, that are listed in the Ancient Mediterranean Civilizations					
Administration and Faculty	Undergr	aduate Requirements sect	tion can be found in Rice's Co	urse Catalog. 🗗			
Important Notices	To view	the most recent course sc	hedule for the 2016-2017 aca	demic year, see Rice's Course	e Schedule. 🖗		
	For addi	itional information regardin	g Ancient Mediterranean Civil	izations, see the department's	website: https://amc.rice.edu/.		
	Last Revise	ed : August 24, 2016					

General Announce	ements 6100 M	lain MS-10, Houston,	Texas 77005-1827	Mailing Address: P.O.	Box 1892, Houston, Tex	kas 77251-1892
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179 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Anthropology >

	The School of Social Sciences						
Graduate Students							
Non-Traditional Students	De	partment Info	Undergraduate Requirements	Graduate Requirements	Course Listings		
Faculty			Integrational		Lioungo		
Programs of Study	Cha	ir enia Georges		Assistant Professors Andrea Ballestero			
Administration and Faculty		C C		Zoë Wool			
Important Notices	Dom	essors ninic C. Boyer es D. Faubion		Professors Emeriti			
		an Keech McIntosh	I	George E. Marcus Roderick J. McIntosh Julie M. Taylor			
	Associate Professors Stephen A. Tyler Jeffrey B. Fleisher A. Cymene Howe						
	Programs (U	ndergraduate):	BA degree, Minor				
	Programs (G	raduate): MA de	egree, PhD degree				
	cultures. A studer		ajor in one or more of anthro	study, all related to understand opology's principal fields or ma			
	and present. The courses on the ris in excavations. In medicine in our or	department at Rice and decline of pas biological anthropol wn and other culture	tand and interpret cultural and biological differences amon includes diverse offerings in all major subfields of the subj st civilizations and cultures, as well as practical courses the ogy there are courses in human evolution, human nutritior is. Cultural anthropology surveys the diversity of world cult critical perspectives on the study of contemporary culture of		ect. In archaeology there are at permit students to participate n, and on the practice of tures, and offers courses on		
	Last Revised : August ?	7, 2016					

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Web Services

University Calendar Rice A-Z

Maps-Directions Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Anthropology >

Undergraduate Students

Anthropology

The School of Social Sciences

	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
Jump to:				
BA De	egree with a Major in Anthro	opology		
Minor	in Anthropology			

Program Learning Outcomes for the BA Degree with a Major in Anthropology

Upon completing the BA degree, a student majoring in Anthropology will:

- 1. Acquire a solid foundation in anthropological debates, concepts, goals, and historical development of the discipline. They will develop an understanding of the major subfields; familiarity with the debates, concepts and goals at the core of the discipline of anthropology; and a grasp how these are relevant to the discipline's changing understanding of the dynamics of cultures past and present.
- 2. Acquire a solid understanding of culture and social practice. Through the application of anthropological concepts, methods, and theories, they will acquire a historically-informed understanding of the salient aspects of culture and social practice, both theoretically and through the study of particular dimensions of culture, for example gender, sexuality, health, and media
- 3. Develop an understanding of anthropological theory, method, and analytical tools. They will develop the critical and comparative tools of the discipline through acquisition of methodological, theoretical and analytic skills.
- 4. Acquire conceptual tools for understanding contemporary cultures in the context of globalization. They will develop disciplinary tools for responsibly researching and describing other cultures, as well as for critically conceptualizing the relationship between globalization and culture.
- 5. Apply research and analytical tools. They will choose and effectively apply appropriate research and analytical skills to individual research questions and case studies in order to become effective producers and critical evaluators of anthropological knowledge.

Requirements for the BA Degree with a Major in Anthropology

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Anthropology (ANTH) must complete:

- A minimum of 10 approved courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 6 courses (18 credit hours) at the 300-level or above.
- A minimum of 8 courses (24 credit hours) from departmental (ANTH) course offerings. Students may petition the undergraduate advisor to apply up to 2 courses (6 credit hours) consisting of relevant work completed outside anthropology toward satisfaction of the major.

The major in anthropology has two distinct areas of concentration: anthropological archaeology and social-cultural anthropology.

Anthropological archaeology. In this track, the focus is on research skills in the library, the field, and the laboratory. Archaeology students will also engage theoretical developments and critical contemporary debates on issues such as the politics of the past and cultural heritage. Students also develop at least one analytical skill, such as, archaeological statistics, osteology, or geoarchaeology, drawing on the university's laboratory and computer facilities. The archaeology program at Rice has a long-term focus on the archaeology of urban, complex societies in East and West Africa. The program offers students the opportunity to participate in archaeological excavations abroad as well as projects in Houston that focus on the city's African-American past. Students inquiring about the major with a focus on anthropological archaeology should see Dr. Jeffrey Fleisher

Graduate Students

RICE

- Non-Traditional Students
- Faculty

Programs of Study

- Administration and Faculty
- Important Notices

Social-cultural anthropology. This track engages with contemporary issues, populations and social dynamics that affect human life and culture broadly around the world. Social-cultural anthropology inquires across a vast range of human concerns from religion to social movements, from gender to medicine, from science studies to media, and from nature to law. Students are trained in ethnographic research methods and qualitative data collection and they learn the theoretical principles that have shaped the discipline as well as contemporary, innovative approaches that question how human sociality is constituted in the 21st century. The social-cultural anthropology program at Rice has always championed interdisciplinary, theoretical and experimental modes of anthropological inquiry and students are encouraged to add their creative intellectual insights to their research pursuits and goals. Students inquiring about the major with a focus on social-cultural anthropology should see Dr. Zoë Wool (mailto:zoe.wool@rice.edu 5th Floor, 574 Sewall Hall).

Dr. Susan McIntosh is the undergraduate transfer credit advisor. All students seeking transfer credit in anthropology for courses taken elsewhere should see Dr. McIntosh for approval.

CORE REQUIREMENTS

Students must complete a total of 4 courses (12 credit hours) as listed below to satisfy the Anthropology major's Core Requirements.

Introductory Courses

Students must complete 2 courses (6 credit hours) from the following:

- ANTH 201 Introduction to Social and Cultural Anthropology [3 credit hours]
- ANTH 203 Human Antiquity: An Introduction to Physical Anthropology and Prehistory [3 credit hours]
- ANTH 205 Introduction to Archaeology [<u>3 credit hours</u>]

Method Course

Students must complete 1 course (3 credit hours) from the following:

- ANTH 362 Archaeological Field Techniques [3 credit hours]
- ANTH 398 Ethnographic Research Methods [<u>3 credit hours</u>]
- ANTH 458 Human Osteology [<u>3 credit hours</u>]

Theory Course

Students must complete 1 course (3 credit hours) from the following:

- ANTH 302 Anthropological Theory: A Survey [3 credit hours]
- ANTH 460 Advanced Archaeological Theory [<u>3 credit hours</u>]

RESEARCH SEQUENCE: CAPSTONE OR HONORS

Students must complete one of the following research sequences, consisting of 3 courses (minimum of 5 credit hours). See below for requirements for each sequence.

- ANTH 493 Senior Research Prep. [1 credit hour] + ANTH 494 Senior Research Seminar [1 credit hour] + ANTH 495 Anthropology Capstone [3 credit hours]
- ANTH 490/491 Directed Honors Research [<u>1-3 credit hours</u>] + ANTH 493 Senior Research Prep. [<u>1 credit hour</u>] + ANTH 494 Senior Research Seminar [<u>1 credit hour</u>]

ELECTIVES

To fulfill the remaining Anthropology major requirements, students must complete a total of 6 additional courses (18 credit hours) from ANTH course offerings at the 300-level or above. Up to 2 courses (6 credit hours) consisting of relevant course work may be completed outside of the department. Courses taken to satisfy the Research Sequence requirement may be applied toward the Electives requirement.

Requirements for Anthropology Capstone

The Anthropology Capstone provides an opportunity for students to conduct an independent research project on a topic that interests them, while working one-on-one with a faculty supervisor. The project culminates in a research paper and a presentation to the faculty and assembled students.

The Capstone includes two one-credit research preparation and support courses, ANTH 493 and ANTH 494, and one threecredit course (Anthropology Capstone ANTH 495).

Requirements for the Honors Program

The Honors Program is intended to acknowledge outstanding students, and to provide them with advanced training in the planning and execution of sustained, independent research. As a rule, students should petition the undergraduate advisor to be admitted to the Program no later than the 10th week of the spring semester of their junior year. Admission is at the discretion of the department faculty. The only formal prerequisite to admittance are a Grade Point Average in the major of at least 3.5 and a cumulative GPA at the end of the junior year of at least 3.0. Final decisions concerning admission are at the discretion of department faculty. Once admitted to the Program, each student must complete a thesis, on a topic of her or his choosing, under the direction of one of the members of the department's faculty. Topics should be approved by the faculty advisor by the end of the first month of the senior year. Theses are due at the end of the last semester of the senior year.

The Honors Thesis includes two one-credit research preparation and support courses, ANTH 493 and ANTH 494, and two three-credit research courses (Directed Honors Research ANTH 490/491).

back to menu

Requirements for the Minor in Anthropology

Students pursuing the minor in Anthropology (ANTY) must complete:

A minimum of 6 courses (18 semester credit hours) to complete minor requirements.

CORE REQUIREMENTS

Students must complete 2 courses (6 credit hours) from the list below to satisfy the Anthropology minor's Core Requirements.

- ANTH 200/LING 200 Introduction to the Scientific Study of Language [3 credit hours]
- ANTH 201 Introduction to Social and Cultural Anthropology [3 credit hours]
- ANTH 203 Human Antiquity: An Introduction to Physical Anthropology and Prehistory [3 credit hours]
- ANTH 205 Introduction to Archaeology [3 credit hours]

ELECTIVES

To fulfill the remaining Anthroplogy minor requirements, students must complete a total of 4 additional courses (12 credit hours) from departmental (ANTH) course offerings. 3 elective courses (9 credit hours) must be taken at the 300-level or above.

Archaeological Field School in sub-Saharan Africa

The Department of Anthropology offers a six-week field school in June and July in sub-Saharan Africa, alternating between eastern and western locales. Past field schools have been on the island of Gorée, located off the coast of Senegal, where research focused on the development of Gorée as a supply port for the Atlantic trade, and at Songo Mnara, a 15th-century Swahili urban center on the southern Tanzanian coast. This course is offered for a total of six hours of credit (ANTH 364 [3 credit hours] and ANTH 370 [3 credit hours]). The course is offered without specific prerequisites, but there is a general requirement that students have some prior course work in archaeology or African history. Program fees apply.

back to menu

Description and Code Legend

***NOTE:** Internally, the university uses the following abbreviations (4-digit codes) to identify the Anthropology undergraduate degree, major, and minor. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject: ANTH
- Department Description and Code
 - Anthropology: ANTH
- Degree Description and Code
- Bachelor of Arts degree: BA
- Major Description and Code
 - Major in Anthropology: ANTH
- Minor Description and Code
 - Minor in Anthropology: ANTY

Last Revised : August 12, 2016

SEARCH GA



Previous Editions

Course

Listings

GENERAL ANNOUNCEMENTS 2016-2017

Department

Info

2016-2017 > Programs of Study > Anthropology >

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	Oniu	ici gi i	auuuu	c oluu	CIICS

Anthropology The School of Social Sciences

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Requirements Program Learning Outcomes for the MA and PhD Degrees in Anthropology

Graduate

Requirements

Upon completing the MA and PhD degrees, Anthropology students will be able to:

Undergraduate

- 1. Develop the skills to successfully pursue various professional endeavors, within and outside the academy.
- 2. Understand the historical development and anthropological debates.
- 3. Develop the methodological, theoretical, and critical analytical skills at the heart of their chosen subfields in order to become capable producers of anthropological knowledge and to actively critique and reconfigure canonical anthropological knowledge.
- 4. Apply research and analytical skills to individual research questions and case studies to become active producers of research and knowledge, and to effectively critique and intervene in extant research and disciplinary discussions.
- 5. Students specializing in social-cultural anthropology will develop tools for responsibly conducting research with their interlocutors and consultants in a world of increasingly complex interplay between small-scale and large-scale concerns and commitments
- 6. Students specializing in anthropological archaeology will develop tools for responsibly conducting research at sites increasingly touched by the complex interplay of small-scale and large-scale concerns and commitments.

Requirements for the MA and PhD Degrees in Anthropology

For general university requirements, see Graduate Degrees. Because each field of specialization offers different opportunities for training and different research orientations, the department seeks applicants with a defined interest in either social-cultural anthropology or archaeology; an undergraduate background in anthropology is strongly desirable, but not required. Entering students devise a detailed first-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.

MA Program—Although students are not normally admitted to study for an MA in the social-cultural area of specialization, graduate students may earn the MA after obtaining approval of their candidacy for the PhD. Students pursuing the MA degree as a terminal degree with a major in Anthropology must complete:

- 30 semester hours of approved course work
- One qualifying exam or one qualifying essay required for the PhD
- A thesis which meets the standards of the student's candidacy committee

PhD Program—Students pursuing the PhD degree program in Anthropology with the social-cultural specialization must:

- Complete required course work for social-cultural students: 90 semester hours of graduate study (undergraduate courses, including language courses, do not satisfy this requirement)
- Complete 5 courses (15 credit hours) from Required Courses (listed below)
- Complete 4 additional courses (12 credit hours) as Electives (see below)
- Prior to achieving candidacy, must successfully complete an end-of-year report. Students will write a 2-3 page (doublespaced) summary of their achievements for the year.

REQUIRED COURSES

Students must complete a total of 5 courses (15 credit hours) from the following:

- ANTH 506 History of Anthropological Ideas [3 credit hours]
- ANTH 507 Anthropological Directions from Second World War to the Present [3 credit hours]

- ANTH 601 Graduate Proseminar in Anthropology [3 credit hours]
- ANTH 602 Anthropology Proposal Writing Seminar [3 credit hours]
- ANTH 650 Pedagogy (one semester; a minimum of 18 hours of graduate credit is required in order to be eligible to take this course)

ELECTIVES

In addition to the required courses listed above, students pursuing the social-cultural specialization must take at least 4 courses (12 credit hours) from departmental ANTH course offerings that are designated as 400/600 level courses.

REQUIREMENTS FOR PhD CANDIDACY (and thus eligibility for a candidacy the MA)

Students pursuing the PhD degree program in Anthropology must complete the following. These requirements must be completed no later than the end of the eighth semester of enrollment in the program:

- Successful completion of all required courses. Students must receive at least a 'B' in a course for the department to deem
 it successfully completed. They must maintain a G.P.A. of at least 3.0 each semester to remain in good academic
 standing.
- The approval by the student's candidacy committee of *either* two qualifying examinations or two qualifying essays (further details are noted in the Graduate Student Handbook on the Department of Anthropology's website).
- The approval by the candidacy committee of the design and content of at least one undergraduate syllabus to be created in ANTH 650.
- The committee's approval of the dissertation research.
- For students not bilingual, the passing of an examination (requiring the translation of at least 1,000 words into English in a period of 90 minutes, with the help of a dictionary) in either the relevant field language relevant or a major scholarly language, such as French, German, or Spanish.
- (For acquisition of the PhD) Complete and defend the dissertation to the satisfaction of the student's dissertation committee.

Special Options

The department will, at times, arrange independent study tutorials on specialized topics relevant to student 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 first-year students receive the same level of support: a combination of graduate fellowships and tuition scholarships. These awards are renewed for a further four years of study contingent on satisfactory performance.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Anthropology graduate degree program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: ANTH Department Description and Code

- Anthropology: ANTH

Degree Descriptions and Codes

- Master of Arts degree: MA

- Doctor of Philosophy degree: PhD

Degree Program Description and Code

- Degree Program in Anthropology: ANTH

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185 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Anthropology >

Undergraduate Students	Anthropology						
Graduate Students	The School of Social Sc	iences					
Non-Traditional Students	Department	Undergraduate	Graduate	Course			
▶ Faculty	Info Course Listings	Requirements	Requirements	Listings			
Programs of Study		The official course offerings, including course descriptions, for Anthropology can be found in Rice's Course Catalog.					
Administration and Faculty	To view the most recent course sch	nedule for the 2016-2017 aca	demic year, see Rice's Course	Schedule. 🗗			
Important Notices	For additional information regarding	g Anthropology, see the depa	rtment's website: http://anthrop	ology.rice.edu/. 🗗			
	-						
	Last Revised : August 24, 2016						

 General Announcements
 6100 Main MS-10, Houston, Texas 77005-1827
 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

186 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Applied Physics >

Applied Physics Undergraduate Students **The Smalley-Curl Institute** Graduate Students Non-Traditional Students Department Undergraduate Graduate Info Requirements Requirements Chair Director Programs of Study Kevin Kelly Naomi Halas Administration and Faculty

Important Notices

Faculty

Participating Faculty

This program includes faculty from physics and astronomy, chemistry, materials science, electrical and computer engineering, bioengineering, chemical and biomolecular engineering, statistics, biosciences, computational and applied mathematics, and earth science.

Program (Undergraduate): N/A

Program (Graduate): MS Degree*, PhD Degree

*A stand-alone MS is not available, but is mandatory to complete as part of the doctoral degree. A joint effort of both the natural sciences and the engineering divisions at Rice where the application of physics principles is beneficial, and overseen by the Smalley-Curl Institute (SCI), 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 Curriculum and Admissions Committee (APCAC) urges prospective students to contact individual departments or SCI for detailed descriptions of research facilities and ongoing research projects.

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Web Services

University Calendar Rice A-Z Maps-Directions Feedback

Course Listings Executive Director Alberto Pimpinelli

187 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Applied Physics >

Undergraduate Students	Applied Physics							
Graduate Students	The Smalley-Curl Institute							
Non-Traditional Students		Department	Undergraduate Requirements	Graduate	Course			
Faculty Info Requirements Requirements					Listings			
Programs of Study	Applied I	Physics does not offer an a	academic program at the under	graduate level.				
Administration and Faculty								
Important Notices	Last Revised : August 12, 2016							

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Applied Physics >

Undergraduate Students

Graduate Students

Applied Physics

The Smalley-Curl Institute

▶ Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
Faculty	Prog	ram Learning Outo	comes for the MS ar	nd PhD Degrees in A	Applied Physics

Upon completing the MS and PhD degree programs in Applied Physics, students will be able to:

- 1. Acquire and demonstrate advanced knowledge in the foundational applications of physics including familiarity with past and current scientific literature in their chosen specialization.
- 2. Develop the ability to conduct independent applied physics research including the aptitude to identify, formulate, and overcome challenging scientific and engineering problems in this endeavor.
- 3. Make an original and significant technical contribution in their chosen specialization area.

Requirements for the MS and PhD Degrees in Applied Physics

For Graduation Requirements, see Graduate Degrees. The Applied Physics Program (APP) offers a PhD degree. The program does not offer a stand-alone thesis Master of Science degree, although students admitted to the program are required to earn the MS within the program before proceeding to the PhD. For each degree, the student must fulfill the university requirements set forth in the General Announcements under which he/she entered. The semester hour requirements may be fulfilled both by classroom hours and research hours. A total of nine one-semester, 3-credit hour per course minimum, 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 five are elective courses chosen according to individual research goals. The Applied Physics Curriculum and Admissions Committee (APCAC) may waive some course requirements for students who demonstrate a thorough knowledge of material in one or more core/elective course(s). Full requirements are available on line at sci.rice.edu/academics/graduate/graduate.php d.

By the end of the third 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 APCAC. The examination covers the work reported in the thesis as well as the entire field in which the student intends to work toward their 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/grading 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 APCAC-approved committee is necessary for the PhD.

CORE REQUIREMENTS

Students must complete 4 courses (12 credit hours) from the following, depending on area of research (see Specialization Curricula below). Any course taken beyond the 4-course requirement for the Applied Physics Core Requirements can be applied towards the Applied Physics Electives requirement.

- PHYS 521 Quantum Mechanics I [3 credit hours] or CHEM 530 Quantum Chemistry [3 credit hours]
- PHYS 526 Statistical Physics [3 credit hours] or CHEM 520 Classical and Statistical Thermodynamics [3 credit hours]
- PHYS 515 Classical Mechanics [3 credit hours]
- PHYS 532 Classical Electrodynamics [3 credit hours]
- CHBE 501 Fluid Mechanics and Transport Processes [3 credit hours]
- PHYS 516 Mathematical Methods [3 credit hours]
- BIOE 502/SSPB 501 Physical Biology [3 credit hours]
- PHYS 563/ELEC 563 Introduction to Solid State Physics I [3 credit hours] .

Administration and Faculty

Important Notices

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 APCAC or the host department.

ELECTIVES

To fulfill the remaining requirements for the Applied Physics degree program, students must complete a total of 5 additional courses (15 credit hours) as electives (See Specialization Curricula suggested courses below). A full list of elective courses can be found on the Applied Physics website at http://rqi.rice.edu/curriculum/. No courses may be used for both core and elective courses. Due to overlap of curricula, only one from each of the pairs PHYS 521/CHEM 530, and PHYS 526/CHEM 520/CHBE 540 may be used for the nine required courses.

SPECIALIZATION CURRICULA

Some examples of specialization tracks that one may choose are listed below. The lists are only suggested lists and are by no means a full list of possible courses for the specialization area.

Applied Biological and Soft Matter Physics

Suggested Core Courses

- BIOE 502/SSPB 501 Physical Biology [3 credit hours]
- CHBE 501 Fluid Mechanics and Transport Processes [3 credit hours]
- PHYS 515 Classical Dyanmics [<u>3 credit hours</u>]

Suggested Elective Courses

- BIOC 551 Molecular Biophysics [3 credit hours]
- BIOE 589/BIOC 589 Computational Molecular Biophysics [3 credit hours]
- BIOE 610/PHYS 610 Methods of Molecular Simulation [3 credit hours]
- CHBE 560/MSNE 560 Colloidal and Interfacial Phenomena [3 credit hours]
- MSNE 555 Materials in Nature and Biomimetic Strategies [3 credit hours]
- PHYS 551 Biological Particles [3 credit hours]
- PHYS 552 Molecular Biophysics [3 credit hours]

Applied Mathematical and Computational Physics

Suggested Core Courses

- CHBE 501 Fluid Mechanics and Transport Processes [3 credit hours]
- CHEM 520 Classical and Statistical Thermodynamics [3 credit hours]
- PHYS 516 Mathematical Methods [<u>3 credit hours</u>]
- PHYS 532 Classical Electrodynamics [<u>3 credit hours</u>]

Suggested Elective Courses

- BIOE 610/PHYS 610 Methods of Molecular Stimulation [3 credit hours]
- CAAM 615/NEUR 615 Theoretical Neuroscience I: Biophyiscal Modeling of Cells and Circuits [3 credit hours]
- CHBE 615 Applications of Molecular Simulations and Statistical Mechanics [3 credit hours]
- CHEM 531 Advanced Quantum Chemistry [3 credit hours]
- ELEC 581/BIOE 581 Computational Neuroscience and Neural Engineering [3 credit hours]
- MECH 520/CEVE 503 Nonlinear Finite Element Analysis [3 credit hours]
- MSNE 533 Computational Materials Modeling [<u>3 credit hours</u>]
- PHYS 516 Mathematical Models [<u>3 credit hours</u>]
- PHYS 517 Computational Methods [<u>3 credit hours</u>]
- PHYS 605/ELEC 605 Computational Electrodynamics and Nanophotonics [3 credit hours]

Applied Mechanics

Suggested Core Courses

- CHBE 501 Fluid Mechanics and Transport Processes [3 credit hours]
- PHYS 515 Classical Dyanmics [3 credit hours]
- PHYS 516 Mathematical Methods [<u>3 credit hours</u>]

Suggested Elective Courses

- CHBE 602 Physio-Chemical Hydrodynamics [3 credit hours]
- CHBE 603 Rheology [<u>3 credit hours</u>]
- CHBE 630 Chemical Engineering of Nanostructured Materials [3 credit hours]
- MSNE 523 Properties, Synthesis, and Design of Composite Materials [<u>3 credit hours</u>]
- PHYS 535/MSNE 535 Crystallography and Diffraction [<u>3 credit hours</u>]
- MSNE 650 Nanomaterials and Nanomechanics [<u>3 credit hours</u>]

Applied Chemical Physics

Suggested Core Courses

- CHEM 530 Quantum Chemistry [3 credit hours]
- CHBE 501 Fluid Mechanics and Transport Processes [3 credit hours]
- PHYS 526 Statistical Physics [<u>3 credit hours</u>]
- PHYS 563/ELEC 563 Introduction to Solid State Physics I [3 credit hours]

Suggested Elective Courses

- BIOE 610/PHYS 610 Methods of Molecular Simulation [3 credit hours]
- CHEM 595 Transition Metal Chemistry [3 credit hours]
- CHEM 531 Advanced Quantum Chemistry [3 credit hours]
- CHEM 533/CEVE 533 Nanostructure & Nanotechnology [3 credit hours]
- CHEM 547 Supramolecular Chemistry [<u>3 credit hours</u>]
- CHEM 630 Molecular Spectroscopy and Group Theory [3 credit hours]
- CHBE 560/MSNE 560 Colloidal and Interfacial Phenomena [3 credit hours]
- CHBE 590 Kinetics, Catalysis and Reaction Engineering [3 credit hours]
- CHBE 615 Applications of Molecular Simulations and Statistical Mechanics [3 credit hours]
- CHBE 630 Chemical Engineering of Nanostructured Materials [3 credit hours]
- PHYS 539 Characterization and Fabrication at the Nanoscale [3 credit hours]

Applied Optics & Photonics

Suggested Core Courses

- PHYS 521 Quantum Mechanics I [3 credit hours]
- PHYS 526 Statistical Physics [<u>3 credit hours</u>]
- PHYS 532 Statistical Physics [<u>3 credit hours</u>]
- PHYS 563/ELEC 563 Introduction to Solid State Physics I [3 credit hours]

Suggested Elective Courses

- BIOE 587 Optical Imaging and Nanobiophotonics [3 credit hours]
- ELEC 562 Optoelectronic Devices [<u>3 credit hours</u>]
- ELEC 568 Laser Spectroscopy [<u>3 credit hours</u>]
- ELEC 569/PHYS 569 Ultrafast Optical Phenomena [3 credit hours]
- ELEC 571 Imaging at the Nanoscale [<u>3 credit hours</u>]
- ELEC 603 Topics in Micro-and Nano-Photononics [2 credit hours]
- PHYS 571 Modern Atomic Physics and Quantum Optics [3 credit hours]

Applied Physical Electronics

Suggested Core Courses

- PHYS 516 Mathematical Methods [3 credit hours]
- PHYS 521 Quantum Mechanics / [<u>3 credit hours</u>]
- PHYS 532 Classical Electrodynamics [<u>3 credit hours</u>]
- PHYS 563/ELEC 563 Introduction to Solid State Physics I [3 credit hours]

Suggested Elective Courses

- CHEM 511 Spectral Methods in Chemistry [3 credit hours]
- ELEC 562 Optoelectronic Devices [<u>3 credit hours</u>]
- ELEC 680/BIOE 680 Nano-Neurotechnology [3 credit hours]

- PHYS 522 Quantum Mechanics II [3 credit hours]
- PHYS 539 Characterization and Fabrication at the Nanoscale [3 credit hours]
- PHYS 567 Quantum Materials [<u>3 credit hours</u>]
- PHYS 663 Condensed Matter Theory: Applications [3 credit hours]

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Applied Physics graduate degree programs. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses from other department apply towards the graduate degrees in Applied Physics. Department Description and Code

- Applied Physics: APPL

Degree Descriptions and Codes

- Master of Science degree: MS

- Doctor of Philosophy degree: PhDD

Degree Program Descriptions and Codes

- Degree Program offered to students in Bioengineering: APBI

- Degree Program offered to students in Chemical and Biomolecular Engineering: APCB
- Degree Program offered to students in Electrical Engineering: APEL
- Degree Program offered to students in Mechanical Engineering: APME
- Degree Program offered to students in Materials Science and NanoEngineering: APMS
- Degree Program offered to students in Statistics: APST
- Degree Program offered to students in Chemistry: APCH
- Degree Program offered to students in Earth Science: APEA
- Degree Program offered to students in Physics: APPH

Last Revised : August 18, 2016

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192 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Applied Physics >

Undergraduate Students	Applied Physics							
Graduate Students	The Smalley-Curl Institute							
Non-Traditional Students	Department	Undergraduate	Graduate	Course				
▶ Faculty	Info Course Listings	Requirements	Requirements	Listings				
Programs of Study	_	The official course offerings, including course descriptions, listed in the Applied Physics Graduate Requirements section can be						
Administration and Faculty	found in Rice's Course Catalog.	1						
Important Notices	To view the most recent course sc			e Schedule. 샵				
	For additional information regardin website: http://sci.rice.edu/academ	• • • • •	•					
	Last Revised : August 24, 2016							
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193 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Architecture >

Undergraduate Students	Archi	itecture						
Graduate Students	The School of Architecture							
Non-Traditional Students	Department Undergraduate Graduate Course							
		Info	Requirements		Requirements	Listings		
Faculty								
Programs of Study		Dean and William Ward Sarah Whiting	d Watkin Professor		fessors in the Practice			
Administration and Feaulty		ourun vinning			uglas Oliver			
Administration and Faculty		Harry K. and Albert K.	Smith Professors		ny Samuels			
Important Notices		John Casbarian			rk Wamble			
		Lars Lerup						
		·			nior Lecturers			
		Gus Sessions Worthan	n Professor	Ala	n Fleishacker			
		Albert Pope		Ste	phen Fox			
				Jan	nes Furr			
		Professors		Chr	istof Spieler			
		William Cannady						
		Carlos Jimenez		Leo	turers			
		Gordon Wittenberg		Dai	sy Ames			
				Tor	n Lord			
		Associate Professors		Jac	ki Schaefer			
		Dawn Finley		Fra	nk White			
		Christopher Hight						
		Ron Witte			chnology Fellow			
				Dav	vid Costanza			
		Wortham Assistant Pro	ofessor					
		Reto Geiser			rtham Fellows			
					helle Chang			
		Assistant Professors		Lluí	ís Juan Liñán			
		Andrew Colopy						
		Scott Colman						
		Troy Schaum						
		Jesús Vassallo						

Programs (Undergraduate): BA degree, BArch degree

Programs (Graduate): MArch Degree, MA Degree, MArch in Urban Design Degree*, DArch **Degree***

The Rice School of Architecture (RSA) focuses on speculative practice -- that is, the teaching and research of architecture and urban design as speculations that will advance professional practice as well as the built environment. 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.

Rice's undergraduate architecture programs maintain a balance between a design-focused study of architecture and a broad general education. In addition to formal coursework, students benefit from lectures and presentations from distinguished practitioners and scholars, symposia and other cultural events, and the unique Rice Preceptorship program, which places

students in an outstanding professional office for a nine-month internship.

The School of Architecture's graduate programs offer a design education in combination with a thorough grounding in architectural history, theory, and technology. Rice's graduate program culminates in an independent design thesis, on the principle that an architectural education provides a complete exposure to architecture's breadth, from which the student establishes his or her depth, or expertise, through the independent thesis.

Rice A-Z

*The MArch in Urban Design and DArch programs are currently inactive and are not accepting applications.

Last Revised : August 17, 2016

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University Calendar

Maps-Directions

Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Architecture >

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RICE

Architecture

The School of Architecture

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- Faculty
- Programs of Study

Graduate Students

- Administration and Faculty
- Important Notices

Department	Undergraduate	Graduate	Course
Info	Requirements	Requirements	Listings

Program Learning Outcomes for the BA Degree with a Major in Architecture

Upon completing the BA degree, students majoring in Architecture must complete:

- Formulate architectural projects that integrate design skills with critical thinking, engaging broader theoretical, social, political, economic, cultural, and environmental issues.
- 2. Explore how technology, issues of the environment, and construction inform innovative design solutions.
- 3. Strategize the relationship of architectural concepts, communication and representation techniques, and construction technology can innovate practice.

Requirements for the BA Degree with a Major in Architecture

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Architecture (ARCH) must complete:

- A minimum of 17 courses (75 credit hours) to satisfy major requirements.
- A minimum of 130 credit hours to satisfy degree requirements.
- A minimum of 11 courses (45 credit hours) at the 300-level or higher.
- A minimum of 45 credit hours outside of the major requirements.

The BA in Architecture, leading to a BArch degree, is the primary undergraduate architecture program at Rice. Students who apply and are accepted into the University and the School of Architecture enter directly into this program. The required courses for the Major of a BA in Architecture leading to a BArch consist of four integrated sequences in the following areas: Design Studios, History and Theory, Technology, and Practice. Courses in these sequences must be taken in the order and semesters specified by the School of Architecture.

The curriculum for this professional degree program sequence has three two-year long stages. The first stage provides a foundation sequence in design, history and theory, and technology taken in the first and second years. Students are also expected to fulfill the majority of University general distribution requirements during these two years. The curriculum is designed to provide an intensive focus on architecture, while allowing each student to receive a broad education and to pursue other interests.

At the end of the first stage, students apply for the approval of their Major in Architecture by the School of Architecture. Approval is based on academic performance and demonstrated aptitude.

The second intermediate stage occurs in the third and fourth years. Students complete the courses required for the major of a BA in Architecture, remaining university requirements, and take electives through which each student can develop his or her particular interests in the field and in other areas. In their fourth year, students pursue a design research sequence through a seminar in the fall that is linked to the spring studio. At the end of this stage, and with the completion of all major and university requirements, students graduate, receiving the degree of a Bachelor of Arts in Architecture.

The third and final stage consists of the Bachelor of Architecture (BArch) degree (see below) and includes the year of Preceptorship. The BArch is only open to students who have completed the first four years at the Rice School of Architecture and who apply for admission into this stage of the program during their fourth year. As with the approval for Major two years prior, approval is based on academic performance and demonstrated aptitude.

In addition to these formal course requirements, students are expected to contribute to the intellectual culture of the RSA by

attending public lectures and symposia and participating in the final reviews at the end of each semester where students across the school publicly present their work. Further information on policies and procedures are detailed in the RSA student handbook, which is distributed as a pdf to every incoming student.

REQUIRED COURSES

Students must complete a total of 17 courses (75 credit hours) as listed below. All courses listed below must be taken in the sequence and semester prescribed above.

1st Semester

Students must complete the following 2 courses (9 credit hours):

- ARCH 101 Principles of Architecture I-Order [6 credit hours]
- ARCH 225/HART 225 History and Theory I-Introduction [3 credit hours]

2nd Semester

Students must complete the following course (6 credit hours)

ARCH 102 Principles of Architecture II-Representation [6 credit hours]

3rd Semester

Students must complete the following 2 courses (9 credit hours):

- ARCH 201 Principles of Architecture III–Organization [6 credit hours]
- ARCH 207 Technology I–The Frame [<u>3 credit hours</u>]

4th Semester

Students must complete the following 3 courses (12 credit hours):

- ARCH 202 Principles of Architecture IV-Effects [6 credit hours]
- ARCH 345/HART 345 History and Theory II-pre 1890 [3 credit hours]
- ARCH 309 Technology II–The Shell [<u>3 credit hours</u>]

5th Semester

Students must complete the following 3 courses (12 credit hours):

- ARCH 301 Intermediate Problems in Architecture I-Situation [6 credit hours]
- ARCH 346 History and Theory III–1890-1968 [3 credit hours]
- ARCH 314 Technology III–The Envelope [<u>3 credit hours</u>]

6th Semester

Students must complete the following 3 courses (12 credit hours):

- ARCH 302 Intermediate Problems in Architecture II-Legibility [6 credit hours]
- ARCH 352 History and Theory IV–1968-Present [3 credit hours]
- ARCH 316 Technology IV-The Environment [3 credit hours]

7th Semester

Students must complete the following 2 courses (9 credit hours):

- ARCH 401 Advanced Topics in Architecture—The Metropolis [6 credit hours]
- ARCH 403 Degree Project Seminar–Watkin Research Seminar [3 credit hours]

8th Semester

Students must complete the following course (6 credit hours):

ARCH 402 Advanced Topics in Architecture–Watkin Research Seminar [6 credit hours]

ELECTIVES

To fulfill the remaining requirements for the BA degree with a major in Architecture, students must complete a total of 55 additional credit hours. At least 45 credit hours must be completed from coursework outside of ARCH course offerings.

Program Learning Outcomes for the Bachelor of Architecture (BArch) Degree

Upon completing the BArch degree, students majoring in Architecture will be able to:

- 1. Innovate the knowledge and practice of architecture through advanced critical thinking, experimentation and research.
- 2. Explore the practice of architecture though the Preceptorship Program, a year-long supervised internship in an architectural firm that subsequently informs advanced research and design.
- 3. Project innovative architectural practices and ideas through experimental research and design, synthesizing heterogeneous cultural and technical considerations into a coherent project.

Requirements for BArch Degree with a Major in Architecture

For general university requirements, see Graduation Requirements. Students pursuing the BArch degree with a major in Architecture (ARCH) must complete:

- A minimum of 8 courses (62 credit hours) to satisfy major requirements.
- A minimum of 62 credit hours to satisfy degree requirements.

The Bachelor of Architecture (BArch) program is open to students who have completed the undergraduate preprofessional architecture program (BA in Architecture) at Rice. The BArch degree requires the successful completion of the BA in Architecture, completion of the two-semester preceptorship, and completion of two advanced option studios and approved lecture or seminar courses. 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. Students are assigned to work for a minimum of nine months in the United States or abroad with leading architectural offices designated by the school as Preceptors.

The academic year immediately following preceptorship, students must return for their final year of study to the School of Architecture, taking advanced level studios and courses. In this year, students may apply to Rice School of Architecture in Paris to complete a semester abroad. The autumn studios feature the Totalization studio, in which the student's experience from preceptorship is integrated into academic research through a comprehensive design project. At the end of this final two-year stage, students graduate with a Bachelor of Architecture (professional) degree.

The Bachelor of Architecture program is accredited by the National Architectural Accrediting Board (NAAB) and qualifies graduates to take the state professional licensing exams after completing the required internship in an architectural office.

CORE REQUIREMENTS

Students must complete a total of 5 courses (53 credit hours) as listed below to satisfy the BArch degree's Core Requirements. All courses above must be taken in the sequence and semester prescribed by the School of Architecture and completed with a grade of C or higher.

Practice

Students must complete a total of 3 courses (33 credit hours) from the following. By accepting a place in the BArch and Preceptorship, each student agrees to all the terms specified by Rice and/or the assigned Preceptorship office, including: registration fees, start and end dates, work responsibilities, performance expectations, etc. Failure to meet these expectations will result in an unsatisfactory grade evaluation and may prevent further progress in the program. Students' concerns while on Preceptorship should be brought to the attention of the Director of External Programs as soon as possible. While on Preceptorship, a student remains a Rice student and is governed by applicable student codes of conduct, rights and responsibilities.

- ARCH 500 Preceptorship [<u>15 credit hours, 2 semesters required</u>]
- ARCH 423/623 Professionalism and Management in Architectural Practice [3 credit hours]
 or 3 credit hours of Electives at the 300-level or above if the student completed ARCH 423/623 during his/her first four years of study.

Design

Students must complete the following 2 courses (20 credit hours):

- ARCH 601 Architectural Problems [<u>10 credit hours</u>]
- ARCH 602 Architectural Problems [<u>10 credit hours</u>]

Students enroll in ARCH 620: Architectural Problems as their studio course if attending Rice School of Architecture in Paris.

ELECTIVES

To fulfill the remaining BArch degree requirements, students must complete a total of 9 credit hours at the 300-level or higher as electives.

RSA Paris

BArch students in their fifth year may apply to FSAP to complete one semester in Paris.

Recent Preceptor Offices

BAR	Pei, Cobb, Freed & Partners
San Francisco	New York
Bohlin Cywinski Jackson	Pelli Clarke Pelli
San Francisco	New Haven
Diller Scofidio & Renfro	PLP
New York	London
Ennead Architects	Renzo Piano Building Workshop
New York	Genoa
Johnston Marklee	Rogers Partners
Los Angeles	New York
Kieran Timberlake	SHoP
Philadelphia	New York
KPF	SOM
London	San Francisco
KPF	Thomas Phifer & Associates
New York	New York
Machado and Silvetti Associates	Weiss/Manfredi
Boston	New York

NADAAA Boston Zimmer Gunsul Frasca Los Angeles

OMA Hong Kong

Program Learning Outcomes for the BA Degree with a Major in Architectural Studies

Upon completing the BA degree, students majoring in Architectural Studies will be able to:

- 1. Gain knowledge of the history and theory of architecture in relation to broader social, technological and cultural practices and transformations.
- 2. Understand the design process in architecture through a variety of scales and problems and with an appreciation of design's importance in the quality of our cities and environment.
- 3. Explore and develop specific interests concerning the discipline and/or its relationship to other fields and endeavors.

Requirements for the BA Degree with a Major in Architectural Studies

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Architectural Studies (ARST) must complete:

- A minimum of 12 courses (48 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.

The BA in Architectural Studies degree provides a foundation in architectural ideas and design while allowing a broader pursuit of other fields as an undergraduate. Enrollment is restricted to students admitted into the architecture program who have completed the first two years of required courses.

CORE REQUIREMENTS

Students must complete a total of 8 courses (36 credit hours) as listed below to satisfy the Architectural Studies major's Core Requirements.

Design Studios

Students must complete the following 4 courses (24 credit hours):

- ARCH 101 Principles of Architecture I–Order [6 credit hours]
- ARCH 102 Principles of Architecture II–Representation [6 credit hours]
- ARCH 201 *Principles of Architecture III–Organization* [<u>6 credit hours</u>]
- ARCH 202 *Principles of Architecture IV–Effect* [<u>6 credit hours</u>]

History and Theory

Students must complete the following 2 courses (6 credit hours):

- ARCH 225 History and Theory I–Introduction [3 credit hours]
- ARCH 345 History and Theory II-pre-1890 [3 credit hours]

Technology

Students must complete the following 2 courses (6 credit hours):

- ARCH 207 Technology I–The Frame [3 credit hours]
- ARCH 309 Technology II-The Shell [3 credit hours]

ELECTIVES

To fulfill the remaining Architectural Studies major requirements, students must complete a total of 4 additional courses (or 12 credit hours) from departmental (ARCH) course offerings.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Architecture undergraduate degrees and majors. The following is a quick reference:

Rice A-Z

Course Catalog/Schedule

Course offerings/subject codes: ARCH
 Department Description and Code
 Architecture: ARCH
 Degree Description and Code

- Bachelor of Arts degree: BA
- Bachelor of Architecture degree: BArch
- Major Description and Codes
 - Major in Architecture (attached to the BA and BArch degrees): ARCH
 - Major in Architectural Studies (attached to the BA degree): ARST

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University Calendar

Maps-Directions

Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Architecture >

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Architecture

The School of Architecture

- Image: Department Info
 Undergraduate Requirements
 Graduate Requirements
 Course Listings

 Program Learning Outcomes for the Master of Architecture (MArch) Degree
 Students graduating from this program will:
 1. Innovate the knowledge and practice of architecture through advanced critical thinking, experimentation and research.

 2. Develop or augment a comprehensive knowledge of the technical aspects of design and construction including an understanding of their impact on design and the environment at a level commensurate with advanced study.
 - 3. Project innovative architectural practices and ideas through experimental research and design, synthesizing heterogeneous cultural and technical considerations into a coherent project.
 - 4. Develop or augment a comprehensive understanding of architectural practice and foster the development of innovative forms of practice at a level commensurate with advanced study.

Requirements for the Master of Architecture (MArch) Degree

The Master of Architecture program understands architecture to be a generalist practice, while encouraging each student's freedom to forge a specific trajectory within this generalist milieu. We prepare students to engage an ever more ambiguous world—one that can no longer simply be flattened by such binaries as local and global, quantity and quality, mind and nature, form and function, or standards and exceptions. The challenge we pose to our students is to transgress the obsolescence of opposing values and to navigate the tricky waters of a world no longer organized around presupposed notions of solidity, permanence, rootedness, centrality, protection, and identity. Our program is the very place where visions of the future are tested and where students are asked to understand the world's complexity in order to focus on the tangible, the legible, and the relevant.

Individuals who possess a Bachelor's degree in any discipline can apply to the Master of Architecture program. Our curriculum offers a set of core courses (in Design, History and Theory, Technology, and Practice) and many free electives, both in the School of Architecture and across campus. In studio courses, strong emphasis is given to the very means by which architecture is able to change the world through program, form, and technology. Such fundamental aspects to design can, when mobilized, produce a practice of architecture that is as speculative as it is realist. Every fall, advanced "Totalization" studios are conducted in such a way as to have students rigorously weigh all aspects of building design while nonetheless biasing their engagement so as to produce highly specific architectural projects. In their final thesis semester, students are asked to face the world and engage it through architectural speculation and a precise understanding of historical, political, economic, and physical dimensions, which can together define a better future.

The Master of Architecture program is accredited by the National Architectural Accrediting Board (NAAB) and qualifies graduates to take the state professional licensing exams after completing the required internship in an architectural office.

Programs of Study—There are two program options at the Master of Architecture level: Options 1 and 2. They differ according to the Bachelor's degree received prior to entering the graduate program.

Option 1

Offered to individuals who hold a four-year undergraduate degree with a major in a field other than Architecture or a major in Architecture with fewer than five semesters of architectural design studio. Preference for admission is given to those who have completed a balanced education in the arts, sciences, and humanities. A minimum of two semesters of college-level courses in the history of art and/or architecture and one semester of college-level courses in mathematics or physics is recommended. Previous preparation in the visual arts is also desirable, as are courses in philosophy, literature, and economics. In order to graduate, students in this program must complete, in addition to 6 semesters of design studios, a curriculum of 43 credit hours

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

1st Semester

- ARCH 501 Core Design Studio I [<u>10 credit hours</u>]
- ARCH 525 History and Theory I–Introduction [<u>3 credit hours</u>]
- ARCH 507 Technology I–The Frame [3 credit hours]
- Elective

2nd Semester

- ARCH 502 Core Design Studio II [<u>10 credit hours</u>]
- ARCH 645 History and Theory II-pre 1890 [3 credit hours]
- ARCH 509 Technology II-The Shell [3 credit hours]
- Elective

3rd Semester

- ARCH 503 Core Design Studio III [<u>10 credit hours</u>]
- ARCH 646 *History and Theory III–1890-1968* [<u>3 credit hours</u>]
- ARCH 514 Technology III–The Envelope [3 credit hours]
- Elective

4th Semester

- ARCH 504 Core Design Studio IV [<u>10 credit hours</u>]
- ARCH 652 History and Theory IV–1968-Present [3 credit hours]
- ARCH 516 Technology IV-The Environment [<u>3 credit hours</u>]
- Elective

5th Semester

- ARCH 601 Architectural Problems I : Totalization [10 credit hours]
- ARCH 623 Professionalism and Management in Architecture [3 credit hours]
- Elective

6th Semester

- ARCH 602 Architectural Problems II [<u>10-12 credit hours</u>]
- ARCH 702 Pre-Thesis Preparation [<u>3 credit hours</u>]
- Elective
- Elective

7th Semester

- ARCH 703/729 Design Thesis Studio/Written Thesis [13 credit hours]
- Elective
- Elective

Optional Additional Semester

Students who wish to remain enrolled as a registered student for an eighth semester will register for ARCH 703 in their seventh semester and ARCH 730 in the eighth semester. Students who wish to take this extension must decide at the beginning of their seventh semester.

Option 2

Offered to individuals who hold a four-year undergraduate degree with a major in Architecture. Advanced placement into Option 2 is at the discretion of the admissions committee, but generally preference for admission is given to those who have successfully completed five semesters or more of undergraduate design studio as well as undergraduate courses that are analogous to those given in the first year of Option 1. A minimum of two semesters of college-level courses in the history of art and/or architecture and one semester of college-level courses in mathematics or physics is expected. In order to graduate, students in this program must complete, in addition to 4 semesters of design studios, a curriculum of 37 credit hours with an additional free electives course load of 15 hours.

1st Semester

- ARCH 503 Core Design Studio III [<u>10 credit hours</u>]
- ARCH 646 History and Theory III–1890-1968 [<u>3 credit hours</u>]
- ARCH 507 Technology I The Frame** [<u>3 credit hours</u>]
- Elective

2nd Semester

- ARCH 504 Core Design Studio IV [<u>10 credit hours</u>]
- ARCH 652 History and Theory IV–1968-Present [3 credit hours]
- ARCH 509 Technology II–The Shell** [<u>3 credit hours</u>]
- Elective

3rd Semester

- ARCH 601 Architectural Problems I : Totalization [<u>10 credit hours</u>]
- ARCH 623 Professionalism and Management in Architecture [<u>3 credit hours</u>]
- ARCH 514 Technology III The Envelope [3 credit hours]
- Elective

4th Semester

- ARCH 602 Architectural Problems II [10-12 credit hours]
- ARCH 702 Pre-Thesis Preparation [<u>3 credit hours</u>]
- ARCH 516 Technology IV The Environment [<u>3 credit hours</u>]
- Elective

5th Semester

- ARCH 703/729 Design Thesis Studio/Written Thesis [13 credit hours]
- Elective

Optional Additional Semester

Students who wish to remain enrolled as a registered student for a sixth semester will register for ARCH 703 in their fifth semester and ARCH 730 in their sixth semester. Students who wish to take this extension must decide at the beginning of their fifth semester.

**Students who have previously taken courses equivalent to Technology I and II at another institution may instead take electives with permission from the director of graduate students.

Notes for the MArch

All courses above (for both Option 1 and 2) must be taken in the sequence and semester prescribed by the School of Architecture and completed with GPA of 2.0 or higher.

MArch Thesis Requirement

Thesis is payback time—it is when students build upward and outward from what they've learned over the years, giving back to the school by providing new disciplinary fodder. More immediate than a crystal ball, some of the common threads underlying a Rice thesis might well reveal tomorrow's future. Despite working in the context of Texas's vast horizon, Rice thesis students do not envision an endless frontier. Rather than turning away from the discipline, our students have found new territories embedded within architectural and urban paradigms, breathing into them new life and vitality. All Master of Architecture candidates are required to propose an independent thesis, articulating an ambition and envisioning its architectural specificity. Students develop their individual thesis proposals during their penultimate semester in a required, pre-thesis seminar. Thesis design evolves from the honing of that proposal and continues through the final semester, under the guidance of an individual advisor. In early January, thesis projects are reviewed publicly by a panel of eminent invited guests. In short, the school starts each new year with a batch of new visions.

RSA Paris

MArch (Option 1 and Option 2) students may apply to RSAP to complete one semester in Paris: Option 1 students may do so in their fifth or sixth semester, Option 2 in their third or fourth semester. BArch students may apply to RSAP in their final year of

study

Program Learning Outcomes for the MA Degree in Architecture

Students graduating from this program will:

- Integrate architecture and advanced research to address the most pressing and complex issues of design, environment and culture.
- 2. Develop research techniques and knowledge of advanced systems, techniques, and processes.
- 3. Innovate the knowledge and practice of architecture through advanced critical thinking and experimentation.

Requirements for the MA Degree in Architecture

Present Future is a concentrated undertaking culminating in a Master of Arts in Architecture degree. The program is structured around a three-semester-long exploration of a topic led by a Rice School of Architecture faculty member. A select group of students forms the core: a collective intelligence responsible for developing a discourse that synthesizes theoretical, historical, and design ambitions. Subjects will be of contemporary importance and will be framed by a 3-credit pro-seminar the first term, a 12-credit collective thesis in the second term, and a concluding seminar in the third term. In addition to free electives, each semester will include additional required credits that are appropriate to the selected topic, bringing the total credit hours to 39. The program's student body will include those with backgrounds in architecture as well as other fields: individuals with B.A., B.S. equivalent, or more advanced degrees in architecture or other disciplines are invited to apply. Coursework will include offerings from the School of Architecture and other departments across Rice University.

1st Semester

- ARCH 651 Present Future Seminar [3 credit hours]
- Elective
- Elective
- Elective

2nd Semester

- ARCH 602 Architectural Problems II [10-12 credit hours]
- Elective
- Elective

3rd Semester

- ARCH 711 Special Projects [<u>1-9 credit hours</u>]
- Elective**
- Elective

**With permission, elective may be taken as thesis or a design studio.

Master of Architecture in Urban Design*

Doctor of Architecture*

*The MArch in Urban Design and DArch programs are currently inactive and are not accepting applications.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Architecture graduate degree programs. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: ARCH

Department Description and Code

- Architecture: ARCH

Degree Descriptions and Codes

- Master of Arts degree: MS

- Master of Architecture degree: MArch

Degree Program Descriptions and Codes

- Degree Program in Architecture: ARCH

Last Revised : August 18, 2016

Web Services

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Rice A-Z

Maps-Directions Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Architecture >

Undergraduate Students	Architecture			
Graduate Students	The School of Architecture			
Non-Traditional Students		ergraduate Gradu		
▶ Faculty		uirements Require	nents Listings	
Programs of Study	Course Listings The official course offerings, including cours	e descriptions, for Architecture can t	be found in Rice's Course Catalog. 🗗	
Administration and Faculty	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.			
Important Notices	For additional information regarding Archited	ure, see the department's website:	http://architecture.rice.edu/. 🗗	
	Last Revised : August 24, 2016			

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Rice A-Z

Maps-Directions

Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Art History >

RICE

	The School of Humanities			
Graduate Students				
Non-Traditional Students	Department	Undergraduate	Graduate	Course
Frankti	Info	Requirements	Requirements	Listings
Faculty				
Programs of Study	Chair	As	ssociate Professors	
	Graham Bader	Gr	raham Bader	
Administration and Faculty			obert Leo Costello	
	Professors		nirine T. Hamadeh	
Important Notices	Joseph Manca		hih-Shan Susan Huang	
	Diane Wolfthal		ordon Hughes	
		LI	nda E. Neagley	
		As	ssistant Professors	
			ohn Hopkins	
			abiola Lopez-Duran	
		Lic	da Oukaderova	
	Program (Undergraduate): BA	A degree		
	Programs (Graduate): MA deg	aree. PhD degree		
	The Department of Art History offers a wide range of courses in European, American, Latin American, Asian, and Middle Eastern/Islamic art history. The major in art history is structured to expose students to the chronological, geographical, and methodological breadth of the field of scholarship.			
		cholarship.		
	Last Revised : August 17, 2016			

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University Calendar

Rice A-Z

Maps-Directions

Feedback

Previous Editions

SEARCH GA

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Art History >

rgraduate Students	Art H	listory			
te Students	The So	chool of Humanitie	es		
raditional Students		Department	Undergraduate	Graduate	Course
ty	_	Info	Requirements	Requirements	Listings
amo of Study	Prog	ram Learning Outo	comes for the BA Deg	gree with a Major in	h Art History
ims of Study	Upon co	ompleting the BA degree, a	student majoring in Art History v	will be able to:	
istration and Faculty	1. Ur	nderstand the historical, soc	cial, cultural and political context	s and traditions of art. Stude	ents will develop an understar
ant Notices		the multiple contexts of art, and other domains of human	including its relationship to relig	gion, politics, gender and se	xuality, urbanism, history, cult
			specialized disciplinary vocabula	ary and appropriate method	ologies to analyze works of ar
			function, and meaning orally and	-	r similarities in cultural contex
		• •	n comparative analyses of art we s, and time and place of producti		r similanties in cultural contex
			wledge about, and be able to ide		raphical locations, periods, ar
		nd/or artistic movements.			
		aluate and use primary and dependent research.	d secondary sources to generate	e and answer original resear	ch questions and produce
		-	vements, common themes, trend	ds, and the styles of major a	rtists. They will demonstrate
	ge	eneralized knowledge of ma	jor figures in art history, major a	rt movements and traditions	, and major artistic styles.
	Requ	irements for the B	A Degree with a Majo	or in Art History	
	Ű	eral university requirements must complete:	s, see Graduation Requirements	s. Students pursuing the BA	degree with a major in Art His
	A	minimum of 10 courses (30	credit hours) to satisfy major re	quirements.	
			s to satisfy degree requirements		
			credit hours) at the 300-level or a see below for each area of specia		
	- 01				
	Addition	nally, undergraduates may r	not take HART courses at the 50	00 level or above.	
	The Art	History major offers two are	eas of specialization:		
	= Ar	rt History			
	= Hi	story of Architecture			
	AREAS	OF SPECIALIZATION			
	Student	s must complete a total of 1	0 courses (30 credit hours) as li	isted in the requirements for	one of the Art History areas
	speciali	zation. Note that the course	lists to satisfy each requiremen	t can be found below the sp	ecialization requirements.

Art History Specialization

To satisfy the requirements for the Art History Specialization, Art History majors must complete 10 courses (30 credit hours) as listed below.

- A minimum of 1 course (3 credit hours) at the 200-level or above from the Ancient–Medieval (Pre-Modern) category.
- A minimum of 1 course (3 credit hours) at the 200-level or above from the Renaissance–18th century (Early Modern) category.
- A minimum of 1 course (3 credit hours) at the 200-level or above from the 19th century-Present (Modern through

Contemporary) category.

- A minimum of 2 courses (6 credit hours) from the Seminar course offerings.
- A minimum of 2 courses (6 credit hours) from the Outside the European and American Traditions category.
- A minimum of 3 additional courses as Electives (9 credit hours) from departmental course offerings (HART).

History of Architecture Specialization

To satisfy the requirements for the History of Architecture Specialization, Art History majors must complete 10 courses (30 credit hours) as listed below.

- A minimum of 6 courses (18 credit hours) from the History of Architecture category.
- A minimum of 1 course (3 credit hours) at the 200-level or above that can be found in in two of the following three categories: Ancient–Medieval (Pre-Modern); Renaissance–18th century (Early Modern); or 19th century–Present (Modern through Contemporary).
- A minimum of 2 courses (6 credit hours) from the Seminar course offerings.
- A minimum of 1 course (3 credit hours) from the Outside the European and American Traditions category.

Jump to:

Ancient-Medieval (Pre-Modern) Courses Renaissance–18th century (Early Modern) Courses 19th century–Present (Modern through Contemporary) Courses Seminar Courses Outside European and American Traditions Courses History of Architecture Courses At Least Two Areas Between Pre-Modern, Early Modern, and Modern Through Contemporary Fields Courses

Ancient-Medieval (Pre-Modern) Courses

- HART 201 Rome: Inception to Empire [3 credit hours]
- HART 214/CLAS 236 Art & Politics in Ancient Rome [3 credit hours]
- HART 240/HUMA 108/MDEM 108 Late Medieval & Renaissance [3 credit hours]
- HART 309/CLAS 309 The Dawn of Rome [3 credit hours]
- HART 311/ANTH 331 Art and Archaeology of the Ancient Near East [3 credit hours]
- HART 316/ANTH 346/ARCH 310/COMP 316 Virtual Reconstruction of Historical Cities [3 credit hours]
- HART 318/CLAS 321 Special Topics in Ancient Art [3 credit hours]
- HART 326/ARCH 326/CLAS 326 Material, Form, Space, Time [3 credit hours]
- HART 327 The Genesis of Roman Art [3 credit hours]
- HART 330/MDEM 330 Early Medieval Art [3 credit hours]
- HART 331/MDEM 331 Gothic Art [3 credit hours]
- HART 332/MDEM 332 Art of the Courts [3 credit hours]
- HART 345/ARCH 345 History and Theory II Pre 1890 [3 credit hours]
- HART 350/MDEM 352 Science and Medicine in Medieval Visual Culture [3 credit hours]
- HART 369/CLAS 323 Redefining Classical Art History [3 credit hours]
- HART 376/ASIA 376/MDEM 376 East and West [3 credit hours]
- HART 377 Medieval Manuscripts [<u>3 credit hours</u>]
- HART 394/RELI 394 The Sacred Arts of Secular Modernism [3 credit hours]
- HART 410/CLAS 417 Architecture and Dynasty in the Early Roman Empire [3 credit hours]
- HART 431/MDEM 431 Architecture of the Gothic Cathedral [3 credit hours]
- HART 437/FREN 437/MDEM 437 Visual Culture of Medieval Pilgrimage [3 4 credit hours]
- HART 482/CLAS 482 Caesar's Palace [3 credit hours]

Back to course menu

Renaissance-18th century (Early Modern) Courses

- HART 240/HUMA 108/MDEM 108 Art in Context: Late Medieval and Renaissance Culture [3 credit hours]
- HART 307 Technical Art History [3 credit hours]
- HART 308/ARCH 318 Living in the City in the Ottoman Empire [3 credit hours]
- HART 310/ARCH 315 Brazil Built: The Clinic, The Tropical, and the Aesthetic [3 credit hours]
- HART 320 18th Century European Art [3 credit hours]
- HART 321/ARCH 331 Imperial City: Istanbul 1453-1922 [3 credit hours]
- HART 322/ARCH 332 Jerusalem to Isfahan [3 credit hours]
- HART 326/ARCH 326/CLAS 326 Material, Form, Space, Time [3 credit hours]
- HART 329/ARCH 329/HIST 329 Streets and Urban Life: Paris to Istanbul [3 credit hours]
- HART 333 Looking at European Prints 1400-1700 [3 credit hours]
- HART 339 American Art and Architecture I: 1620-1800 [3 credit hours]

- HART 340/MDEM 340 Northern Renaissance Art
 - HART 341 Early Renaissance Art In Italy [3 credit hours]
 - HART 342 The High Renaissance and Mannerism in Italy [3 credit hours]
 - HART 343 Masters of the Baroque Era [3 credit hours]
 - HART 345/ARCH 345 *History and Theory II Pre 1890* [<u>3 credit hours</u>]
 - HART 346/SWGS 346 Seminar on Love: Making Love in Modern Art and Thought [3 credit hours]
 - HART 354 Age of Romanticism in Europe [<u>3 credit hours</u>]
 - HART 355 Jacques-Louis David: Revolution [3 credit hours]
 - HART 357 Constable and Turner [<u>3 credit hours</u>]
 - HART 358 Impressionism and Post-Impressionism [<u>3 credit hours</u>]
 - HART 360/ARCH 360 American Architecture and Decorative Arts Before 1900 [3 credit hours]
 - HART 378/MDEM 378 The Age of Rembrandt [3 credit hours]
 - HART 400 Bayou Bend Undergraduate Internship I [3 credit hours]
 - HART 401 Bayou Bend Undergraduate Internship II [3 credit hours]
 - HART 406 Iconoclasms: The Destruction of Images [<u>3 credit hours</u>]
 - HART 434/MDEM 434/SWGS 434 Seeing Sex in European Art, 1400-1700 [3 credit hours]
 - HART 435/HIST 443/MDEM 435 Multicultural Europe, 1400-1700 [3 credit hours]
 - HART 440 Issues in History of Prints [<u>3 credit hours</u>]
 - HART 450 Early Modern Art [<u>3 credit hours</u>]
 - HART 452 Manet(s) and Modernism(s) [<u>3 credit hours</u>]
 - HART 487/FREN 487 Literature, Art, and Coloniality [4 credit hours]

19th century–Present (Modern through Contemporary) Courses

- HART 202 Avant-Garde and After: Modern Art in Europe, 1900-1945 [3 credit hours]
- HART 205 Art Since 1945 [3 credit hours]
- HART 207 Fourteen Artworks at the MFAH [<u>3 credit hours</u>]
- HART 225/ARCH 225 History and Theory I (Intro) [3 credit hours]
- HART 250/FILM 250 Contemporary European Cinema [3 credit hours]
- HART 265 A Visual Culture Travelogue: Art and Politics in Modern Latin America [3 credit hours]
- HART 280/ARTS 280/FILM 280 History and Aesthetics of Film [3 credit hours]
- HART 281/FILM 281 The Beginnings of Cinema [<u>3 credit hours</u>]
- HART 283/FILM 285 Auteur Film: Case Studies of Three Authors [3 credit hours]
- HART 284/FILM 284 Nonfiction Film [<u>3 credit hours</u>]
- HART 285/ENGL 275/FILM 273 Introduction to Film [3 credit hours]
- HART 286/ENGL 286 Classical and Contemporary Film and Theory [<u>3 credit hours</u>]
- HART 288 Special Topics in Film and Media Studies [<u>3 credit hours</u>]
- HART 302 From the Sublime to the Sustainable: Art, Architecture, and Nature [3 credit hours]
- HART 304/FILM 339/SPPO 375 Trends in Contemporary Cuban Culture [3 credit hours]
- HART 307 Technical Art History [3 credit hours]
- HART 308/ARCH 318 Living in the City in the Ottoman Empire [3 credit hours]
- HART 321/ARCH 331 Imperial City: Istanbul 1453-1922 [3 credit hours]
- HART 322/ARCH 332 Jerusalem to Isfahan [<u>3 credit hours</u>]
- HART 326/ARCH 326/CLAS 326 Material, Form, Space, Time [3 credit hours]
- HART 328/RELI 375 Epiphanies: Seeing in a New Light and Recognizing the Radiance [3 credit hours]
- HART 329/ARCH 329/HIST 329 Streets and Urban Life: Paris to Istanbul [<u>3 credit hours</u>]
- HART 334 Picasso, Pollock, Warhol [<u>3 credit hours</u>]
- HART 336 Cinema and the City [3 credit hours]
- HART 345/ARCH 345 History and Theory II Pre 1890 [3 credit hours]
- HART 346/SWGS 346 Seminar on Love: Making Love in Modern Art and Thought [3 credit hours]
- HART 348 A Revolution from Within: Trends in Contemporary Cuban Culture [1 credit hour]
- HART 349 Trends in Contemporary Art [3 credit hours]
- HART 351 Art, Revolution, War: Modern Art in Violent Times [3 credit hours]
- HART 354 Age of Romanticism in Europe [3 credit hours]
- HART 355 Jacques-Louis David: Revolution [<u>3 credit hours</u>]
- HART 357 Constable and Turner [<u>3 credit hours</u>]
- HART 358 Impressionism and Post-Impressionism [<u>3 credit hours</u>]
- HART 359/ARCH 359/FILM 359 Cinemas of Urban Alienation [4 credit hours]
- HART 360/ARCH 360 American Architecture and Decorative Arts Before 1900 [3 credit hours]
- HART 365 Art Between the Wars: European Modernism, 1918-1940 [3 credit hours]
- HART 367 Modern and Contemporary Art: From Pollock to the Present [<u>3 credit hours</u>]
- HART 379/ARCH 371/ASIA 379 Post-1945 Japanese Art & Architecture [3 credit hours]

- HART 381 Collage and its Histories [3 credit hours]
- HART 382/FILM 382 Modalities of Cinema [<u>3 credit hours</u>]
- HART 383/FILM 383 Global Cinema [4 credit hours]
- HART 385/GERM 321/HUMA 321/SWGS 358 European Women Filmmakers [3 credit hours]
- HART 386 Dada [<u>3 credit hours</u>]
- HART 387 Holocaust Memory in Modern Germany [3 4 credit hours]
- HART 389/FILM 389 Film Melodrama [4 credit hours]
- HART 394/RELI 394 The Sacred Arts of Secular Modernism [3 credit hours]
- HART 398/GERM 339 From Expressionism to Fascism: Art and Film in Germany [3 credit hours]
- HART 400 Bayou Bend Undergraduate Internship I [3 credit hours]
- HART 401 Bayou Bend Undergraduate Internship II [3 credit hours]
- HART 406 Iconoclasms: The Destruction of Images [3 credit hours]
- HART 413 Murder and Modernism [3 credit hours]
- HART 451 Models of Abstraction [3 credit hours]
- HART 452 Manet(s) and Modernism(s) [3 credit hours]
- HART 457/FILM 455 Video and Expanded Cinema [3 credit hours]
- HART 460 Mass Culture & the Avant-Garde [3 credit hours]
- HART 461 Art of the 60s and 70s [3 credit hours]
- HART 463/ARCH 452 Practicing Utopia: Architecture, Eugenics and the Modern Latin City [3 credit hours]
- HART 465 Latin American Bodies: On Modernism [<u>3 credit hours</u>]
- HART 467/ARCH 462 Nature In-Vitro: Bodies, Gardens, and Built Forms [3 credit hours]
- HART 480/ARTS 435/FILM 435 Seminar on Film Authorship: The New Hollywood [4 credit hours]
- HART 481/FILM 485 Auteur Film: Case Studies of Three Auteurs [4 credit hours]
- HART 485/SWGS 485 Gender and Hollywood Cinema in the 1950's [3 credit hours]
- HART 493 Walter Benjamin, Media & Modernity [3 credit hours]
- HART 494/ARCH 484/ASIA 484 Modern and Contemporary East Asian Art and Architecture [3 credit hours]

Seminar Courses

- HART 110/ARCH 110/CLAS 103/FSEM 113 The Parthenon and Periklean Athens [3 credit hours]
- HART 117/FSEM 117 From Freud to Lecorbusier: Psychoanalysis, Art and Architecture [3 credit hours]
- HART 120/FSEM 181 Cinema and Modernity [4 credit hours]
- HART 179/CLAS 179/FSEM 179 Roman vs Greek [3 credit hours]
- HART 180/FILM 180 14 Films You Should See Before You Graduate From Rice University [4 credit hours]
- HART 211/ASIA 211/HIST 206 Introduction to Asian Civilizations [3 credit hours]
- HART 250/FILM 250 Contemporary European Cinema [4 credit hours]
- HART 280/ARTS 280/FILM 280 History and Aesthetics of Film [4 credit hours]
- HART 281/FILM 281 The Beginnings of Cinema [3 credit hours]
- HART 284/FILM 284 Nonfiction Film [4 credit hours]
- HART 285/ENGL 275/FILM 273 Introduction to Film [4 credit hours]
- HART 288 Special Topics in Film and Media Studies [<u>1 6 credit hours</u>]
- HART 297 Special Topics in Museum Curatorial Studies [3 credit hours]
- HART 298 Special Topics in Art Theory and Criticism [<u>1 6 credit hours</u>]
- HART 302 From the Sublime to the Sustainable: Art, Architecture, and Nature [3 credit hours]
- HART 304/FILM 339/SPPO 375 Trends in Contemporary Cuban Culture [3 credit hours]
- HART 308/ARCH 318 Living in the City in the Ottoman Empire [3 credit hours]
- HART 309/CLAS 309 The Dawn of Rome [3 credit hours]
- HART 310/ARCH 315 Brazil Built: The Clinic, The Tropical, and the Aesthetic [3 credit hours]
- HART 316/ANTH 346/ARCH 310/COMP 316 Virtual Reconstruction of Historical Cities [3 credit hours]
- HART 318/CLAS 321 Special Topics in Ancient Art [3 credit hours]
- HART 321/ARCH 331 Imperial City: Istanbul 1453-1922 [3 credit hours]
- HART 322/ARCH 332 Jerusalem to Isfahan [3 credit hours]
- HART 326/ARCH 326/CLAS 326 Material, Form, Space, Time [3 credit hours]
- HART 328/RELI 375 Epiphanies: Seeing in a New Light and Recognizing the Radiance [3 credit hours]
- HART 333 Looking at European Prints 1400-1700 [3 credit hours]
- HART 334 Picasso, Pollock, Warhol [3 credit hours]
- HART 336 Cinema and the City [<u>3 credit hours</u>]
- HART 346/SWGS 346 Seminar on Love: Making Love in Modern Art and Thought [3 credit hours]
- HART 347/RELI 343 Seminar on Love [3 credit hours]
- HART 348 A Revolution from Within: Trends in Contemporary Cuban Culture [1 credit hour]
- HART 349 Trends in Contemporary Art [3 credit hours]

- HART 354 Age of Romanticism in Europe [3 credit hours]
- HART 355 Jacques-Louis David: Revolution [<u>3 credit hours</u>]
- HART 357 Constable and Turner [<u>3 credit hours</u>]
- HART 365 Art Between the Wars: European Modernism, 1918-1940 [3 credit hours]
- HART 369/CLAS 323 Redefining Classical Art History [3 credit hours]
- HART 371/ASIA 371 Chinese Painting [3 credit hours]
- HART 373 Methodology Seminar: Wood and Image [<u>3 credit hours</u>]
- HART 375 Latin-Europe/Latin-America: The Aesthetics and Politics of Modern Cities [3 credit hours]
- HART 376/ASIA 376/MDEM 376 East and West [3 credit hours]
- HART 377/MDEM 377 Medieval Manuscripts [3 credit hours]
- HART 379/ARCH 371/ASIA 379 Post-1945 Japanese Art & Architecture [3 credit hours]
- HART 380/ENGL 373/FILM 373 Survey of American Film and Culture [4 credit hours]
- HART 381 Collage and its Histories [3 credit hours]
- HART 382/FILM 382 Modalities of Cinema [<u>3 credit hours</u>]
- HART 383/FILM 383 Global Cinema [4 credit hours]
- HART 386 Dada [3 credit hours]
- HART 387 Holocaust Memory in Modern Germany [3 4 credit hours]
- HART 389/FILM 389 Film Melodrama [4 credit hours]
- HART 392 Latin American Art and Cinema Since 1960 [4 credit hours]
- HART 394/RELI 394 The Sacred Arts of Secular Modernism [<u>3 credit hours</u>]
- HART 396 Medical Humanities Visual Culture [3 credit hours]
- HART 397 Special Topics: HART in the World [<u>3 credit hours</u>]
- HART 398/GERM 339 From Expressionism to Fascism: Art and Film in Germany [3 credit hours]
- HART 399/SWGS 321 Exhibiting Sexualities [3 credit hours]
- HART 406 Iconoclasms: The Destruction of Images [<u>3 credit hours</u>]
- HART 410/CLAS 417 Architecture and Dynasty in the Early Roman Empire [3 credit hours]
- HART 412/ARCH 412 Advanced Seminar in Architecture [3 credit hours]
- HART 413 Murder and Modernism [3 credit hours]
- HART 420 Europe and the Islamic World [3 credit hours]
- HART 430/ENGL 438 The Grotesque [3 credit hours]
- HART 431/MDEM 431 Architecture of the Gothic Cathedral [3 credit hours]
- HART 435/HIST 443/MDEM 435 Multicultural Europe, 1400-1700 [3 credit hours]
- HART 437/FREN 437/MDEM 437 Visual Culture of Medieval Pilgrimage [3 4 credit hours]
- HART 451 Models of Abstraction [3 credit hours]
- HART 452 Manet(s) and Modernism(s) [3 credit hours]
- HART 454/ANTH 454 The Artist as the Ethnographer The Ethnographer as Artist [3 credit hours]
- HART 457/FILM 455 Video and Expanded Cinema [3 credit hours]
- HART 460 Mass Culture & The Avant-Garde [3 credit hours]
- HART 461 Art of the 60s and 70s [3 credit hours]
- HART 463/ARCH 452 Practicing Utopia: Architecture, Eugenics and the Modern Latin City [3 credit hours]
- HART 465 Latin American Bodies: On Modernism [<u>3 credit hours</u>]
- HART 467/ARCH 462 Nature In-Vitro: Bodies, Gardens, and Built Forms [3 credit hours]
- HART 480/ARTS 435/FILM 435 Seminar on Film Authorship: The New Hollywood [4 credit hours]
- HART 487/FREN 487 Literature, Art and Coloniality [4 credit hours]
- HART 493 Walter Benjamin, Media & Modernity [<u>3 credit hours</u>]

Outside European and American Traditions Courses

- HART 103 Introduction to the History of Asian Art [3 credit hours]
- HART 211/ASIA 211/HIST 206 Introduction to Asian Civilizations [3 credit hours]
- HART 265 A Visual Culture Travelogue: Art and Politics in Modern Latin America [3 credit hours]
- HART 304/FILM 339/SPPO 375 Trends in Contemporary Cuban Culture [3 credit hours]
- HART 308/ARCH 318 Living in the City in the Ottoman Empire [3 credit hours]
- HART 310/ARCH 315 Brazil Built: The Clinic, the Tropical, and the Aesthetic [3 credit hours]
- HART 322/ARCH 332 Jerusalem to Isfahan [3 credit hours]
- HART 329/ARCH 329/HIST 329 Streets and Urban Life: Paris to Istanbul [3 credit hours]
- HART 348 A Revolution from Within: Trends in Contemporary Cuban Culture [1 credit hour]
- HART 359/ARCH 359/FILM 359 Cinemas of Urban Alienation [4 credit hours]
- HART 360/ARCH 360 American Architecture and Decorative Arts Before 1900 [3 credit hours]
- HART 371/ASIA 371 Chinese Painting [3 credit hours]
- HART 372/ASIA 372/MDEM 373 Chinese Art and Visual Culture [3 credit hours]
- HART 375 Latin-Europe/Latin-America: The Aesthetics and Politics of Modern Cities [3 credit hours]

- HART 376/ASIA 376/MDEM 376 East and West [3 credit hours]
- HART 379/ARCH 371/ASIA 379 Post-1945 Japanese Art & Architecture [3 credit hours]
- HART 392 Latin American Art and Cinema Since 1960 [4 credit hours]
- HART 420 Europe and the Islamic World [3 credit hours]
- HART 463/ARCH 452 Practicing Utopia: Architecture, Eugenics and the Modern Latin City [3 credit hours]
- HART 465 Latin American Bodies: On Modernism [3 credit hours]
- HART 467/ARCH 462 Nature In-Vitro: Bodies, Gardens, and Built Forms [3 credit hours]
- HART 494/ARCH 484/ASIA 484 Modern and Contemporary East Asian Art and Architecture [3 credit hours]

History of Architecture Courses

- HART 101/CLAS 102/MDEM 111 Introduction to the History of Western Art I [4 credit hours]
- HART 110/ARCH 110/CLAS 103/FSEM 113 The Parthenon [3 credit hours]
- HART 117/FSEM 117 From Freud to Lecorbusier [3 credit hours]
- HART 201 Rome: Inception to Empire [3 credit hours]
- HART 214/CLAS 236 Art & Politics in Ancient Rome [3 credit hours]
- HART 225/ARCH 225 History and Theory I (Intro) [3 credit hours]
- HART 265 A Visual Culture Travelogue: Art and Politics in Modern Latin America [3 credit hours]
- HART 302 From the Sublime to the Sustainable: Art, Architecture, and Nature [3 credit hours]
- HART 304/FILM 339/SPPO 375 Trends in Contemporary Cuban Culture [3 credit hours]
- HART 308/ARCH 318 Living in the City in the Ottoman Empire [3 credit hours]
- HART 310/ARCH 315 Brazil Built: The Clinic, The Tropical, and the Aesthetic [3 credit hours]
- HART 311/ANTH 331 Art and Archaeology of the Ancient Near East [3 credit hours]
- HART 316/ANTH 346/ARCH 310/COMP 316 Virtual Reconstruction of Historical Cities [3 credit hours]
- HART 318/CLAS 321 Special Topics in Ancient Art [3 credit hours]
- HART 321/ARCH 331 Imperial City: Istanbul 1453-1922 [3 credit hours]
- HART 322/ARCH 332 Jerusalem to Isfahan [3 credit hours]
- HART 326/ARCH 326/CLAS 326 Material, Form, Space, Time [3 credit hours]
- HART 329/ARCH 329/HIST 329 Streets and Urban Life: Paris to Istanbul [3 credit hours]
- HART 330/MDEM 330 Early Medieval Art [3 credit hours]
- HART 331/MDEM 331 Gothic Art [3 credit hours]
- HART 332/MDEM 332 Art of the Courts [3 credit hours]
- HART 339 American Art and Architecture I: 1620-1800 [3 credit hours]
- HART 345/ARCH 345 History and Theory II Pre 1890 [3 credit hours]
- HART 348 A Revolution from Within: Trends in Contemporary Cuban Culture [1 credit hour]
- HART 360/ARCH 360 American Architecture and Decorative Arts Before 1900 [3 credit hours]
- HART 369/CLAS 323 Redefining Classical Art History [3 credit hours]
- HART 372/ASIA 372/MDEM 373 Chinese Art and Visual Culture [3 credit hours]
- HART 375 Latin-Europe/Latin-America: The Aesthetics and Politics of Modern Cities [3 credit hours]
- HART 379/ARCH 371/ASIA 379 Post-1945 Japanese Art & Architecture [3 credit hours]
- HART 410/CLAS 417 Architecture and Dynasty in the Early Roman Empire [3 credit hours]
- HART 431/MDEM 431 Architecture of the Gothic Cathedral [3 credit hours]
- HART 437/FREN 437/MDEM 437 Visual Culture of Medieval Pilgrimage [3 4 credit hours]
- HART 463/ARCH 452 Practicing Utopia: Architecture, Eugenics and the Modern Latin City [3 credit hours]
- HART 465 Latin American Bodies: On Modernism [3 credit hours]
- HART 467/ARCH 462 Nature In-Vitro: Bodies, Gardens, and Built Forms [3 credit hours]
- HART 482/CLAS 482 Caesar's Palace [3 credit hours]
- HART 494/ARCH 484/ASIA 484 Modern and Contemporary East Asian Art and Architecture [3 credit hours]

Back to course menu

At Least Two Areas Between Pre-Modern, Early Modern, and Modern Through Contemporary Fields Courses

- HART 240/HUMA 108/MDEM 108 Art in Context: Late Medieval and Renaissance Culture [3 credit hours]
- HART 307 Technical Art History [<u>3 credit hours</u>]
- HART 308/ARCH 318 Living in the City in the Ottoman Empire [3 credit hours]
- HART 321/ARCH 331 Imperial City: Istanbul 1453-1922 [3 credit hours]
- HART 322/ARCH 332 Jerusalem to Isfahan [3 credit hours]
- HART 326/ARCH 326/CLAS 326 Material, Form, Space, Time [3 credit hours]
- HART 329/ARCH 329/HIST 329 Streets and Urban Life: Paris to Istanbul [3 credit hours]
- HART 345/ARCH 345 History and Theory II Pre 1890 [3 credit hours]
- HART 346/SWGS 346 Seminar on Love: Making Love in Modern Art and Thought [<u>3 credit hours</u>] Age of Romanticism in Europe

[3 credit hours]

- **HART 354** HART 355 Jacques-Louis David: Revolution [3 credit hours]
- HART 357 Constable and Turner [3 credit hours]
- HART 358 Impressionism and Post-Impressionism [3 credit hours]
- HART 360/ARCH 360 American Architecture and Decorative Arts Before 1900 [3 credit hours]
- HART 394/RELI 394 The Sacred Arts of Secular Modernism [3 credit hours]
- HART 400 Bayou Bend Undergraduate Internship I [3 credit hours]
- HART 401 Bayou Bend Undergraduate Internship II [3 credit hours]
- HART 406 Iconoclasms: The Destruction of Images [3 credit hours]
- HART 452 Manet(s) and Modernism(s) [3 credit hours]

Back to course menu

Honors Program in Art History

This specialization is reserved for those accepted into the Art History Honors Program. Students apply (via the undergraduate art history advisor) no earlier than spring of the sophomore year and no later than spring of the junior year, and once accepted, they will be assigned to a faculty mentor. Financial assistance is available for honors students to conduct research between their junior and senior years.

To remain in the Honors Program, students must maintain an overall grade point average of 3.3 or higher and receive an A or Ain both semesters of the Senior Thesis. Students who maintain a grade point average of 3.7 or higher and who receive an A in both semesters of the Senior Thesis may be awarded high honors by vote of the department. If students are not able to maintain the requirements of the honors program, they can still graduate with the art history major or the specialization in History of Architecture.

REQUIREMENTS FOR THE HONORS PROGRAM

Students are required to complete at least 12 courses (36 credit hours) as listed below.

- at least two courses (200–400 level) Ancient-Medieval (Pre-Modern)
- at least two courses (200–400 level) Renaissance–18th century (Early Modern)
- at least two courses (200–400 level) 19th century–Present (Modern to Contemporary)
- at least six courses must be at the 300–400 level
- of the twelve courses, at least three courses must be seminars
- two-semester senior thesis (six credits total)
- of the courses listed above, at least two must be outside the European and American traditions

It is strongly recommended that majors in art history acquire 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 four 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.

Description and Code Legend

*NOTE: Internally, the university uses the following abbreviations (4-digit codes) to identify the Art History undergraduate degree and major. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject: HART

- Department Description and Code
- Art History: HART
- Degree Description and Code
- Bachelor of Arts degree: BA
- Major Description and Code

- Major in Art History: HART

Last Revised : August 12, 2016

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Art History >

Under	graduate	Students
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RICE

Art History

The School of Humanities

- Non-Traditional Students
- Faculty
- Programs of Study

Graduate Students

- Administration and Faculty
- Important Notices

Department Info Undergraduate Requirements Graduate Requirements Course Listings Program Learning Outcomes for the PhD Degree in Art History Upon completing the PhD degree program in Art History, students will be able to:

- 1. Apply disciplinary methods for the visual interpretation and critique of art to produce scholarship and communicate about art using appropriate disciplinary vocabularies and primary and secondary texts where appropriate.
- 2. Understand art not as an isolated incident but in relation to the contexts which not only shape art, but are shaped by artincluding: history, society, culture, geography, and politics.
- 3. Understand art as a multicultural issue.
- 4. Develop and apply understanding of major artistic movements, artists, and art pieces by identifying and situating individual artists and works of art (like Michelangelo's statue of David) within major movements.

Requirements for the MA and PhD Degrees in Art History

For general university requirements, see Graduate Degrees.

Only applicants who intend to receive a PhD will be accepted into the program. The Department of Art History does not have an MA program, although during the course of the program an MA degree will be awarded after students have achieved candidacy and are in the process of completing the doctorate (see Schedule, below).

Entering students will each be assigned a faculty advisor, as appropriate for the intended field of study. (That faculty member will remain the advisor unless the student later chooses someone else as the principal dissertation advisor.)

The advisor will play the key role in working with the student from beginning to end on course selection, master's research paper topic, topics for qualifying exams, and the dissertation subject and will be in charge of monitoring the student's progress before and after advancement to candidacy. The director of graduate studies also will be available to offer advice to students in the program.

Beyond the courses to be offered by these regular and affiliated faculty of the Department of Art History, students will be encouraged, when appropriate, to take other graduate courses at Rice that are important for their field of research. Of the courses listed in the schedule below, up to three may be taken outside the department, as approved by the student's advisor.

A summary of the program requirements:

Courses—Satisfactory completion of at least 30 hours of graduate coursework (500 level). One of the courses will include HART 590 Methods in Art History, to be taken in the fall of the first year. At least two of the courses taken must be in areas judged by the faculty advisor to be outside the student's main field of interest, and at least half of the classes taken must be seminars. Because jobs in the field often call for teaching expertise in more than one area, students are encouraged to acquire breadth of knowledge in both their coursework and the topics covered in the qualifying exams.

Substantial research paper—In the second year, one course each semester is required (HART 690 and HART 691) towards a substantial research paper. This paper may be an exploration of a possible dissertation topic or area.

Reading knowledge of foreign languages—Reading knowledge of one foreign language must be demonstrated before the beginning of the second semester, and a second demonstrated before the beginning of the third year. For those studying American or European topics, French and German are required, or a language necessary for the student's doctoral work (e.g., Spanish or Italian) and then knowledge of French or German. For those studying a non-Western topic, knowledge of a language

in the primary area of study is necessary, plus French or German. Reading knowledge of one language must be demonstrated by the end of the first semester, and knowledge of the second language must be demonstrated by the end of the second year. Students are able to take advantage of the regular foreign language courses at Rice, and we will work with the director of the Center for the Study of Languages to ensure that students are aware of the language courses at Rice offered specifically for graduate students. The two language examinations will be administered as follows. The student's advisor will select a book or set of articles in the target language that is close to the student's interest. The student will have one hour with a dictionary to complete the translation. The exam will be graded by the appropriate language department.

Teaching and research opportunities—In order to strengthen the job prospects of our students, there will be an opportunity to serve as teaching assistant or tutorial instructor, or for team-teaching or teaching classes. For those not engaged in classroom teaching, there also will be a chance to serve as research assistants for professors. As part of the program, all students will be expected to be a teaching assistant, tutorial leader, teacher, or research assistant for at least two semesters, and for as many as four semesters as an option. This will typically happen during the third or fourth year.

Qualifying exams, with a written and oral component—The qualifying exams will be taken at the end of the fall semester of the third year and cover topics in student's major field of study and secondary fields, as agreed upon with the student's advisor and based on the student's interests and intended area of study for the doctoral dissertation. Passing the qualifying exams is necessary for continuation in the program into the dissertation phase. The exams will consist of two three-hour written exams and two one-hour oral exams to follow up on the material tested on the written part. The examining committee will consist of three persons: the principal field examiner and two other field examiners.

Doctoral thesis and defense—After a student has passed the qualifying examination, the student will work with a dissertation thesis committee composed of three members, approved by the department's graduate committee; the chair of this committee will be the student's departmental advisor, who must be part of the art history faculty; the second reader also comes from within the department; and the third reader must be from outside the department. As soon as the thesis committee approves the student's dissertation prospectus, the student must file a petition for approval of candidacy for the PhD with the Office of Graduate and Postdoctoral Studies (GPS). The term "PhD candidate" refers only to persons so certified by the GPS office. The university requires that students pursuing the PhD must be approved for candidacy before the beginning of the ninth semester at Rice.

PhD candidates must present an original piece of scholarly work in the form of a dissertation, equivalent to a publishable book, as the final step in completing the degree. Dissertations may be written on any subject that falls within the supervisory competence of a permanent member of the department, and the prospectus is approved by the student's advisor and a vote of the student's committee. After such a vote, the advisor will sign the student's application for admission to candidacy.

Schedule—The program is designed to be completed in five years. However, certain fields in which the acquisition of foreign languages typically presents a hurdle (e.g., the study of non-Western art) might necessitate the expectation of a sixth year in the program.

The schedule for a student in the program would be:

Year 1: Six courses (three each semester), one to include the theory and methods seminar in the fall of the first year. The student must pass one language exam in the fall semester.

Year 2: Four courses (two in the fall semester, two in the spring) and an independent study course each semester for preparing a substantial research paper, to be completed by the end the spring semester and read by the student's advisor and one other faculty member or affiliated faculty, chosen by the advisor. Students must pass the second language exam by the end of the spring semester.

Year 3: Independent study in the fall in preparation for the written and oral qualifying exams, taken in December.

In the spring semester, the student will prepare a prospectus for the doctoral dissertation; the advisor and the rest of the thesis committee will review the prospectus and approve the topic by mid-April. At that point, the student will advance to candidacy. The MA will be awarded at that time.

During the third year, students will have the option of serving as teaching assistant, tutorial instructor, teacher, or research assistant.

Students in the third and fourth years are encouraged to apply for outside funding that will assist them with travel costs and other aspects of their thesis research.

Year 4: Dissertation research and writing. During the fourth year, students will have the option of serving as teaching assistant, tutorial instructor, teacher, or research assistant, unless this has happened in the third year.

Year 5: Dissertation research and writing. There will be a public thesis defense at the end of the fifth year (or sixth year, if

necessary).

For updated information, please go to arthistory.rice.edu.

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, 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 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 and Dramatic Arts mounts several art and photography exhibitions each year and sponsors Rice Cinema, a public alternative film program.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Art History graduate degree program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: HART

- Department Description and Code
 - Art History: HART

Degree Descriptions and Codes

- Master of Arts degree: MA
- Doctor of Philosophy degree: PhD

Degree Program Description and Code

- Degree Program in Art History: HART

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Web Services

University Calendar Rice A-Z

Maps-Directions Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Art History >

History						
School of Humaniti	es					
Department Info	Undergraduate	Graduate	Course			
rse Listings	Requirements	Requirements	Listings			
-	ding course descriptions, for A	rt History can be found in Rice	's Course Catalog. 🗗			
w the most recent course sc	hedule for the 2016-2017 aca	demic year, see Rice's Course	Schedule.			
For additional information regarding Art History, see the department's website: http://arthistory.rice.edu/.						
rised : August 24, 2016						
21	evised : August 24, 2016	evised : August 24, 2016	evised : August 24, 2016			

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RICE

218 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Asian Stud	dies >							
Undergraduate Students	Asian	n Studies						
Graduate Students	The Sc	hool of Humanities	and The School	of So	ocial Sciences			
Non-Traditional Students		Department	Undergraduate		Graduate	Course		
► Faculty		Info	Requirements	Davio	Requirements	Listings		
Programs of Study		Director Sonia Ryang			-Shan Susan Huang			
Administration and Faculty		Associate Directors		Elora Shehabuddin Kerry Ward				
Important Notices		Haejin E. Koh Steven W. Lewis			Professors Emeriti			
				Steph	hen A. Tyler			
		Advisors		Fred	R. von der Mehden			
		Haejin E. Koh						
		Steven W. Lewis		Professor in the Practice				
		Professors		Steve	en W. Lewis			
		Tani E. Barlow		Lectu	urer			
		Anne C. Klein			ael McCarty			
		Jeffrey Kripal			, , , , , , , , , , , , , , , , , , ,			
		William Parsons		Post	doctoral Fellows			
		Nanxiu Qian		Bhav	ani Arabandi			
		Sayuri Guthrie Shimizu		Brian	ne Donaldson			
		Richard J. Smith			Sang Kim			
				Sand	leep Ray			
		Associate Professors						
		Lisa Balabanlilar						
	Progra	am (Undergraduate): B	BA degree					
	Progra	am (Graduate): N/A						
		helor of Arts degree in Asian ints, and cultures of Asia. At t				hy, history, people and their students as strong researchers.		
	Last Revise	ed : August 17, 2016						

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Rice Home

Web Services

University Calendar

Rice A-Z

Maps-Directions

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Asian Studies >

۲	Underg	raduate	Students
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RICE

Asian Studies

The School of Humanities and The School of Social Sciences

- Non-Traditional Students
- Faculty
- Programs of Study

Graduate Students

- Administration and Faculty
- Important Notices

Department	Undergra
Info	Require

	Undergraduate	Graduate	Course
	Requirements	Requirements	Listings
~~	mos for the PA De	aree with a Major in	Acian Studios

Program Learning Outcomes for the BA Degree with a Major in Asian Studies

Upon completing the BA degree, students majoring in Asian Studies will be able to:

- 1. Develop a broad historical and geographic knowledge about Asia as a transnational region.
- 2. Design and execute independent research on Asia by using either social scientific or humanistic methods.
- 3. Demonstrate the ability to incorporate Asian-language sources into academic research.

Requirements for the BA Degree with a Major in Asian Studies

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Asian Studies (ASIA) must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 4 courses (12 credit hours) taken at the 300-level or above.

All departmental course offerings (ASIA), many of which are cross-listed, may be used to satisfy the major requirements. Additionally, any other course that has high Asian content can be applied toward the major with the director's approval.

INTRODUCTORY COURSE

Students must complete the following course to satisfy the Introductory Course requirement:

ASIA 212/ANTH 212 Perspectives on Modern Asia [3 credit hours]

CAPSTONE COURSE

Students must complete the following course to satisfy the Capstone Course requirement:

ASIA 495 Asian Studies Research: Seminar [3 credit hours]

ELECTIVES

To fulfill the remaining Asian Studies major requirements, students must complete a total of 8 additional courses (24 credit hours) from course offerings with predominantly Asia content, which can be found below. Of these eight courses, up to four may be language courses in a single Asian language (Arabic, Chinese, Hindi, Japanese, Korean, or Russian). Students must demonstrate advanced language proficiency in an Asian language, and this proficiency requirement may be fulfilled by courses taken at Rice University, through AP credit received, or other means. Students are encouraged to consult with a Major Advisor regarding this point.

Architecture

ARCH 331/HART 321 Imperial City: Istanbul [3 credit hours]

Art History

HART 321/ARCH 331 Imperial City: Istanbul [3 credit hours]

Asian Studies

- ASIA 211/HART 211/HIST 206 Introduction to Asian Civilizations [3 credit hours]
- ASIA 218/HIST 218/FILM 218 History Through Film in East and Northeast Asia [3 credit hours]
- ASIA 219 Modern Japan [<u>3 credit hours</u>]
- ASIA 221/RELI 221 The Life of the Prophet Muhammad [3 credit hours]
- ASIA 222/ENGL 222 The World and South Asia [3 credit hours]
- ASIA 230/RELI 230 Asian Religions in America [3 credit hours]
- ASIA 231/RELI 231 American Metaphysical Tradition [3 credit hours]
- ASIA 232/RELI 232 Religions from India [3 credit hours]
- ASIA 251/POLI 250/SWGS 250 International Political Economy of Gender [3 credit hours]
- ASIA 299 Discover Asia in Houston [<u>1 credit hour</u>]
- ASIA 315/RELI 315/SWGS 315 Gender and Islam [3 credit hours]
- ASIA 319 War and Modern East Asia [3 credit hours]
- ASIA 321/HIST 322 China's Cultural Revolutions [3 credit hours]
- ASIA 322/RELI 322 Introduction to Buddhism: Arts for Life [3 credit hours]
- ASIA 326 Temples, Technology, and Transition: India in the 21st Century [3 credit hours]
- ASIA 328/HIST 384/SWGS 284 Modern Girl & Asia in the World [3 credit hours]
- ASIA 330/CHIN 330/MDEM 370 Introduction to Traditional Chinese Poetry [3 credit hours]
- ASIA 332/CHIN 332 Chinese Literature and its Movie Adaptations [3 credit hours]
- ASIA 334/CHIN 334 Traditional Chinese Tales [3 credit hours]
- ASIA 335/CHIN 335/MDEM 375 Introduction to Classical Chinese Novels [3 credit hours]
- ASIA 345/POLI 345 Urban Lab Dubai [<u>1 credit hour</u>]
- ASIA 347/POLI 347 Urban Lab Shanghai [1 credit hour]
- ASIA 349/POLI 349 Urban Lab Istanbul [<u>1 credit hour</u>]
- ASIA 353/POLI 353 East Asian Democracies [3 credit hours]
- ASIA 355/FILM 336/HART 366 Cinema and the City [3 credit hours]
- ASIA 360 Transnational China: China and the Chinese Diaspora [3 credit hours]
- ASIA 371/HART 371 Chinese Painting [3 credit hours]
- ASIA 372/HART 372/MDEM 373 Chinese Art and Visual Culture [3 credit hours]
- ASIA 376/HART 376/MDEM 376 Medieval Visual Culture in China and Northern Europe [3 credit hours]
- ASIA 378/MUSI 378 Cross-Cultural Asian Music [3 credit hours]
- ASIA 380/HIST 380 Asian American Experiences [3 credit hours]
- ASIA 387/ANTH 387 Asian American Contemporary Communities [3 credit hours]
- ASIA 388/FOTO 388 Photography in China [3-4 credit hours]
- ASIA 389/HIST 389 Migrations and Diasporas in the Indian Ocean World [3 credit hours]
- ASIA 390/LING 390 The Languages of Asia [3 credit hours]
- ASIA 399/SWGS 399/MDEM 379 Women in Chinese Literature [3 credit hours]
- ASIA 401 Independent Study [<u>1-15 credit hours</u>]
- ASIA 402 Independent Study [<u>1-15 credit hours</u>]
- ASIA 422/CHIN 422 The Original Beauty of Chinese Literature [3 credit hours]
- ASIA 441/RELI 441 Magic and Popular Religion [3 credit hours]
- ASIA 488 Asia and Energy [<u>3 credit hours</u>]
- ASIA 489/POLI 489 Chinese Politics in Comparative Perspective [3 credit hours]
- ASIA 490/HIST 490 Colonial Modernity in East Asia [3 credit hours]
- ASIA 492/HIST 492/SWGS 492 Gender Histories of Modern China [3 credit hours]

English

ENGL 397 Topics in Literature and Culture: Asian-American Literature [3 credit hours]

History

- HIST 212 Contemporary China [3 credit hours]
- HIST 271 History of South Asia [3 credit hours]
- HIST 281/MDEM 281 Premodern Middle East History [3 credit hours]
- HIST 302 Traditional Chinese Culture [<u>3 credit hours</u>]
- HIST 309 Chinese Intellectual History [3 credit hours]
- HIST 320 Imperial Gardens: A Cultural Comparison [3 credit hours]
- HIST 341 Pre-modern China [<u>3 credit hours</u>]
- HIST 342 Modern China [3 credit hours]
- HIST 364/MDEM 364 Central Asian Conquest Empires [3 credit hours]
- HIST 378 Modern Arab History [3 credit hours]
- HIST 382 Cultural Trends in Medieval Islam, 750-1400 [3 credit hours]
- HIST 433 The Arab-Israeli Conflict [3 credit hours]

- HIST 434 Islam and the West [<u>3 credit hours</u>]
- HIST 436 America in the Middle East [3 credit hours]
- HIST 439 Comparative Slavery from Antiquity to the Present: Africa, Asia, and Europe [3 credit hours]
- HIST 493 Great Islamic Empires of the Early Modern Age [3 credit hours]
- HIST 494 Mughal History [<u>3 credit hours</u>]
- HIST 495 Comparative Modernization of China and Japan [3 credit hours]

Medieval and Early Modern Studies

- MDEM 281/HIST 281 Premodern Middle East History [3 credit hours]
- MDEM 364/HIST 364 Central Asian Conquest Empires [3 credit hours]

Political Science

- POLI 460 Seminar in Comparative Government [3 credit hours]
- POLI 478 US-China: Conflict and Cooperation [3 credit hours]

Policy Studies

POST 455 United States Middle East Policy [<u>3 credit hours</u>]

Religion

- RELI 223 Qur'an and Commentary [3 credit hours]
- RELI 225 Revolutionary Islam: Shi'ism [3 credit hours]
- RELI 333 Knowing Body/Glowing Mind: Buddhist Arts of Contemplation and Analysis [3 credit hours]
- RELI 356 Major Issues in Contemporary Islam [3 credit hours]
- RELI 433 Tibetan Language and Culture [3 credit hours]
- RELI 440 Islam's Mystical and Esoteric Tradition [3 credit hours]
- RELI 442 Classical and Contemporary Arabic Texts [3 credit hours]
- RELI 470 Buddhist Wisdom Texts [3 credit hours]

Description and Code Legend

***NOTE:** Internally, the university uses the following abbreviations (4-digit codes) to identify the Asian Studies undergraduate degree and major. The following is a quick reference:

Rice A-Z

Course Catalog/Schedule

- Course offerings/subject: ASIA
- Department Description and Code
- Asian Studies: ASIA
- Degree Description and Code
- Bachelor of Arts degree: BA
- Major Description and Code
- Major in Asian Studies: ASIA

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University Calendar

Maps-Directions Feedback

RICE

222 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Asian Studies >

Undergraduate Students	Asian Studies								
Graduate Students	The Sc	The School of Humanities and The School of Social Sciences							
Non-Traditional Students		Department	Undergraduate	Graduate	Course				
▶ Faculty	Gradu	Info Requirements Requirements Listings Graduate Requirements Fraduate Requirements Fraduate Requirements Fraduate Requirements							
Programs of Study	Asian St	Asian Studies does not offer an academic program at the graduate level.							
Administration and Faculty									
Important Notices	Last Revise	d : August 12, 2016							

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SEARCH GA

RICE

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Asian Studies >

 Graduate Students Non-Traditional Students Faculty 	The School of Huma Departmen Info	anities and The School nt Undergraduate	of Social Sciences	
		nt Undergraduate	Graduate	0
Faculty	Info			Course
racuity		Requirements	Requirements	Listings
Programs of Study	Course Listings	, including course descriptions, for	Asian Studies can be found in R	Rice's Course Catalog. 🗗
Administration and Faculty	To view the most recent cou	urse schedule for the 2016-2017 ac	ademic year, see Rice's Course	Schedule 🖗
Important Notices		egarding Asian Studies, see the dep		
	-			
	Last Revised : August 24, 2016			

General Announc	ements 6100 M	ain MS-10, Houston,	Texas 77005-1827	Mailing Address: P.C). Box 1892, Houston, Tex	kas 77251-1892
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RICE

224 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

Naomi Halas

2016-2017 > Programs of Study > Bioengineering >

	Bioengineering						
Graduate Students	The George R. Brown School of Engineering						
Non-Traditional Students	Department Undergra						
Faculty	Info Requirem	nents Requirements Listings					
Programs of Study	Chair	Associate Professors, Joint Appointments					
	Michael Deem	Ching-Hwa Kiang					
dministration and Faculty	Professors	Laura Segatori Jonathan Silberg					
nertent Netices	Gang Bao						
nportant Notices	Rebekah Drezek	Assistant Professors, Joint Appointments					
	Jane Grande-Allen	Matthew Bennett					
	Herbert Levine	Caleb Kemere					
	Jianpeng Ma	Angel A. Martí					
	Antonios Mikos	Deepak Nagrath					
	Rebecca Richards-Kortum	Jacob Robinson					
	Ka-Yiu San	Aryeh Warmflash					
	Ka-Tiu Sali	Aryen Wanniash					
	Associate Professors	Adjunct Professors					
	Michael Diehl	Maria Elena Bottazzi William Brownell					
	Oleg Igoshin						
	Jeffrey Jacot	III-Min Chung					
	Robert Raphael	William Cohn Mary Dickinson					
	Junghae Suh						
	Tomasz Tkaczyk	Rena D'Souza					
		Charles Fraser Ann M. Gillenwater					
	Assistant Professors						
	Jordan Miller	Peter J. Hotez					
	Amina Qutub	Ragha Kalluri					
	Jeffrey Tabor	Anirbam Maitra					
	David W. Zhang	John McDevitt					
		David R. Piwnica-Worms					
	Professors in the Practice	Eric Richardson					
	Z. Maria Oden	Robert C. Robbins					
	Ann Saterbak	Rodigo Ruano					
		Jacqueline Shanks					
	Lecturers	Andrew Sikkora					
	Bilal Ghosn	Karen Storthz					
	Renata Ramos	Mark Wong					
	Eric Richardson	Samuel Miao-Sin Wu					
	Professors, Joint Appointments	Adjunct Associate Professors					
	John Clark	Catherine Ambrose					
	Cindy Farach-Carson	Sharmila Anandasabapathy					
	Fathi Ghorbel	Elizabeth Cosgriff-Hernandez					
	Ramon Gonzalez	Miguel Cruz					
	Ne sus i la la s						

M. Waleed Gaber

Jeffrey Hartgerink Lydia Kavaraki Marek Kimmel Marie Lynn Miranda Frank Tittel Kyriacos Zygourakis Stephen H. Little Joseph Ludwig Andrew Sikora Konstantin Sokolov

Adjunct Assistant Professors

Aviva Presser Aiden Aaron Foster Michael J. Heffernan Kurt Kasper Steven Millward Medhi Razavi Niki Zacharias Millward

Program (Undergraduate): BSBE degree

Programs (Graduate): MBE degree, MS degree, PhD degree

Graduate programs in bioengineering offer concentrations in areas such as biomedical imaging and diagnostics, cellular and biomolecular engineering, computational and theoretical bioengineering, biomaterials and drug delivery and biomaterials, systems and synthetic biology, and tissue engineering 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.

Last Revised : August 17, 2016

General Announce	ements 6100 Ma	ain MS-10, Houston, T	Texas 77005-1827	Mailing Address: P.O. I	Box 1892, Houston, Tex	as 77251-1892
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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Bioengineering >

Undergraduate Students	Bioengineering									
Graduate Students	The Ge	eorge R. Brown So	chool of Engineering	l						
Non-Traditional Students		DepartmentUndergraduateGraduateCourseInfoRequirementsRequirementsListings								
▶ Faculty	Progr		comes for the Bache			ee				
Programs of Study		(BSBE)								
Administration and Faculty	Upon co	mpleting the BSBE degree	, students majoring in Bioengin	neering will be able to demons	strate:					
Important Notices		,, .	of mathematics, science, and out experiments, as well as to a	0 0						
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The overall goal of the BS degree in Bioengineering (BSBE) is to prepare graduates to succeed in professional careers by equipping them with the conceptual and technical expertise sought after by top graduate and medical schools, as well as by companies seeking technical skills in bioengineering. Recognizing that graduates may embark on a number of different educational and career paths, the Program Educational Objectives (PEO) that graduates are expected to exhibit or achieve with the BSBE from Rice University are:

- Graduates demonstrate technical and/or professional skills, which may include engineering problem-solving, scientific inquiry, and/or engineering design, to solve challenging problems in bioengineering and related fields.
- 2. Graduates are accomplished at communicating and working collaboratively in diverse work environments.
- Graduates seeking further education at graduate, professional or medical school find appropriate levels of success in admission to and progression through these programs. Graduates entering professional careers find appropriate career progression and success.

The program leading to the BSBE is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org 🖗

Students majoring in bioengineering must complete the following courses.

CORE REQUIREMENTS

Students must complete a total of 31 course sequences (86 credit hours) as listed below to satisfy the Bioengineering major's Core Requirements.

Bioengineering Lecture Courses

Students must complete a total of 15 courses (37 credit hours) from the following. Students should complete BIOE 252, BIOE 320, BIOE 322, BIOE 391, and BIOE 440 during their sophomore year.

- BIOE 252 Bioengineering Fundamentals [3 credit hours]
- BIOE 320 Systems Physiology Laboratory Module [1 credit hour]
- BIOE 322 Fundamentals of Systems Physiology [<u>3 credit hours</u>]
- BIOE 330 Bioreaction Engineering [<u>3 credit hours</u>]
- BIOE 332 Bioengineering Thermodynamics [3 credit hours]
- BIOE 342/BIOC 320 Tissue Culture Laboratory [<u>1 credit hour</u>]
- BIOE 370 Biomaterials [<u>3 credit hours</u>]
- BIOE 372 Biomechanics [3 credit hours]
- BIOE 383 Biomedical Engineering Instrumentation [3 credit hours]
- BIOE 385 Biomedical Instrumentation Laboratory [<u>1 credit hour</u>]
- BIOE 391 Numerical Methods [<u>3 credit hours</u>]
- BIOE 420/CHBE 420 Biosystems Transport and Reaction Processes [3 credit hours]
- BIOE 440/STAT 440 Statistics for Bioengineering [1 credit hour]
- BIOE 451 Bioengineering Design I [3 credit hours]
- BIOE 452 Bioengineering Design II [3 credit hours]

Bioengineering Laboratory Courses

Students must complete a total of 2 courses (2 credit hours) from the following (different laboratory modules may be offered each year):

- BIOE 442 Tissue Engineering Laboratory Module [1 credit hour]
- BIOE 443 Bioprocessing Laboratory Module [<u>1 credit hour</u>]
- BIOE 444 Mechanical Testing Laboratory Module [<u>1 credit hour</u>]
- BIOE 445 Advanced Instrumentation Laboratory [<u>1 credit hour</u>]
- BIOE 446 Computational Modeling Laboratory [<u>1 credit hour</u>]
- BIOE 447 Digital Design and Visualization Lab Module* [1 credit hour]
- BIOE 449/GLHT 449 Medical Bioengineering Workshop [1 credit hour]

Note: If BIOE 447 is taken as a Bioengineering Laboratory Course, student should note that MECH 403, listed in the Technical Electives section, will not count as a course that satisfies the Technical Elective requirement.

Biosciences

Students must complete a total of 2 courses (6 credit hours) from the following. Students should complete BIOC 201 during their sophomore year.

- BIOC 201 Introductory Biology [<u>3 credit hours</u>]
- BIOC 341 Cell Biology [3 credit hours]

Chemistry

Students must complete a total of 3 course sequences (11 credit hours) as listed below. Students should complete CHEM 121 and CHEM 123 and CHEM 122 and CHEM 124 during their freshman year, and should complete CHEM 211 and CHEM 213 during their sophomore year.

- CHEM 121 General Chemistry I [3 credit hours] and CHEM 123 General Chemistry Lab [1 credit hour]
- CHEM 122 General Chemistry II [3 credit hours] and CHEM 124 General Chemistry Lab [1 credit hour]
- CHEM 211 Organic Chemistry I [3 credit hours] and CHEM 213 Organic Chemistry Discussion [0 credit]

Computational and Applied Mathematics

Students must complete 1 course (3 credit hours) from the following. Students should complete CAAM 210 during their freshman year.

CAAM 210 Introduction to Engineering Computation [3 credit hours]

Electrical Engineering

Students must complete 1 course (4 credit hours) from the following. Students should complete ELEC 243 during their sophomore year.

ELEC 243 Electronic Measurement Systems [4 credit hours]

Students must complete 4 courses (12 credit hours) from the following. Students should complete MATH 101 and MATH 102 during their freshman year, and MATH 211 and MATH 212 during their sophomore year.

- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [3 credit hours]
- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours]
- MATH 212 Multivariable Calculus [3 credit hours]

Mechanical Engineering

Students must complete 1 course (3 credit hours) from the following:

MECH 211/CEVE 211 Engineering Mechanics [3 credit hours]

Physics

Students must complete 2-4 courses (8 credit hours) depending on course selection as listed below. Students should take both courses during their freshman year.

- PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>] or PHYS 111 Mechanics (with Lab) [<u>4 credit hours</u>]
 - or PHYS 125 General Physics (with Lab) [4 credit hours]
- PHYS 102 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>] and PHYS 104 E & M Discussion [<u>0 credit</u>] or PHYS 112 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>] or PHYS 126 General Physics II (with Lab) [<u>4 credit hours</u>]

TECHNICAL ELECTIVES

To fulfill the remaining BIOE major requirements, students must complete a minimum of 3 courses (9 credit hours) and 6 engineering points from the Technical Elective course offerings. A combination of technical electives must be selected that meets a minimum of 3 courses, 9 credit hours and 6 engineering points.

Please note: The following list of courses that satisfy the approved technical electives requirement are for this academic year (2016-2017) only. Courses not on this official list may be substituted upon approval of the department's Director of Undergraduate Studies. Students and their academic advisors should identify and clearly document the requirements to be followed, and the corresponding courses to be taken.

Engineering Points

Courses listed below may count toward the Technical Elective requirement (minimum of 3 courses, 9 credit hours and 6 engineering points), and will carry the following Engineering Point values.

0 Engineering Points

BIOE 401 Undergraduate Research [<u>1-4 credit hours</u>]

1 Engineering Point

- BIOE 392/GLHT 392 Needs Finding and Development in Bioengineering [3 credit hours]
- BIOE 400 Engineering Undergraduate Research [3 credit hours minimum to obtain 1 engineering point, see Notes below]
- BIOE 403 Advanced in Bionanotechnology [3 credit hours]
- BIOE 408 Synthetic Biology [3 credit hours]
- BIOE 422 Gene Therapy [3 credit hours]
- BIOE 464/BIOC 464 or BIOE 524/BIOC 523 Extracellular Matrix [3 credit hours]
- BIOE 480/ELEC 480 Introduction to Neuroengineering [3 credit hours]
- BIOE 485/COMP 485/ELEC 485 Fundamentals of Medical Imaging I [3 credit hours]
- BIOE 486/COMP 486/ELEC 486 Fundamentals of Medical Imaging II [3 credit hours]
- BIOE 492 Sensory Neuroengineering [<u>3 credit hours</u>]
- BIOE 523/CHBE 523 Bioengineering Systems and Control [3 credit hours]
- BIOE 580/CHBE 580 Protein Engineering [3 credit hours]
- BIOE 587 Optical Imaging and Nanobiophotonics [3 credit hours]
- BIOE 589/BIOC 589 Computational Molecular Bioengineering/Biophysics [3 credit hours]
- BIOE 620/CHBE 620 Tissue Engineering [<u>3 credit hours</u>]
- CHBE 310 Fundamentals of Biomolecular Engineering [<u>3 credit hours</u>]
- ENGI 300 Engineering Design Workshop [1 engineering point for every hour completed, see Notes below]

2 Engineering Points

- BIOE 307 Systems Biology of Blood Vessels [3 credit hours]
- BIOE 321 Cellular Engineering [3 credit hours]
- BIOE 381/ELEC 381 Fundamentals of Nerve and Muscle Electrophysiology [3 credit hours]
- BIOE 431 Biomaterials Applications [3 credit hours]
- BIOE 481/ELEC 481/NEUR 481 Computational Neuroscience and Neural Engineering [3 credit hours]
- BIOE 482/ELEC 482 Physiological Control Systems [3 credit hours]
- BIOE 643/BIOC 643/PHYS 643 Cell Mechanics, Mechanotransduction, and the Cell Microenvironment [3 credit hours]
- CHBE 640/BIOC 540 Metabolic Engineering [3 credit hours]
- COMP 571/BIOC 571 Bioinformatics: Sequence Analysis [3 credit hours]

3 Engineering Points

- BIOE 360/GLHT 360 Appropriate Design for Global Health [3 credit hours, see Notes below]
- BIOE 421 Microcontroller Applications [3 credit hours]
- BIOE 454/MECH 454/CEVE 454 Computational Fluid Mechanics [3 credit hours]
- BIOE 484 or BIOE 512 Biophotonics Instrumentation and Applications [3 credit hours]
- BIOE 490 Introduction to Computational Systems Biology [3 credit hours]
- BIOE 574 Continuum Biomechanics [3 credit hours]
- CHBE 390 Chemical Kinetics and Reactor Design [<u>3 credit hours</u>]
- COMP 502/ELEC 502/STAT 502 Neural Machine Learning I [3 credit hours]
- ELEC 301 Signals, Systems, and Learning [<u>3 credit hours</u>]
- ELEC 342 Analog Electronic Circuits [3 credit hours]
- ELEC 435/MECH 435 Introduction to Energy-Efficient Mechatronics [3 credit hours]
- MECH 311/CEVE 311 Mechanics of Solids and Structures [3 credit hours]
- MECH 371 Fluid Mechanics I [<u>3 credit hours</u>]
- MECH 400 Advanced Mechanics of Materials [<u>3 credit hours</u>]
- MECH 403 Computer Aided Design [<u>3 credit hours, see Notes below</u>]
- MECH 417/CEVE 417 Finite Element Analysis [3 credit hours]
- MECH 420/ELEC 436 Fundamentals of Control Systems [3 credit hours]
- MECH 488 Design of Mechatronic System [<u>3 credit hours</u>]
- MSNE 402 Mech Properties of Materials [<u>3 credit hours</u>]

4 Engineering Points

MECH 343 Modeling of Dynamic Systems [4 credit hours]

Notes

Students need to be aware of additional information impacting some courses listed above:

- BIOE 400: Students may earn 1 engineering point for every 3 credit hours completed. A maximum of 2 engineering points can be applied towards the 6 points requirement by completing BIOE 400 courses.
- ENGI 300: Students may earn 1 engineering point for every credit hour completed. A maximum of 4 engineering points, and 6 credit hours, may be applied towards the Technical Elective requirement from ENGI 300 or from a combination of independent research and/or design courses (i.e. ENGI 300, BIOE 400, BIOE 401, BIOE 360/GLHT 360).
- BIOE 360: This course is a design course. See ENGI 300 Note. A maxium of 4 engineering points, and 6 credit hours, may
 be applied towards the Technical Elective requirement from independent research and/or design courses.
- MECH 403 can be applied toward the Technical Elective requirement in the event that BIOE 447 is not completed as a Senior Lab requirement.

Minor in Global Health Technologies

The Department of Bioengineering collaborates with a number of departments to offer Rice undergraduate students a minor in Global Health Technologies (GLHT) through the Beyond Traditional Borders (BTB) initiative—a unique, multidisciplinary program to educate and train students to reach beyond traditional disciplinary and geographic boundaries to understand, address, and solve global health disparities. With complementary contributions from the humanities, social sciences, policy, bioscience, and engineering programs at Rice, the GLHT minor prepares students to integrate diverse perspectives as they develop solutions to the complex problems of global health, using the formal approach of the engineering design process.

See Global Heath Technologies 🗗 for minor requirements.

Description and Code Legend

***NOTE:** Internally, the university uses the following abbreviations (4-digit codes) to identify the Bioengineering undergraduate degree and major. The following is a quick reference:

Department Description and Code			
- Bioengineering: BIOE			
Degree Description and Code			
- Bachelor of Science in Bioengineering	degree: BSBE		
Major Description and Code			
- Major in Bioengineering: BIOE			

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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Bioengineering >

Undergraduate Students

Non-Traditional Students

Administration and Faculty

Graduate Students

Programs of Study

Important Notices

Faculty

Bioeng

The Geor

Department Undergraduate Graduate Course Info Requirements Requirements Listings Jump to: MBE Degree Program MS Degree Program in Bioegineering PhD Degree in Bioengineering Requirements and Program Learning Outcomes for the MBE and MS and PhD

Degrees in Bioengineering

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 capability for transferring 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.

Program Learning Outcomes for the Master of Bioengineering Degree (MBE)

Program Learning Outcomes for the Applied Bioengineering Track

Upon completing the MBE degree, students pursuing the Applied Bioengineering track requirements will be able to:

- 1. Apply and integrate advanced knowledge of Bioengineering topics in at least one of the following areas: Biomaterials and Drug Delivery, Biomedical Imaging and Diagnostics, Computational and Theoretical Bioengineering, Tissue Engineering and Biomechanics, or Systems and Synthetic Biology.
- 2. Apply knowledge from engineering and other disciplines to identify, formulate, and solve novel and complex problems that require advanced knowledge in bioengineering.
- 3. Select and apply quantitative analytic techniques to analyze bioengineering data.
- 4. Gain admission to a graduate or professional program, if students want to pursue further education.

Program Learning Outcomes for the Global Medical Innovation track

Upon completing the MBE degree, students pursuing the Global Medical Innovation track requirements will be able to:

- 1. Apply knowledge of Bioengineering topics in at least one of the following areas: Biomaterials and Drug Delivery, Biomedical Imaging and Diagnostics, Computational and Theoretical Bioengineering, Tissue Engineering and Biomechanics, or Systems and Synthetic Biology.
- 2. Develop effective medical products, from concept to commercialization, within a team environment.
- 3. Comprehend and navigate the global medical technology industry by leveraging an internship experience.
- 4. Gain employment or advance professionally in a technical field related to bioengineering.

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Requirements for the Master of Bioengineering Degree (MBE)

For general university requirements, see Graduate Degrees. Students pursuing the Master of Bioengineering degree must complete:

- A minimum of 30 credit hours to satisfy major requirements.
- One track as listed below.

The Master of Bioengineering degree is intended for those having a BA or BS degree in an engineering or science discipline.

There are two tracks in the Master of Bioengineering program:

- Applied Bioengineering: designed as a flexible degree for students who will pursue careers in research, medicine, or related fields.
- Global Medical Innovation: designed specifically for students who will pursue a career in the global medical technology industry. As the medical technology industry becomes increasingly global with an emphasis in cost-effective health care solutions and clinical outcomes, Rice University seeks to prepare engineers for this new and changing environment. This track of the MBE degree is designed to prepare engineers for careers in medical technology through education in innovation, emerging-market design projects and internships. The Rice MBE track in Global Medical Innovation program specifically targets students who have an undergraduate degree in engineering (mechanical, electrical, chemical, or bioengineering/medical) or a related field, and who are interested in pursuing a career in the private, public, or non-profit sectors of medical technology.

Both tracks have the same prerequisites, though applicants will be evaluated considering the different purposes of each track. More information about each of these tracks can be found below. Students may enroll for the Applied Bioengineering track on a full-time or part-time basis. Students may only enroll on a full-time basis for the Global Medical Innovation track. Curriculum must be approved by the Graduate Academic Affairs Committee and the Bioengineering Department. This is done on a case-bycase basis.

REQUIREMENTS FOR THE APPLIED BIOENGINEERING TRACK

Students pursuing the Applied Bioengineering track must complete:

- 15 credit hours from departmental course offerings (BIOE) at the 500-level or above.
- 9 credit hours of graduate level professional development electives chosen from a specific list of approved courses (see below for list).
- 3 credit hours courses taken as electives at the 500-level or above.
- 3 credit hours of a MATH, CAAM, or STAT departmental course offering at the 500-level or above (400-level courses may be considered with the approval of an academic advisor, and BIOE 539 may count toward this requirement).
- A minimum GPA of 3.0.

Professional Development Electives

Students must complete 3 courses (minimum of 9 credit hours) from the following (additional course offerings may be completed with advisor approval):

- BIOE 610/PHYS 610 Methods of Molecular Simulation [3 credit hours]
- BIOE 627 Clinical Needs for Medical Technology Development [3 credit hours]
- BIOE 628 Medical Technology Design [3 credit hours]
- BIOE 629 Prototyping, Testing, and Verification of Medical Technologies [1.5 credit hours]
- BIOE 630 Implementation and Commercialization of Medical Technologies [1.5 credit hours]
- BIOE 633 Life Science Entrepreneurship [1.5 credit hours]
- ENGI 510 Technical and Managerial Communications [3 credit hours]
- ENGI 515 Leading Teams and Innovation [3 credit hours]
- ENGI 529 Ethics and Engineering Leadership [3 credit hours]
- ENGI 545/LEAD 545 Strategic Thinking [<u>3 credit hours</u>]
- MGMT 734 Technology Entrepreneurship [3 credit hours]

REQUIREMENTS FOR THE GLOBAL MEDICAL INNOVATION TRACK

Students pursuing the Global Medical Innovation track must complete:

- A minimum of 30 credit hours as listed below.
- A minimum GPA of 3.2.

CORE REQUIREMENTS

Students must complete 6 courses (15 credit hours) as listed below:

Medical Technology Design

Students must complete the following 2 courses (6 credit hours):

- BIOE 527 Global Medical Innovation Design Lab I [3 credit hours]
- BIOE 529 Global Medical Innovation Design Lab III [3 credit hours]

Medical Technology Implementation

Students must complete the following 2 courses (6 credit hours):

- BIOE 528 Global Medical Innovation Design Lab II [3 credit hours]
- BIOE 530 Global Medical Innovation Design Lab IV [<u>3 credit hours</u>]

Industry Seminar Series

Students must complete the following 2 courses (3 credit hours):

- BIOE 627 Clinical Needs for Medical Technology Development [<u>1.5 credit hours</u>]
- BIOE 628 Medical Technology Design [<u>1.5 credit hours</u>]

INTERNSHIP OR INDEPENDENT STUDY

Students must complete 6 credit hours from an internship or independent study course, which may be completed during the summer (BIOE 600), or during the fall and spring semesters (BIOE 506). This will be considered on a case-by-case basis, and the student is responsible for obtaining and selecting an internship that best aligns with their career goals.

ELECTIVES

Students must complete 3 courses as electives (9 credit hours) as listed below.

Professional Development Electives

Students must complete 1 course (3 credit hours) from the following:

- BIOE 610/PHYS 610 Methods of Molecular Simulation [3 credit hours]
- BIOE 627 Clinical Needs for Medical Technology Development [3 credit hours]
- BIOE 628 Medical Technology Design [<u>3 credit hours</u>]
- BIOE 629 Prototyping, Testing, and Verification of Medical Technologies [<u>1.5 credit hours</u>]
- BIOE 630 Implementation and Commercialization of Medical Technologies [1.5 credit hours]
- BIOE 633 Life Science Entrepreneurship [1.5 credit hours]
- ENGI 510 Technical and Managerial Communications [3 credit hours]
- ENGI 515 Leading Teams and Innovation [3 credit hours]
- ENGI 529 Ethics and Engineering Leadership [3 credit hours]
- ENGI 545/LEAD 545 Strategic Thinking [3 credit hours]
- MGMT 734 Technology Entrepreneurship [<u>3 credit hours</u>]

Directed Electives

Students must complete 2 courses (6 credit hours) as listed below.

MATH, CAAM, or STAT Elective

Students must complete 1 course (3 credit hours) from the MATH, CAAM, or STAT course offerings at the 500-level or above (400-level courses may be considered with the advisors approval, and BIOE 539 may count toward this requirement).

BIOE Elective

Students must complete 1 course (3 credit hours) from a departmental course offering (BIOE) at the 500-level or above.

back to menu

Requirements for the MS Degree in Bioengineering

For general university requirements, see Graduate Degrees. Students pursuing the MS degree in Bioengineering must complete:

- A minimum of 30 credit hours to satisfy degree requirements. MS students must earn additional credits they need for graduation by registering for the master's research course BIOE 500 during the terms they are engaged in research.
- A minimum of 18 credit hours from foundation, supporting, and advanced courses.
- A minimum GPA of 3.0.

In addition, students must:

- Show evidence on their undergraduate transcript of completion of fundamentals of systems physiology, cell biology, and statistics. (If courses were not taken for an undergraduate degree, they must be completed at the beginning of the MS program. Only one of these courses may be used as credit toward the 30 hours of required courses.)
- Fulfill a teaching requirement
- Submit an original research thesis
- Defend the thesis in a public oral examination

Program Learning Outcomes for the PhD Degree Program in Bioengineering

Upon completing the PhD degree in Bioengineering, students will be able to:

- 1. Work as independent researchers.
- Acquire a graduate-level understanding of foundations in Bioengineering and apply this material across a variety of subdisciplines.
- 3. Integrate knowledge from different sources to solve a defined Bioengineering problem.
- 4. Acquire deep knowledge in a sub-discipline in which they will pursue their dissertation.
- 5. Demonstrate professional skills in both oral and written communication.

back to menu

Requirements for the PhD Degree in Bioengineering

For general university requirements, see Graduate Degrees. Students pursuing the PhD degree in Bioengineering must complete:

- A minimum of 90 credit hours to satisfy degree requirements. In addition to foundation, PhD students must earn additional credits they need for graduation by registering for the PhD research course, BIOE 500, during the terms they are engaged in research.
- A minimum of 30 credit hours from foundation, supporting, and advanced courses with high standing.
- A minimum GPA of 3.2.

In addition, students must:

- Show evidence on their undergraduate transcript of completion of fundamentals of systems physiology, cell biology, and statistics. (If courses were not taken for an undergraduate degree, they must be completed at the beginning of the PhD program. Only one of these courses may be used as credit for the 30 required courses.)
- Fulfill a teaching requirement. After their first semester in residence, students may be asked to spend the equivalent of six to 10 hours per week for a total of three semesters on teaching assignments.
- Submit a thesis proposal. PhD students must submit and successfully defend their thesis proposals by the end of their fourth semester in residence.
- 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:

- Systems and Synthetic Biology
- Biomaterials and Drug Delivery
- Tissue Engineering and Biomechanics
- Computational and Theoretical Bioengineering
- Biomedical Imaging and Diagnostics
- Cellular and Biomolecular Engineering

Admissions

To make sure scores are available when admission decisions are made, applicants need to register to take the GRE and, if an international student, the TOEFL at least three months before the application deadline. Applicants should also request transcripts at least two months in advance to give senders time to get the material to Rice University by the deadline. The application deadline for MBE students for spring admission the following year is October 30th. The application deadline for MBE students for fall admission in the same year is April 30th. The application deadline for PhD students for fall admission of the following year is December 20th. PhD students are not admitted in the spring semester. Application materials received after the deadline will not be considered. Once admitted, departmental policy requires full-time PhD students to be registered for at least 12 credit hours each semester. MBE students in the Applied Bioengineering track students may register part-time with the permission of the department. MBE students in the Global Medical Innovation track are expected to attend full time.

MD-PhD Dual Degree

An MD-PhD dual degree program is also offered by the Rice University Bioengineering Department and Baylor College of Medicine. This program prepares students for research careers in medicine. Students must be accepted into the MD/PhD program initially through the Baylor College of Medicine.

back to menu

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Bioengineering graduate degree programs. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: BIOE

- Department Description and Code
 - Bioengineering: BIOE
- Degree Descriptions and Codes
 - Master of Bioengineering degree: MBE
 - Master of Science degree: MS
 - Doctor of Philosophy degree: PhD

Degree Program Description and Code

- Degree Program in Bioengineering: BIOE

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University Calendar

Rice A-Z

Maps-Directions Feedback

RICE

236 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Bioengineering >

Undergraduate Students	Bioengineering						
Graduate Students	The George R. Brown School of Engineering						
Non-Traditional Students	Department Undergraduate Graduate Course						
▶ Faculty	Info Requirements Requirements Listings Course Listings Info Info						
Programs of Study	The official course offerings, including course descriptions, for Bioengineering can be found in Rice's Course Catalog.						
Administration and Faculty	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.						
Important Notices	For additional information regarding Bioengineering, see the department's website: http://bioe.rice.edu/.						
	Last Revised : August 24, 2016						

General Announce	ements 6100 I	Main MS-10, Houston,	Texas 77005-1827	Mailing Address: P.C). Box 1892, Houston, Tex	kas 77251-1892
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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Bioscience and Health Policy >

Undergraduate Students	Bioscience and Health Policy						
Graduate Students	The Wiess School of Natur	ral Sciences					
Non-Traditional Students	Department	Undergraduate	Graduate	Course			
▶ Faculty	Info	Requirements	Requirements	Listings			
Programs of Study	Director Janet Braam		ecturers Isan Cates				
Administration and Faculty	Professors	Kir	rstin R. W. Matthews				
Important Notices	Andrew R. Barron George N. Bennett						
	Peter R. Hartley Kathleen S. Matthews						
	Associate Professors Daniel S. Wagner						

Program (Undergraduate): N/A

Program (Graduate): MSBHP degree

Rice University offered this degree for the first time in 2011. This degree is geared to train students in bioscience and health policy with the intent of creating new options for science students interested in working in health care management, for the government, or in governmental relations positions at non-profit organizations, industry, and academic institutions. As an interdisciplinary program it aims to equip students with advanced bioscience skills; to teach quantitative skills and data analysis; to equip students with communication and research skills to conduct independent studies enabling them to understand, and formulate public policy recommendations; and to train students how to integrate their science knowledge into creating better policies and practices.

This degree is one of five degrees in the 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 and government. This program will give students an advanced background in science complemented by courses in business, economics, humanities, and policy studies to foster their understanding of the role of science in policy making and the role of public policy in science. Their coursework will provide them with research and study skills enabling them to develop specific policy recommendations, and they will also receive the tool-set to become knowledgeable in the formulation and execution of public policy. Their direct access to the Baker Institute will allow them to work closely with policy scholars as well as meet with many of the leaders in science and technology policy.

Students receiving the MS in Bioscience and Health Policy degree will be able to enter into governmental positions, work in nongovernmental agencies, medical and pharmaceutical companies, and serve as governmental relations officers for companies or universities with a vested science interest.

A coordinated MBA/MSBHP degree is offered in conjunction with the Jesse H. Jones Graduate School of Business.

Last Revised : August 17, 2016

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

Web Services

2016-2017 > Programs of Study > Bioscience and Health Policy >

Undergraduate Students	Bioso	Bioscience and Health Policy								
► Graduate Students	The Wi	The Wiess School of Natural Sciences								
Non-Traditional Students		Department Info	Undergraduate	Graduate	Course					
▶ Faculty	Under	rgraduate Require	Requirements ements	Requirements	Listings					
Programs of Study	Bioscien	ce and Health Policy does	not offer an academic program	n at the undergraduate level.						
Administration and Faculty										
Important Notices										
	Last Revise	ed : August 12, 2016								

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Rice Home

University Calendar

Rice A-Z

Maps-Directions Feedback

SEARCH GA



Previous Editions

Listings

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Bioscience and Health Policy >

Undergraduate Students	Bioscience and Health Policy						
Graduate Students	The Wiess School of Natural Sciences						
Non-Traditional Students	Department Undergraduate Graduate Course						

Requirements

- Faculty
- Programs of Study

Administration and Faculty

Important Notices

Program Learning Outcomes for MS in Bioscience and Health Policy (MSBHP)

Requirements

Students graduating from this program will:

Info

- 1. Become knowledgeable in current advanced bioscience topics affecting society.
- 2. Be able to integrate science knowledge into better policies and practices.
- 3. Demonstrate written, oral, and visual communication strategies required to bridge the gaps between science, business, and policy.
- 4. Expand theoretical knowledge by participating in a real life experience related to biosciences and/or health policy.

Requirements for the MS in Bioscience and Health Policy Degree (MSBHP)

For general university requirements, see Graduate Degrees. Students pursuing the MSBHP degree program must complete:

- A minimum of 14 courses (39 credit hours) to satisfy degree requirements.
- A 3-6 month internship. At the conclusion of their internship, students must present a summary of their internship project in both oral and written form as part of the professional master's seminar.
- A minimum of 30 credit hours at the 500-level or above .

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.

CORE REQUIREMENTS

Students must complete a total of 12 courses (33 credit hours) as listed below to satisfy the MSBHP degree program's Core Requirements.

Science Core Courses

Students must complete a total of 4 courses (12 credit hours) from the following. These courses give in-depth instruction in specialized areas of Bioscience and are required to obtain a broad understanding of diverse areas of cutting edge Bioscience research. *Courses marked with asterisks are offered as 300-level courses that will include graduate level writing and analysis to qualify as a 500-level graduate course.

- BIOC 524* Microbiology and Biotechnology [3 credit hours]
- BIOC 525 Plant Molecular Genetics and Development [3 credit hours]
- BIOC 540/CHBE 540 Metabolic Engineering [3 credit hours]
- BIOC 544 Development Biology [<u>3 credit hours</u>]
- BIOC 545 Advanced Molecular Biology and Genetics [3 credit hours]
- BIOC 547 Biology and Medicine [3 credit hours]
- BIOC 550 Viruses and Infectious Diseases [<u>3 credit hours</u>]
- BIOC 560/BIOE 560 Cancer Biology [3 credit hours]
- BIOC 563* Endocrinology [3 credit hours]
- BIOC 570 Computation with Biological Data [3 credit hours]
- BIOC 573* Immunology [3 credit hours]
- BIOC 580/BIOE 580/CHBE 580 Protein Engineering [3 credit hours]
- BIOC 585* Fundamentals of Cellular, Molecular, and Integrative Neuroscience [3 credit hours]

Other Science Course options accepted as marked * in electives below

Cohort Courses

Students must complete the following 4 courses (9 credit hours):

- NSCI 501 Professional Master's Seminar [required for two semesters, 1 credit hour each]
- NSCI 511 Science Policy and Ethics [<u>3 credit hours</u>]
- NSCI 512 Internship Project [<u>1 credit hour</u>]
- NSCI 610/ENGI 610 Management in Science and Engineering [3 credit hours]

Analytical Competency Requirement

The analytical competency requirement provides career-enhancing, marketable skills in policy analysis, economics and statistics. Students will take courses from groups A, B and C as indicated below:

A- Statistics or Data Analytics

Students must complete 1 course (3-4 credit hours) from the following:

- STAT 305 Intro to Statistics in Biosciences [4 credit hours]
- STAT 385 Methods of Data Analysis [4 credit hours]
- STAT 553 Biostatistics [<u>3 credit hours</u>]
- STAT 684/CEVE 684 Environmental Risk Assessment and Human Health [3 credit hours]
- MGMT 750 Strategic Considerations in Health Informatics [<u>1.5 credit hours</u>]

B–Finance or Economics

Students must complete 1 course (3 credit hours) from the following:

- ECON 450 Economic Development [<u>3 credit hours</u>]
- ECON 481 Health Economics [3 credit hours]
- MGMT 673 Cost Analysis in Healthcare [1.5 credit hours]
- MGMT 679 Cost and Quality in Health Care [<u>1.5-3 credit hours</u>]
- MGMT 751 Economics of Healthcare Sectors [<u>1.5 credit hours</u>]
- PH 3910* Introduction to Health Economics

C–Policy Courses

Students must complete 2 courses (minimum of 6 credit hours) from the following:

- POST 530 Shaping of Health Policy [<u>3 credit hours</u>]
- ANTH 581 Medical Anthropology [<u>3 credit hours</u>]
- ANTH 643 Race, Ethnicity, and Health [3 credit hours]
- HEAL 580 Disparities in Health in America [3 credit hours]
- MGMT 690 Healthcare Strategy [<u>1.5 credit hours</u>]
- MGMT 691 Negotiations for Healthcare [<u>1.5 credit hours</u>]
- MGMT 694 Interpersonal Communication in Healthcare [<u>1.5 credit hours</u>]

THREE TO SIX MONTH INTERNSHIP

Practical experience is offered via a three to six month work immersion. The internship will be under the guidance of a host company, government agency, or non-profit organization. A summary of the internship project is required in both oral and written form as part of the Professional Master's Seminar.

ELECTIVES

To fulfill the remaining MSBHP degree program requirements, students must complete a total of 2 additional courses (6 credit hours) from the following. The electives reflect individual academic interests and career goals. Any course from the above list of Bioscience courses can be taken as an elective, provided it was not taken as a required course. In addition, the following classes qualify as elective classes:

- ANTH 581 Medical Anthropology [<u>3 credit hours</u>]
- ANTH 643 Race Ethnicity and Health [<u>3 credit hours</u>]
- ECON 450 World Economy and Social Development [3 credit hours]
- HEAL 507 Epidemiology [<u>3 credit hours</u>]
- HEAL 560 Planning, Evaluation of Health Promotion and Education [3 credit hours]
- MGMT 623 Commercialization in Pharma [<u>1.5 credit hours</u>]
- MGMT 633/BIOE 633 Life Science Entrepreneurship [<u>1.5 credit hours</u>]
- MGMT 678 U.S. Healthcare Management [<u>1.5 credit hours</u>]
- MGMT 712 Process Management and Quality Improvement [<u>1.5 credit hours</u>]
- MGMT 738 Customer Focus in Healthcare and Service Industries: A Strategic Approach [1.5 credit hours]

- PHIL 336 Topics in Medical Ethics [3 credit hours]
- STAT 684/CEVE 684 Environmental Risk Assessment and Human Health [3 credit hours]
 - GS 120254* Cell and Systems Physiology
 - GS 120043* Principles of Pathology

*There are other courses that may satisfy the Two Elective Courses requirement. For example, Students can choose up to two electives from UT Graduate School of Biomedical Science (GS), Informatics (HI) and/or Health Science Center (PH). See department for more details.

Note: Some of the listed courses are not offered every year, and some may also have prerequisites or require instructor permission. If student needs to take more than two 300/400 courses as part of the degree program, permission of advising faculty is required.

Professional Science Master's 5th Year Degree Option for Rice Undergraduates

Rice students have an option to achieve the MS in Bioscience and Health Policy degree by adding an additional fifth year to the four undergraduate years of science studies. Advanced Rice students in good standing may apply during their junior year to the graduate program. Upon acceptance, depending on course load, financial aid status, and other variables they may then start taking required core courses of the bioscience and health policy program during their senior year. A plan of study based on their particular focus area will need to be approved by the program director and the PSM director. Students should be aware there could be financial aid implications, if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time (12 hours) status.

Admission

Admission to graduate study in Bioscience and Health Policy is open to qualified students holding a bachelor's degree in biology or a related field that includes completed course work in biology, chemistry, calculus and statistics. Scores from the general Graduate Record Examination (GRE), good critical thinking and communication skills and completed course work in introductory economics is preferred. Department faculty evaluate the previous academic record and credentials of each applicant individually and make admission decisions.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Bioscience and Health Policy graduate degree program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses from other department apply towards the graduate degrees in Bioscience and Health Policy.

Rice A-Z

- Department Description and Code
- Biosciences: BIOS
- Degree Descriptions and Codes

- Master of Science in Bioscience and Health Policy degree: MSBHP

Degree Program Description and Code

- Degree Program in Bioscience and Health Policy: BSHP

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University Calendar

Maps-Directions Feedback

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Bioscience and Health Policy >

Undergraduate Students	Bioso	cience and He	ealth Policy						
▶ Graduate Students	The Wi	The Wiess School of Natural Sciences							
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings				
▶ Faculty	Cours	e Listings	Requirements	Nequirements	Listings				
Programs of Study	The offic	ial course offerings, includ	ding course descriptions, listed	d in the Bioscience and Heal	th Policy Graduate Requirement	ts			
Administration and Faculty		an be found in Rice's Cou	, , , , , , , , , , , , , , , , , , ,						
Important Notices	To view t	the most recent course scl	hedule for the 2016-2017 acad	demic year, see Rice's Cour	se Schedule.				
	website:	ional information regarding http://www.profms.rice.ed	g Bioscience and Health Polic lu/bios.aspx?id=869.	cy, see the department's					
	Last Revise	d : August 24, 2016							

General Announce	ements 6100 Ma	ain MS-10, Houston,	Texas 77005-1827	Mailing Address: P.O. I	Box 1892, Houston, Tex	as 77251-1892
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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > BioSciences >

dergraduate Students	BioSciences							
aduate Students	The Wiess School of Natural Sciences							
on-Traditional Students	Department Info	Undergraduate	Graduate	Course				
culty	inio	Requirements	Requirements	Listings				
ograms of Study	Chair		eaching Faculty					
Iministration and Faculty	Janet Braam		eth Beason Abmayr avid R. Caprette					
	Professors		drienna M.S. Correa					
portant Notices	Bonnie Bartel		lizabeth Eich					
	Kathleen Beckingham		assidy Johnson					
	George M. Bennett		indsey Minter					
	Daniel D. Carson		Ima Novotny					
	Mary C. Farach-Carson		ereth Phillips					
	Michael C. Gustin	S	cott Solomon					
	Herbert Levine Seiichi P. T. Matsuda	۵	ssistant Research Professor	e				
	Kathleen S. Matthews		leenakshi Bhattacharjie	5				
	George McLendon		/assim Chehab					
	John S. Olson		amela Constantinou					
	Jose Onuchic		aniel Harrington					
	George N. Phillips		mitri Lapotko					
	Yousif Shamoo		irstin Matthews					
	Evan Siemann	K	IISUIT Matulews					
	Michael Stern	L						
	Charles R. Stewart		uxley Fellows					
	Peter Wolynes		mily Jones elly Weinersmith					
	r eter worynes	K						
	Associate Professors	A	djunct Faculty					
	Oleg Igoshin	R	ichard Behringer					
	Michael Kohn	S	arah Bondos					
	Peter Lwigale	R	obert O. Fox					
	James A. McNew	Н	aichun Gao					
	Luay K. Nakleh	Je	eff Glassberg					
	Edward P. Nikonowicz	R	ichard H. Gomer					
	Volker Rudolf	N	ancy Greig					
	Laura Segatori	Μ	laria Hartley					
	Jonathan Silberg	K	endal Hirschi					
	Yizhi Jane Tao	0	livier Lichtarge					
	Daniel Wagner	Ji	anpeng Ma					
		P	aolo Moretti					
	Assistant Professors	Jo	ordan Orange					
	Matthew Bennett	Ti	imothy Palzkill					
	Amy Dunham	D	abananda Pati					
	Scott Egan	Ν	eal Pellis					
	Natalia Kirienko	F	lorante A. Quiocho					
	Tom Miller	S	usan Rosenberg					

RICE

Julia Saltz Jeffrey J. Tabor Aryeh Warmflash Weiwei Zhong

Professors Emeriti

Frank Fisher, Jr. Raymon M. Glantz Paul Harcombe Jordan Konisky Graham Palmer David Queller Ronald Sass Stephen Subtelny Joan Strassman Calvin Ward Clarence Sams Shelley Sazer Yigong Shi Ah-Lim Tsai Theodore G. Wensel Peggy Whitson Huda Y. Zoghbi

Programs (Undergraduate): BA degree, BS degree, Minor

Programs (Graduate): MA degree, MS degree, PhD degree

The BioSciences department unites faculty engaged in research and teaching in a wide range of disciplines within the life sciences, creating a vibrant and diverse community of scholars. The department offers undergraduate degrees in Biochemistry and Cell Biology (BA, BS), Biological Sciences (BA), and Ecology and Evolutionary Biology (BA, BS). The BA degrees offer a rigorous biological curriculum suitable for a large number of career paths yet allow the flexibility for extended academic exploration outside of biology. The BS degrees offer greater depth in upper-level coursework and are often chosen for students pursuing advanced degrees in the future. Most BioSciences students, regardless of major, participate in undergraduate research, availing themselves of the numerous research opportunities at Rice and in the Houston community.

Graduate degrees are offered in Biochemistry and Cell Biology (PhD, MA) and in Ecology and Evolutionary Biology (PhD, MA, MS). Graduate studies include a combination of advanced coursework and individual research with faculty mentors.

Rice A-Z

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University Calendar

Maps-Directions

Feedback

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RICE
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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > BioSciences >

dergraduate Students	BioSciences

The Wiess School of Natural Sciences

- Graduate Students
- Non-Traditional Students
- Faculty

▶ Un

- Programs of Study
- Administration and Faculty
- Important Notices

	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
Jump to:				
Biocher	nistry and Cell Biology			
BS a	nd BA in Biochemistry and	Cell Biology		
Mino	r in Biochemistry and Cell E	liology		
BA, N	/A, PhD in Biochemistry an	d Cell Biology		
Ecology	and Evolutionary Biolog	у		
BS a	nd BA in Ecology and Evolu	tionary Biology		
Mino	r in Ecology and Evolutiona	ry Biology		
Biologic	al Sciences			
BA in	Biological Sciences			

The Department of BioSciences offers a broad range of introductory and advanced courses. Students may pursue a BS or BA in Biochemistry and Cell Biology, a BS or BA in Ecology and Evolutionary Biology, a BA in Biological Sciences, or a Minor in Biochemistry and Cell Biology, or a Minor in Ecology and Evolutionary Biology. All five major degree paths will prepare students for graduate, medical, or other professional schools and a wide range of careers in the life sciences. In addition, qualified students may apply to the Biochemistry and Cell Biology BA-MA-PhD program track. Additional information on departmental programs, courses and advising is available at the BioSciences website.

Students majoring in Biological Sciences may not additionally major or minor in either Biochemistry & Cell Biology or in Ecology & Evolutionary Biology. Students may major in Biochemistry & Cell Biology with a minor in Ecology & Evolutionary Biology or major in Ecology & Evolutionary Biology with minor in Biochemistry & Cell Biology.

Advising

Students pursuing Biochemistry and Cell Biology or Ecology and Evolutionary Biology degree paths (BS, BA or minor) should contact one of the Biochemistry and Cell Biology or Ecology and Evolutionary Biology program advisors. Those electing a BA in Biological Sciences may opt for advising within the program (Biochemistry and Cell Biology or Ecology and Evolutionary Biology) that most closely corresponds to their interests; students are welcome to switch the program through which they are advised at any time. A current list of advisors in both programs is found in the Undergraduate section of the BioSciences website.

Program Learning Outcomes for the BS and BA Degrees with a Major in Biochemistry and Cell Biology

Upon completing the BS or BA degrees, students majoring in Biochemistry and Cell Biology will be able to:

- 1. Demonstrate a comprehensive knowledge of biology with particular emphasis on biochemistry, genetics, and cell biology.
- Demonstrate the ability to apply the modern scientific method, including designing experiments and/or building
 mathematical models, and collecting, analyzing, and interpreting data using common statistical methods and software
 programs.
- 3. Demonstrate effective oral and written communication skills, including an ability to effectively communicate and work with diverse groups and the ability to interpret and communicate the results of original research.
- 4. Locate primary scientific literature and demonstrate the ability to use critical thinking and problem solving skills to evaluate published and proposed research in the biological sciences and to apply these skills.
- 5. Demonstrate understanding of the practice and culture of science, scientific ethics, and the relationship between science

and society.

247 of 923

Requirements for the BS and BA Degrees with a Major in Biochemistry and Cell Biology

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Biochemistry and Cell Biology (BIOC) must complete:

- A minimum of 26 courses (63 credit hours) to satisfy major requirements.
- A minimum of 123 credit hours to satisfy degree requirements.

Students pursuing the BS degree with a major in Biochemistry and Cell Biology (BIOC) must complete:

- A minimum of 28 courses (69 credit hours) to satisfy major requirements.
- A minimum of 129 credit hours to satisfy degree requirements.

These paths emphasize a broad understanding of cell biology and biochemistry, provide room for exploration anywhere in the Natural Sciences or Engineering, and culminate in one (BA) or two (BS) required 400-level capstone courses incorporating primary scientific literature, presentations, and writing. Students in Biochemistry and Cell Biology are strongly encouraged to pursue their research interests through independent research experiences. The BS offers greater coverage and depth while the BA offers greater flexibility with two fewer required courses as detailed below.

CORE REQUIREMENTS

Students pursuing the BA degree must complete a total of 21 courses (54 credit hours) as listed below to satisfy the Biochemistry and Cell Biology major's Core Requirements. Students pursuing the BS degree must complete a total of 22 courses (57 credit hours) as listed below to satisfy the Biochemistry and Cell Biology major's Core Requirements.

Non-Biology Courses

Students must complete the following 14 courses (33 credit hours):

- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [3 credit hours]
- MATH 211 Ordinary Differential Equations [<u>3 credit hours</u>]
- PHYS 125 General Physics I [4 credit hours]
- PHYS 126 General Physics II [4 credit hours]
- CHEM 121 General Chemistry I [3 credit hours] and CHEM 123 General Chemistry Lab I [1 credit hour]
- CHEM 122 General Chemistry II [3 credit hours] and CHEM 124 General Chemistry Labs II [1 credit hour]
- CHEM 211 Organic Chemistry / [3 credit hours] and CHEM 213 Organic Chemistry Discussion [0 credit]
- CHEM 212 Organic Chemistry II [3 credit hours] and CHEM 214 Organic Chemistry Discussion II [0 credit]
- CHEM 215 Organic Chemistry Lab [2 credit hours]

Permissible Substitutions: MATH 111 and MATH 112 may be substituted for MATH 101; CHEM 151/153 and CHEM 152/154 may be substituted for CHEM 121/123 and CHEM 122/124; CHEM 320 may be substituted for CHEM 212; CHEM 365 may be substituted for CHEM 215; PHYS 101/103 and PHYS 102/104 or PHYS 111 and 112 may be substituted for PHYS 125 and 126.

Core Lecture Courses

Students must complete the following 3 courses (9 credit hours):

- BIOC 201 Introductory Biology [3 credit hours]
- BIOC 301 Biochemistry I [<u>3 credit hours</u>]
- BIOC 341 Cell Biology [<u>3 credit hours</u>]

Lecture Options

Students pursuing the **BA degree** must complete 2 courses (6 credit hours) from the following. Students pursuing the **BS degree** must complete the following 3 courses (9 credit hours):

- BIOC 302 Biochemistry II [3 credit hours]
- BIOC 344 Molecular Biology and Genetics [3 credit hours]
- BIOC 352 Physical Chemistry for the Biosciences* [3 credit hours]

*CHEM 310 or CHEM 311 and CHEM 312 may substitute for BIOC 352.

Core Laboratory Courses

- BIOC 211 Intermediate Experimental Biosciences [2 credit hours]
- BIOC 311 Advanced Experimental Biosciences [2 credit hours]

Advanced Laboratory Courses

Students must complete a total of 2 additional courses (2-4 credit hours depending on course selection) from advanced labs at the 300-level or higher from the following list:

- BIOC 313 Introductory Synthetic Biology [<u>1 credit hour</u>]
- BIOC 318 Lab in Applied Microbiology [<u>1 credit hour</u>]
- BIOC 320/BIOE 342 Lab in Tissue Culture [<u>1 credit hour</u>]
- BIOC 413 Experimental Molecular Biology [1 credit hour]
- BIOC 415 Experimental Physiology [1 credit hour]
- BIOC 530 NMR Spectroscopy and Molecular Modeling [1 credit hour]
- BIOC 532 Laboratory Module In Optical Spectroscopy And Kinetics [2 credit hours]
- BIOC 533 Bioinformatics & Computational Biology [2 credit hours]
- BIOC 535 Practical X-Ray Crystallography [<u>2 credit hours</u>]
- One independent research experience (described below)*

*All Biochemistry and Cell Biology majors must take at least one of the listed additional advanced laboratory courses. If desired, the second advanced laboratory requirement may be satisfied by completing: (i) BIOC 310 if taken for at least 3 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 pre-approved by the student's major advisor; or (iii) honors research (BIOC 401/402/412). This substitution may be used only once regardless of the number of semesters of independent research taken.

ELECTIVE LECTURE COURSES

Students must complete a total of 2 courses (6 credit hours) from courses offered by Natural Sciences/Engineering. Courses in Natural Sciences/Engineering include any 300-level or greater course of at least 3 credit hours from any department in the Wiess School of Natural Sciences (including BioSciences) or George R. Brown School of Engineering, except independent research courses such as BIOC 310, BIOC 401/402, BIOE 400/401/402, or EBIO 306/403/404, which cannot be used to fulfill this requirement. A maximum of 3 credit hours from BIOC 390 (transfer credit in Biochemistry and Cell Biology) may be applied to this requirement.

CAPSTONE REQUIREMENT

To fulfill the remaining BIOC major requirements, students pursuing the **BA degree** must complete 1 additional course (3 credit hours). Students pursuing the **BS degree** must complete a total of 2 additional courses (6 credit hours). Only BIOC 400-level lecture courses (courses designated with a course type of lecture in Rice's Course Catalog, which does not include course types of lecture/lab), which are literature based and explicitly designed for the BCB major, can be used to satisfy this requirement.

*The combined courses BIOC 401 Undergraduate Honors Research [<u>5 credit hours</u>] and BIOC 402 Undergraduate Honors Research [<u>5 credit hours</u>] and BIOC 412 Undergraduate Research Seminar [<u>1 credit hour</u>] are considered a single BIOC 400level course and can be counted as one capstone course together as a series OR, provided the independent research substitution has not been used previously, this 3-course series can count as a single lab at 300-level or higher. **To be applied toward the major all three courses must be completed.**

Requirements for the Minor in Biochemistry and Cell Biology

Students pursuing the minor in Biochemistry and Cell Biology (BCBM) must complete:

A minimum of 18 courses (44 credit hours) to satisfy minor requirements.

The Minor in Biochemistry and Cell Biology is intended for those with an interest in the life sciences but who may be majoring in other areas. This minor incorporates many of the life science core courses required for the health professions.

REQUIRED COURSES

- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- PHYS 125 General Physics / [4 credit hours]
- PHYS 126 General Physics II [4 credit hours]
- CHEM 121 General Chemistry / [3 credit hours] and CHEM 123 General Chemistry Lab / [1 credit hour]
- CHEM 122 General Chemistry II [3 credit hours] and CHEM 124 General Chemistry Lab II [1 credit hour]
- CHEM 211 Organic Chemistry I [3 credit hours] and CHEM 213 Organic Chemistry Discussion [0 credit]
- CHEM 212 Organic Chemistry II [3 credit hours] and CHEM 214 Organic Chemistry Discussion II [0 credit]

- BIOC 201 Introductory Biology [<u>3 credit hours</u>]
- BIOC 211 Intermediate Experimental Biosciences [2 credit hours]
- BIOC 301 Biochemistry [3 credit hours]
- BIOC 341 Cell Biology [3 credit hours]
- One BIOC ≥ 300-level lecture course (≥ 3 credit hours). Lecture courses are noted in Rice's Course Catalog with a course type of lecture. These courses do not include courses listed with a course type of lecture/lab.

Permissible Substitutions: MATH 111 and MATH 112 may be substituted for MATH 101; CHEM 151/153 and CHEM 152/154 may be substituted for CHEM 121/123 and CHEM 122/124; CHEM 320 may be substituted for CHEM 212; CHEM 365 may be substituted for CHEM 215; PHYS 101/103 and PHYS 102/104 or PHYS 111 and 112 may be substituted for PHYS 125 and 126.

Requirements for the BA-MA-PhD Degree Track in Biochemistry & Cell Biology

Qualified Rice University undergraduate students can apply to enroll in the Biochemistry and Cell Biology BA-MA-PhD program track in the spring of their sophomore year. Students who are good candidates for this program typically join a Rice BioSciences research lab to start research on a biochemistry or cell biology related project prior to applying. Upon acceptance, depending on course load, financial aid status, and other variables, program participants may then start taking required graduate course requirements at the same time as their upper-level undergraduate degree course requirements. Students pursuing this track should be aware that there could be financial aid implications, if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time (12 hours) status.

Laboratory research performed in 300, 400, and 800-level research courses is presented as the MA thesis in the summer following graduation and can serve as the initial phases of the PhD thesis work. As a result, the graduate careers of these students will be accelerated by an anticipated 1-2 years, and such students may be able to obtain their PhD degrees approximately 3 years after obtaining their BA and MA degrees. Criteria for selection include academic performance (GPA \geq 3.5), motivation, previous research experience, and personal qualities. Detailed information on this track may be found in the Graduate section of these General Announcements.

Program Learning Outcomes for the BS and BA Degrees with a Major in Ecology and Evolutionary Biology

BS in Ecology and Evolutionary Biology

Upon completing the BS degree, students majoring in Ecology and Evolutionary Biology will be able to:

- Locate primary scientific literature and demonstrate the ability to use critical thinking and problem solving skills to evaluate published and proposed research in the biological sciences and to apply these skills to develop an independent research project.
- Demonstrate the ability to apply the modern scientific method, including designing experiments and/or building mathematical models, collecting, analyzing, and interpreting data using common statistical methods and software programs.
- 3. Demonstrate effective oral and written communication skills, including an ability to effectively communicate and work with diverse groups and the ability to interpret and communicate the results of original research.
- 4. Demonstrate familiarity with the diversity of life and an in-depth understanding of at least one level of biological organization (i.e. genetic, genomic, cellular, organismal, population, community, or ecosystem).
- 5. Demonstrate a comprehensive knowledge of biology and an in-depth understanding of ecology and evolutionary biology.
- 6. Demonstrate understanding of the practice and culture of science, scientific ethics, and the relationship between science and society.

BA in Ecology and Evolutionary Biology

Upon completing the BA degree, students majoring in Ecology and Evolutionary Biology will be able to:

- 1. Locate primary scientific literature and demonstrate the ability to apply critical thinking and problem solving skills to evaluate published and proposed research in the biological sciences.
- Demonstrate an understanding of the modern scientific method, including a familiarity with current methods for designing experiments and/or mathematical models, and the ability to analyze and interpret data.
- 3. Demonstrate effective oral and written communication skills, including an ability to effectively communicate and work with diverse groups.
- 4. Demonstrate familiarity with the diversity of life.
- 5. Demonstrate a comprehensive knowledge of biology and an in-depth understanding of ecology and evolutionary biology.
- 6. Demonstrate understanding of the practice and culture of science, scientific ethics, and the relationship between science and society.

Requirements for the BS and BA Degrees with a Major in Ecology and Evolutionary Biology

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Ecology and Evolutionary Biology (EBIO) must complete:

- A minimum of 20 courses (49-51 credit hours depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 11 courses (33 credit hours) at the 300-level or above.

Students pursuing the BS degree with a major in Ecology and Evolutionary Biology (EBIO) must complete:

- A minimum of 22 courses (59-61 credit hours depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 13 courses (43 credit hours) at the 300-level or above.

These paths are intended for students pursuing a wide range of careers in the life sciences. Students graduating from either degree path typically go on to graduate or professional school or enter the workforce with the BS as their terminal degree. Course work emphasizes a broad understanding of basic biology together with in-depth knowledge of ecology and evolutionary biology that culminates in a required capstone 400-level course incorporating primary scientific literature, presentations, and writing in an advanced topic. The BA degree is well suited for students with an additional major outside of the sciences. Students pursuing a BS in Ecology and Evolutionary Biology faculty member (though the research can take place in other locations or institutions such as the Texas Medical Center or at field sites throughout the world). Students in both degree paths are strongly encouraged to take advantage of study abroad opportunities.

CORE REQUIREMENTS

Students pursuing the **BA degree** must complete a total of 13 courses (35-37 credit hours depending on course selection) as listed below to satisfy the Ecology and Evolutionary Biology major's Core Requirements. Students pursuing the **BS degree** must complete a total of 16 courses (45-47 credit hours depending on course selection) as listed below to satisfy the Ecology and Evolutionary Biology major's Core Requirements.

Non-Biology Courses

Students must complete a total of 6 courses (17 credit hours) as listed below:

- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [3 credit hours]
- EBIO 338 Design and Analysis of Biological Experiments [3 credit hours]
 - or 1 course from Statistics (STAT) departmental course offerings [at least 3 credit hours]
- CHEM 121 General Chemistry / [3 credit hours] and CHEM 123 General Chemistry Lab / [1 credit hour]
- PHYS 125 General Physics I [4 credit hours]

Permissible substitutions: MATH 111 and MATH 112 may be substituted for MATH 101; CHEM 151/153 may be substituted for CHEM 121/123; PHYS 101/103 or PHYS 111 may be substituted for PHYS 125.

Biology Lecture Courses

Students must complete the following 4 courses (12 credit hours):

- BIOC 201 Introductory Biology I [3 credit hours]
- EBIO 202 Introductory Biology II [<u>3 credit hours</u>]
- EBIO 325 Ecology [3 credit hours]
- EBIO 334/BIOC 334 Evolution [3 credit hours]

Biology Laboratory Courses

Students must complete the following 2 courses (4 credit hours):

- BIOC 211 Intermediate Experimental Biosciences [2 credit hours]
- EBIO 213 Introductory Lab in Ecology and Evolutionary Biology [2 credit hours]

Scientific Communication Course

Students must complete the following course:

EBIO 412 Advanced Communication in the Biosciences [2 credit hours]

Independent Research Courses (BS degree requirement only)

251 of 923

Students pursuing the BS degree must complete the following 3 courses (12 credit hours):

- EBIO 306 Independent Research [at least 2 credit hours]
- EBIO 403 Senior Research [<u>5 credit hours</u>]
- EBIO 404 Senior Research [<u>5 credit hours</u>]

ELECTIVES

To fulfill the remaining Ecology and Evolutionary Biology major requirements, students must complete a total of 6 courses (14-16 credit hours depending on course selection) as listed below.

Lecture in Ecology and Evolutionary Biology

Students must complete a total of 2 courses (6 credit hours) from the following:

- EBIO 321 Animal Behavior [3 credit hours]
- EBIO 323/ENST 323 Conservation Biology [3 credit hours]
- EBIO 326 Insect Biology [<u>3 credit hours</u>]
- EBIO 328 Genomics [<u>3 credit hours</u>]
- EBIO 329 Animal Biology and Physiology [3 credit hours]
- EBIO 331/BIOC 331 Biology of Infectious Diseases [3 credit hours]
- EBIO 333/COMP 370 Evolutionary Bioinformatics [3 credit hours]
- EBIO 336 Plant Diversity [<u>3 credit hours</u>]
- EBIO 340/ENST 340/ESCI 340 Global Biogeochemical Cycles [3 credit hours]
- EBIO 365 Introductory Phycology [3 credit hours]
- EBIO 366 Applied Phycology [3 credit hours]
- EBIO 372 Coral Reef Ecosystems [3 credit hours]
- EBIO 391 Transfer Credit in Ecology and Evolutionary Biology [3 credit hours]
- EBIO 433 Advanced Ecology [<u>3 credit hours</u>]

Lecture in Biochemistry and Cell Biology

Students must complete 1 course (3 credit hours) from the following:

- BIOC 300 Paradigms in Biochemistry and Cell Biology [3 credit hours]
- BIOC 301 Biochemistry I [3 credit hours]
- BIOC 302 Biochemistry II [3 credit hours]
- BIOC 332/BIOE 302 Systems Physiology [3 credit hours]
- BIOC 335 Cellular and Molecular Animal Physiology [3 credit hours]
- BIOC 341 Cell Biology [3 credit hours]
- BIOC 344 Molecular Biology and Genetics [3 credit hours]
- BIOC 352 Physical Chemistry for the Biosciences [3 credit hours]
- BIOC 361/BIOE 361/GLHT 361 Metabolic Engineering for Global Health Environments [3 credit hours]
- BIOC 368/HUMA 368 The Science and the Fiction of Monsters [3 credit hours]
- BIOC 371 Seminar in Contemporary Biological and Biomedical Research [1 credit hour]
- BIOC 372 Immunology [<u>3 credit hours</u>]
- BIOC 380/NEUR 380/PSYC 380 Fundamental Neuroscience Systems [3 credit hours]
- BIOC 385/NEUR 385 Fundamentals of Cellular and Molecular Neuroscience [3 credit hours]
- BIOC 390 Transfer Credit in Biochemistry and Cell Biology [3 credit hours]
- BIOC 424 Microbiology and Biotechnology [<u>3 credit hours</u>]
- BIOC 425 Plant Molecular Genetics [<u>3 credit hours</u>]
- BIOC 443 Advanced Concepts and Critical Analysis in Modern Developmental Biology [3 credit hours]
- BIOC 445 Advanced Molecular Biology and Genetics [3 credit hours]
- BIOC 447 Experimental Biology and the Future of Medicine [3 credit hours]
- BIOC 450 Viruses and Infectious Diseases [<u>3 credit hours</u>]
- BIOC 460 Cancer Biology [3 credit hours]
- BIOC 463 Endocrinology [3 credit hours]
- BIOC 470 Computation with Biological Data [3 credit hours]
- BIOC 481 Molecular Biophysics I [3 credit hours]
- BIOC 482 Structural Biology [<u>3 credit hours</u>]

EBIO Laboratory Course Requirement

Students must complete 1 course (1-2 credit hours depending on course selection) from the following. For students pursuing the **BA degree**, one of the advanced laboratory course requirements may be satisfied by taking EBIO 306 if taken for at least two credit hours.

- EBIO 317 Lab Module in Behavior [1 credit hour]
- EBIO 319 Tropical Field Biology [2 credit hours]
- EBIO 320 Ecology and Conservation of Brazilian Wetlands Laboratory [2 credit hours]
- EBIO 324 Conservation Biology Lab [<u>1 credit hour</u>]
- EBIO 327 Biological Diversity [<u>1 credit hour</u>]
- EBIO 330 Insect Biology Lab [<u>1 credit hour</u>]
- EBIO 332 Evolution of Genes and Genomes Lab [<u>1 credit hour</u>]
- EBIO 335 Evolutionary Bioinformatics Lab [<u>1 credit hour</u>]
- EBIO 337 Field Bird Biology Lab [<u>1 credit hour</u>]
- EBIO 367 Introduction Phycology Lab [<u>1 credit hour</u>]
- EBIO 368 Applied Phycology Lab [<u>1 credit hour</u>]
- EBIO 379/ENST 379 Lab Module in Aquatic Ecology with Scuba [1 credit hour]
- EBIO 393 Laboratory Transfer Credit in Biosciences [<u>1 credit hour</u>]

BIOC Laboratory Course Requirement

Students must complete 1 course (1-2 credit hours depending on course selection) from the following or complete an additional laboratory course from the EBIO Laboratory requirement.

- BIOC 311 Advanced Experimental Biosciences [2 credit hours]
- BIOC 313 Introductory Synthetic Biology [1 credit hour]
- BIOC 318 Laboratory Studies in Applied Microbiology [1 credit hour]
- BIOC 320/BIOE 342 Laboratory in Tissue Culture [1 credit hour]
- BIOC 413 Experimental Molecular Biology [1 credit hour]
- BIOC 415 Experimental Physiology [1 credit hour]

Natural Science or Engineering

Students must complete 1 course (3 credit hours) offered by Natural Science or Engineering at the 300-level or above.

Requirements for the Minor in Ecology and Evolutionary Biology

Students pursuing the minor in Ecology and Evolutionary Biology (EEBM) must complete:

- A minimum of 7 courses (20 credit hours) to satisfy minor requirements.
- A minimum of 4 courses (12 credit hours) at the 300-level or above.

The Ecology and Evolutionary Biology minor is intended for the numerous Rice students with an avid interest in ecology and evolutionary biology but whose major interests are in other departments.

CORE REQUIREMENTS

Students must complete the following 3 courses (8 credit hours) from the following to satisfy the Ecology and Evolutionary Biology minor's Core Requirements.

- BIOC 201 Introductory Biology I [3 credit hours]
- EBIO 202 Introductory Biology II [<u>3 credit hours</u>]
- EBIO 213 Introductory Lab in Ecology and Evolutionary Biology [2 credit hours]

ELECTIVES

To fulfill the remaining Ecology and Evolutionary minor requirements, students must complete a total of 4 additional courses (12 credit hours) from the following:

- EBIO 321 Animal Behavior [3 credit hours]
- EBIO 323/ENST 323 Conservation Biology [3 credit hours]
- EBIO 325 Ecology [3 credit hours]
- EBIO 326 Insect Biology [<u>3 credit hours</u>]
- EBIO 328 Genomics [<u>3 credit hours</u>]
- EBIO 329 Animal Biology and Physiology [3 credit hours]
- EBIO 331/BIOC 331 Biology of Infectious Diseases [3 credit hours]
- EBIO 333/COMP 370 Evolutionary Bioinformatics [3 credit hours]
- EBIO 334/BIOC 334 Evolution [<u>3 credit hours</u>]
- EBIO 336 Plant Diversity [<u>3 credit hours</u>]
- BIO 340/ENST 340/ESCI 340 Global Biogeochemical Cycles [3 credit hours]
- EBIO 365 Introductory Phycology [<u>3 credit hours</u>]
- EBIO 366 Applied Phycology [<u>3 credit hours</u>]

EBIO 372 Coral Reef Ecosystems [3 credit hours]

- EBIO 391 Transfer Credit in Ecology and Evolutionary Biology [<u>3 credit hours</u>]
- EBIO 433 Advanced Ecology [<u>3 credit hours</u>]

PROGRAM RESTRICTIONS AND EXCLUSIONS

Students pursuing the minor in Ecology and Evolutionary Biology should be aware of the following program restriction:

 Students pursuing the BA degree with a major in Biological Sciences may not declare the minor in Ecology and Evolutionary Biology.

Program Learning Outcomes for the BA Degree with a Major in Biological Sciences

Upon completing the BA degree, students majoring in Biological Sciences will be able to:

- 1. Demonstrate a comprehensive knowledge of the field of biology, illustrated by the ability to describe the breadth of the discipline and to synthesize a range of biological concepts and ideas.
- 2. Demonstrate an understanding of the modern scientific method, including a familiarity with current methods for designing experiments and/or mathematical models, and the ability to analyze and interpret data.
- 3. Demonstrate effective oral and written communication skills, including an ability to effectively communicate and work with diverse groups.
- 4. Locate primary scientific literature and demonstrate the ability to apply critical thinking and problem solving skills to evaluate published and proposed research in the biological sciences.
- 5. Demonstrate understanding of the practice and culture of science, scientific ethics, and the relationship between science and society.
- 6. Develop quantitative reasoning via the construction of models and/or the analysis of data.

Requirements for the BA Degree with a Major in Biological Sciences

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Biological Sciences (BIOS) must complete:

- A minimum of 28 courses (67 credit hours depending on course selection) to satisfy major requirements.
- A minimum of 127 credit hours to satisfy degree requirements.

This degree incorporates elements from both the Ecology and Evolutionary Biology and the Biochemistry and Cell Biology Programs.

CORE REQUIREMENTS

Students must complete a total of 18 courses 49-52 credit hours depending on course selections) as listed below to satisfy the Biosciences major's Core Requirements.

Non-Biology Courses

Students must complete a total of 14 courses (minimum of 33-34 credit hours) as listed below.

- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- MATH 211 Differential Equations [<u>3 credit hours</u>]
 or STAT 305 Biological Statistics [<u>4 credit hours</u>]
 or EBIO 338 Design and Analysis of Biological Experiments [<u>3 credit hours</u>]
- CHEM 121 General Chemistry / [3 credit hours] and CHEM 123 General Chemistry Lab / [1 credit hour]
- CHEM 122 General Chemistry II [3 credit hours] and CHEM 124 General Chemistry Lab II [1 credit hour]
- CHEM 211 Organic Chemistry I [3 credit hours] and CHEM 213 Organic Chemistry Discussion [0 credit]
- CHEM 212 Organic Chemistry II [3 credit hours] and CHEM 214 Organic Chemistry Discussion II [0 credit]
- CHEM 215 Organic Chemistry Lab [2 credit hours]
- PHYS 125 General Physics I [<u>4 credit hours</u>]
- PHYS 126 General Physics II [4 credit hours]

Permissible substitutions: MATH 111 and MATH 112 may be substituted for MATH 101; CHEM 151/153 and CHEM 152/154 may be substituted for CHEM 121/123 and CHEM 122/124; CHEM 320 may be substituted for CHEM 212; CHEM 365 may be substituted for CHEM 215; PHYS 101/103 and PHYS 102/104 or PHYS 111 and PHYS 112 may be substituted for PHYS 125 and 126.

Introductory Biology

Students must complete the following 2 courses (6 credit hours):

EBIO 202 Introductory Biology II [3 credit hours]

Introductory Biology Labs

Students must complete the following 2 courses (4 credit hours):

- BIOC 211 Intermediate Experimental Biosciences [2 credit hours]
- EBIO 213 Introductory Lab in Ecology and Evolutionary Biology [2 credit hours]

Advanced Biology Labs

Students must complete a total of 3 courses (3-6 credit hours) from the following:

- BIOC 311 Advanced Experimental Biosciences [2 credit hours]
- BIOC 313 Introductory Synthetic Biology [1 credit hour]
- BIOC 318 Lab in Applied Microbiology [1 credit hour]
- BIOC 320/BIOE 342 Lab in Tissue Culture [1 credit hour]
- BIOC 413 Experimental Molecular Biology [1 credit hour]
- BIOC 415 Experimental Physiology [1 credit hour]
- BIOC 530 NMR Spectroscopy and Molecular Modeling [1 credit hour]
- BIOC 532 Lab in Optical Spectroscopy and Kinetics [2 credit hours]
- BIOC 533 Bioinformatics and Computational Biology [2 credit hours]
- BIOC 535 Practical X-Ray Crystallography [2 credit hours]
- EBIO 316 Lab in Ecology [<u>1 credit hour</u>]
- EBIO 317 Lab in Behavior [1 credit hour]
- EBIO 319 Tropical Field Biology [2 credit hours]
- EBIO 320 Ecology and Conservation of Brazilian Wetlands Laboratory [2 credit hours]
- EBIO 324 Conservation Biology Lab [<u>1 credit hour</u>]
- EBIO 327 Biological Diversity Lab [<u>1 credit hour</u>]
- EBIO 330 Insect Biology Lab [1 credit hour]
- EBIO 332 Evolution Genes and Genomes Lab [<u>1 credit hour</u>]
- EBIO 335 Evolutionary Bioinformatics Lab [<u>1 credit hour</u>]
- EBIO 337 Field Bird Biology Lab [<u>1 credit hour</u>]
- EBIO 367 Introduction Phycology Lab [<u>1 credit hour</u>]
- EBIO 368 Applied Phycology [<u>1 credit hour</u>]
- EBIO 379 Lab Module in Aquatic Ecology With Scuba [1 credit hour]
- One independent research experience (described below)*

* Only one of the advanced laboratory course requirements can be satisfied by taking any of the following: (i) BIOC 310 if taken for at least 3 credit hours or EBIO 306 if taken for at least 2 credit hours; or (ii) HONS 470 and HONS 471, if the research supervisor is from the BioSciences department or if the research is biological in nature and pre-approved by the student's major advisor; (iii) BIOC 401 and BIOC 402 and BIOC 412 or EBIO 403 and EBIO 404 (iv) BIOC/EBIO 393 (laboratory transfer credit). This substitution may be used only once regardless of the number of semesters of independent research or transfer credit.

Upper-Level Biology Course

Students must complete the following course:

BIOC 301 Biochemistry I [<u>3 credit hours</u>]

ELECTIVES

To fulfill the remaining BIOS major requirements, students must complete a total of 6 additional courses (18 credit hours) as listed below.

Upper-Level Biology Course

Students must complete 1 course (3 credit hours) from the following:

- BIOC 302 Biochemistry II [3 credit hours]
- BIOC 341 Cell Biology [3 credit hours]
- BIOC 344 Molecular Biology and Genetics [3 credit hours]
- BIOC 352 Physical Chemistry for the Biosciences [3 credit hours]

EBIO Lecture Courses

Students must complete a total of 3-4 courses (9-12 credit hours) from the following. If students choose to complete 3 courses from the EBIO Lecture Courses requirement, students will be required to complete 2 courses from the BIOC Lecture Courses requirement.

- BIO 321 Animal Behavior [3 credit hours]
- EBIO 323/ENST 323 Conservation Biology [3 credit hours]
- EBIO 325 Ecology [<u>3 credit hours</u>]
- EBIO 326 Insect Biology [3 credit hours]
- EBIO 328 Genomics [3 credit hours]
- EBIO 329 Animal Biology and Physiology [3 credit hours]
- EBIO 331/BIOC 331 Biology of Infectious Diseases [3 credit hours]
- EBIO 333/COMP 370 Evolutionary Bioinformatics [3 credit hours]
- EBIO 334/BIOC 334 Evolution [<u>3 credit hours</u>]
- EBIO 336 Plant Diversity [3 credit hours]
- EBIO 340/ENST 340/ESCI 340 Global Biogeochemical Cycles [3 credit hours]
- EBIO 365 Introductory Phycology [3 credit hours]
- EBIO 366 Applied Phycology [<u>3 credit hours</u>]
- EBIO 372 Coral Reef Ecosystems [3 credit hours]
- EBIO 391 Transfer Credit in Ecology and Evolutionary Biology [3 credit hours]
- EBIO 433 Advanced Ecology [3 credit hours]

BIOC Lecture Courses

Students must complete a total of 1-2 courses (3-6 credit hours) from the following. If students choose to complete 1 course (3 credit hours) from the BIOC Lecture Courses requirement, students will be required to complete 4 courses (12 credit hours) from the EBIO Lecture Courses requirement.

- BIOC 300 Paradigms in Biochemistry and Cell Biology [3 credit hours]
- BIOC 301 Biochemistry I [3 credit hours]
- BIOC 302 Biochemistry II [3 credit hours]
- BIOC 331/EBIO 331 Biology of Infectious Diseases [3 credit hours]
- BIOC 332/BIOE 302 Systems Physiology [3 credit hours]
- BIOC 335 Cellular and Molecular Animal Psychology [3 credit hours]
- BIOC 341 Cell Biology [3 credit hours]
- BIOC 344 Molecular Biology and Genetics [3 credit hours]
- BIOC 352 Physical Chemistry for the Biosciences [3 credit hours]
- BIOC 361/BIOE 361/GLHT 361 Metabolic Engineering for Global Health Environments [3 credit hours]
- BIOC 368/HUMA 368 The Science and the Fiction of Monsters [3 credit hours]
- BIOC 371 Seminar in Contemporary Biological and Biomedical Research [1 credit hour]
- BIOC 372 Immunology [3 credit hours]
- BIOC 380/NEUR 380/PSYC 380 Fundamental Neurscience Systems [3 credit hours]
- BIOC 385/NEUR 385 Fundamentals of Cellular and Molecular Neuroscience [3 credit hours]
- BIOC 390 Transfer Credit in Biochemistry and Cell Biology [3 credit hours]
- BIOC 424 Microbiology and Biotechnology [<u>3 credit hours</u>]
- BIOC 425 Plant Molecular Genetics [3 credit hours]
- BIOC 443 Advanced Concepts and Critical Analysis in Modern Developmental Biology [3 credit hours]
- BIOC 445 Advanced Molecular Biology and Genetics [3 credit hours]
- BIOC 447 Experimental Biology and the Future of Medicine [3 credit hours]
- BIOC 450 Viruses and Infectious Diseases [3 credit hours]
- BIOC 455 Computational Synthetic Biology [<u>3 credit hours</u>]
- BIOC 460 Cancer Biology [<u>3 credit hours</u>]
- BIOC 463 Endocrinology [<u>3 credit hours</u>]
- BIOC 470 Computation with Biological Data [3 credit hours]
- BIOC 481 Molecular Biophysics I [3 credit hours]
- BIOC 482 Structural Biology [<u>3 credit hours</u>]

A maximum of 3 credits of BIOC 390 and 3 credits of EBIO 391 can apply to this major. CHEM 310 or CHEM 311 and CHEM 312 may substitute for BIOC 352.

PROGRAM RESTRICTIONS AND EXCLUSIONS

Students pursuing the BA degree with a major in Biological Sciences should be aware of the following program restriction:

 Students who have declared the major in Biological Sciences may not additionally pursue the minor in Biochemistry and Cell Biology or the minor in Ecology and Evolutionary Biology.

Research in the BioSciences

Research is highly encouraged for all students at Rice University and is an essential job skill for those planning to continue in graduate programs in the sciences or seeking employment in research fields. Rice students in the biosciences have

the opportunity to participate in a wide variety of research projects both on- and off-campus. Students may receive BioSciences credit for such research through the courses EBIO 306 or BIOC 310 and the advanced research series BIOC 401/402/412 or EBIO 403/404. Please consult the Department of Biosciences Undergraduate web pages for more information on finding a research project and participating in research for credit. Those interested in receiving regular biosciences research opportunity postings should join the BioSciences Opportunities group on Owl-Space.

Description and Code Legend

*NOTE: Internally, the university uses the following abbreviations (4-digit codes) to identify the BioSciences undergraduate degrees, majors, and minors. The following is a quick reference:

Course Catalog/Schedule:

- Course offerings/subject code for BioSciences: BIOC and EBIO
- Department Description and Code:
- BioSciences: BIOS
- Degree Descriptions and Codes:
 - Bachelor of Arts degree: BA
 - Bachelor of Science degree: BS

Major Descriptions and Codes:

- Major in Biochemistry and Cell Biology (offered to students pursuing both the BA and BS degrees): BIOC
- Major in Ecology and Evolutionary Biology (offered to students pursuing both the BA and BS degrees): EBIO
 Major in Biological Sciences (offered to students pursuing the BA degree only): BIOS

Rice A-Z

- Minor Descriptions and Codes:
 - Minor in Biochemistry and Cell Biology: BCBM
 - Minor in Ecology and Evolutionary Biology: EEBM

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Rice Home

University Calendar

Maps-Directions Feedback

257 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > BioSciences >

BioSciences

(ibb.rice.edu).

The Wiess School of Natural Sciences

- Graduate Students
- Non-Traditional Students

Undergraduate Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department Undergraduate Graduate Course Info **Requirements** Requirements Listings Jump to: MA and PhD in Biochemistry and Cell Biology BA-MA-PhD track in Biochemistry and Cell Biology MA and PhD in Ecology and Evolutionary Biology The Department of BioSciences at Rice University administers graduate programs in Biochemistry and Cell Biology (BCB) and in Ecology and Evolutionary Biology (EEB), described below. In addition, some BioSciences faculty members participate in the

Program Learning Outcomes for the MA and PhD Degrees in Biochemistry and Cell Biology

Systems, Synthetic, and Physical Biology (SSPB) PhD program administered by the Institute of Biosciences and Bioengineering

MA in Biochemistry and Cell Biology

Students graduating from this program will:

- 1. Develop a knowledge of past and current research accomplishments and techniques in biochemistry and cell biology.
- 2. Demonstrate problem solving and critical thinking skills.
- 3. Demonstrate the effective written communication skills required for a thesis describing independent research and contributions to publishable research.
- 4. Demonstrate the effective oral and visual communication skills necessary for articulating scientific findings and significance to diverse audiences.

PhD in Biochemistry and Cell Biology

Students graduating from this program will:

- 1. Develop a comprehensive knowledge of current and past research accomplishments and techniques in biochemistry and cell biology.
- 2. Demonstrate independent problem solving and critical thinking skills.
- 3. Demonstrate the effective written communication skills required for a thesis describing independent research and contributions to successful funding proposals and published research.
- 4. Demonstrate the effective oral and visual communication skills necessary for articulating scientific findings and significance to diverse audiences.

Requirements for the MA and PhD Degrees in Biochemistry and Cell Biology

Admission:

Applicants for graduate study in the Department of Biochemistry and Cell Biology must have:

- BA or BS degree in biochemistry, biology, chemistry, chemical engineering, physics, or some equivalent
- High levels of intellectual strength 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, the department admits students who intend to pursue the Ph.D. program. The department provides a program guide titled "Biochemistry and Cell Biology Graduate Program

RICE

Course Requirements:

Most of the formal course studies will be completed in the first year of residence to allow the students to commence thesis research at the end of their second semester at Rice. During the first year, the BCB Graduate Advisory Committee will advise all graduate students. This committee will determine the formal course program to be taken during the first year in residence. Students are required to have training in biochemistry and cell biology; training in genetics and physical chemistry or biophysics is also beneficial. Students lacking formal training in biochemistry or cell biology are required to take the equivalent background courses during their first year.

The following Rice Courses must be taken if students lack these prerequisites in their undergraduate transcript:

- BIOC 301 Biochemistry [3 credit hours]
- BIOC 341 Cell Biology [3 credit hours]

All PhD students are required to take the following graduate-level courses:

- BIOC 575 Introduction to Research [1 credit hour]
- BIOC 581/582 Graduate Research Seminar [1 credit hour] (required in all semesters of residency)
- BIOC 583 Molecular Interactions [4 credit hours]
- BIOC 587 Research Design, Proposal Writing, and Professional Development [3 credit hours]
- BIOC 588 Cellular Interactions [4 credit hours]
- UNIV 594 Training in the Responsible Conduct of Research [1 credit hour]
- BIOC 599 Graduate Teaching [1 credit hour] (two semesters)
- BIOC 701/702 Graduate Research Rotations [2-4 credit hours] (first year research course)
- BIOC 800 Graduate Research [1-15 credit hours] (theses lab research after rotations are complete)

Elective Requirements

In addition to required courses listed above, graduate students in Biochemistry and Cell Biology must take at least six credit hours from the set of 500-level advanced BIOC electives. The full list of the 500-level Biochemistry & Cell Biology courses can be viewed under the Course Listings tab at the top of this page.

Graduate students are required to attend BIOC 581 and 582 during all years of residency. Students generally complete BIOC 583, BIOC 587, and BIOC 588 in their first year, and will be responsible for the content of these courses in their admission to candidacy examination. Students gain teaching experience by serving as discussion leaders and graders in two undergraduate courses during their second year (BIOC 599); additional teaching experiences are available on an individual basis.

Evaluation of Progress in Graduate Study:

The BCB Graduate Advising Committee evaluates each student's undergraduate record and recommends course work based on the requirements. Thesis advisors may require additional courses.

At the end of each semester, the department chair, in consultation with the faculty, reviews student performance in the formal course work. Students must maintain at least a B average (GPA \geq 3.0), perform satisfactorily in BIOC 701/702, and demonstrate outstanding motivation and potential for research. Thesis lab assignments are made based on student and faculty preferences following research rotations.

Evaluation after the first year includes:

- Ongoing review of research progress by the thesis advisor; satisfactory research progress will be indicated by a grade of "S" in BIOC 800 each semester
- A yearly research progress assessment by the student's Research Progress Review Committee
- Presentation of research progress at least once a year in seminar format (BIOC 581/582) starting in the fourth semester and continuing until submission of the doctoral thesis
- Completion of a written and oral admission to candidacy examination before the start of the fifth 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 year replaces the admission to candidacy examination; no other preliminary examination is required before the final oral defense of the master's thesis. MA students do not have to complete two semesters of BIOC 599 Graduate Teaching and do not require an outside committee member on their Thesis Committee. MA candidates must maintain a GPA \geq 2.67, complete a thesis, and successfully complete a public oral defense of their research work to their Thesis Committee and other interested parties.

Requirements for the BA-MA-PhD Degree Track in Biochemistry and Cell Biology

Admission:

Qualified Rice University undergraduates can apply to enroll in the Biochemistry and Cell Biology BA-MA-PhD program track in the spring of their sophomore year. Students who are good candidates for this program typically join a Rice Biosciences research lab to start research on a biochemistry or cell biology related project prior to applying. Upon acceptance, depending on course load, financial aid status, and other variables, program participants may then start taking required graduate course requirements at the same time as their upper-level undergraduate degree course requirements. Students pursuing this track should be aware that there could be financial aid implications, if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time (12 hours) status.

Laboratory research performed in undergraduate and graduate research courses is presented as the MA thesis in the summer following graduation and can serve as the initial phase of the PhD thesis work. As a result, the graduate careers of these students will be accelerated by an anticipated 1-2 years, and such students may be able to obtain their PhD degrees approximately 3 years after obtaining their BA-MA degree. If circumstances require, students may stop at the BA or MA level if they meet all the requirements for the respective degrees.

Criteria for selection include academic performance (GPA ≥ 3.5), motivation, previous research experience, and personal qualities. Enrollment is limited, and the Biochemistry and Cell Biology BA-MA-PhD Track Committee will select applicants for admission.

BA in Biochemistry and Cell Biology Requirements:

All of the requirements for a BA in Biochemistry & Cell Biology are required for the BA-MA-PhD track.

MA in Biochemistry and Cell Biology Requirements:

The BA-MA-PhD Track Committee will advise students pursuing the BA-MA completion and will approve the formal course program of students during their final two years in the BA-MA program. Students who wish to pursue the BA-MA track must select the MA thesis advisor by the end of the sophomore year when they declare their major to provide the opportunity to begin a project that will form the basis of the MA thesis.

For the MA, the following courses must be completed or evidence provided of successful completion of courses that covered the same material with a B- average (GPA \ge 2.67):

- BIOC 581/582 Graduate Research Seminar [1 credit hour each] (4 semesters attendance, 1 presentation)
- BIOC 583 Molecular Interactions [<u>4 credit hours</u>]
- BIOC 587 Research Design, Proposal Writing, and Professional Development [3 credit hours]
- BIOC 588 Cellular Interactions [<u>4 credit hours</u>]
- UNIV 594 Training in the Responsible Conduct of Research [<u>1 credit hour</u>]
- BIOC 800 Graduate Research [1-15 credit hours]

Elective Requirements

In addition to required courses listed above, students in the Biochemistry and Cell Biology BA-MA-PhD program must take at least six credit hours from the set of 500-level advanced BIOC electives. The full list of the 500-level Biochemistry & Cell Biology can be viewed in the Course Catalog, which can be accessed in the Course Listings tab at the top of this page.

Students in the BA-MA track are required to register for and participate in BIOC 581/582 both semesters during their junior and senior years and present their research at least once. Students generally enroll in BIOC 800 during the summer between the sophomore and junior year, BIOC 587 and BIOC 800 during the summer between the junior and senior years, and BIOC 583 and BIOC 588 in their senior year.

Students will be responsible for the content of these courses in their MA defense (which also serves as the Admission to PhD Candidacy examination).

Progress reviews with the MA thesis committee occur at the end of the junior year and the early spring of the senior year. The MA thesis will be submitted and public oral defense will occur in the summer following graduation at the end of the senior year with completion of the BA requirements. MA candidates continuing to the PhD must maintain a GPA \ge 3.0, complete a thesis,

and make a public oral defense that includes a private examination by their MA thesis committee. Students who complete the MA requirements with a GPA \ge 2.67 but less than 3.0 must defend their thesis to complete the MA degree, but will not be admitted to the PhD program.

PhD in Biochemistry and Cell Biology:

The following are required for admission to the PhD portion of the BA-MA-PhD track: Successful completion of the MA thesis and oral defense, which will serve as the admission to candidacy exam for all PhD candidates, a cumulative GPA \geq 3.0 for the BA-MA degree courses, and a GRE Quantitative test score \geq 80th percentile. Students who are in good standing in the BA-MA track and have passed their MA final oral exam may begin their doctoral studies the summer following graduation with the approval of their PhD mentor and the Department Chair.

Course requirements for the first year of PhD study include:

- BIOC 581/582 Graduate Research Seminar (required in all semesters of residency)
- BIOC 599 Graduate Teaching (two semesters)
- BIOC 800 Graduate Research

Evaluation of Progress in the PhD Phase of the BA-MA-PhD Program:

The Graduate Advisory Committee evaluates each student's record and recommends any further course work based on the requirements and on the interests of the student. Thesis advisors may require additional courses. At the end of each semester, the department chair, in consultation with the faculty, reviews student performance in the formal course work. Students must maintain at least a B average (GPA \ge 3.0), perform satisfactorily in their research efforts, and demonstrate outstanding motivation and potential for research. Evaluation during the PhD phase of the program includes:

- The MA thesis and its oral defense constitute the admission to candidacy examination
- Ongoing review of research progress by the thesis advisor; satisfactory research progress will be indicated by a grade of "S" in BIOC 800 each semester
- A yearly research progress assessment by the student's Research Progress Review Committee
- Presentation of research progress at least once a year in seminar format (BIOC 581/582) starting in the first year of PhD study and continuing until submission of the doctoral thesis
- Defense of the PhD thesis research and text in a final public seminar presentation and oral examination attended by the student's Thesis Committee

Program Learning Outcomes for the MA and PhD Degrees in Ecology and Evolutionary Biology

MA in Ecology and Evolutionary Biology

Students graduating from this program will:

- 1. Demonstrate comprehensive knowledge of current and past research accomplishments and techniques in ecology and evolutionary biology.
- 2. Synthesize and critically evaluate scientific literature and concepts in ecology and evolutionary biology.
- 3. Demonstrate technical proficiency in a range of ecology and evolutionary biology research methods.
- Demonstrate the effective oral and visual communication skills necessary for articulating scientific findings and significance to diverse audiences.
- 5. Understand pedagogical methods appropriate for teaching undergraduate students in biology.

PhD in Ecology and Evolutionary Biology

Students graduating from this program will:

- 1. Demonstrate comprehensive knowledge of current and past research accomplishments and techniques in ecology and evolutionary biology.
- 2. Synthesize and critically evaluate scientific literature and concepts in ecology and evolutionary biology.
- 3. Identify novel and potentially transformative research questions in ecology and evolutionary biology and synthesize credible paths towards answering them.
- 4. Demonstrate technical proficiency in a range of ecology and evolutionary biology research methods.
- 5. Demonstrate the effective written communication skills required for scientific publications, grant proposal submissions, and a thesis describing independent research.
- Demonstrate the effective oral and visual communication skills necessary for articulating scientific findings and significance to diverse audiences.
- 7. Understand pedagogical methods appropriate for teaching undergraduate students in biology.

Requirements for the MA, MS (at candidacy) and PhD Degrees in Ecology and Evolutionary Biology

Admission:

Applicants for graduate study in the Ecology and Evolutionary Biology (EEB) Program 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. The department provides an "Ecology and Evolutionary Biology Graduate Program Handbook" that is updated annually. For general university requirements, see Graduate Degrees.

Course Requirements:

Most of the formal course studies will be completed in the first year of residence to allow the students to begin thesis research at the end of their second semester at Rice. Entering students will meet with a faculty advisor to form a course of study of the first year. Students should have completed coursework in ecology, evolution (or equivalent), mathematics (including calculus), and statistics prior to admission. Deficiencies in these subject areas should be made up during the first year of residence; some may be waived at the discretion of the EEB Graduate Advising Committee and the EEB Graduate Program Director.

The following Rice courses must be taken if students lack course work in ecology or evolution in their undergraduate transcript:

- EBIO 325 Ecology
- EBIO 334/BIOC 334 Evolution

All PhD students are required to take the following graduate-level courses:

- EBIO 569 Core course in Ecology and Evolutionary Biology (required in first year)
- EBIO 561/562/563/568 Topics in Evolution/Behavioral Biology/Ecology/Biological Diversity (two semesters of any combination of EBIO "Topics" courses)
- EBIO 585/586 Graduate Research Seminar in Ecology and Evolutionary Biology (required in all years of residency)
- EBIO 591 Graduate Teaching (two semesters)
- EBIO 800 Graduate Research (required after the first year of residency)

All students are required to take EBIO 569 in their first semester. Students must enroll in EBIO 585/586 during all years of residency. Students must complete at least six credit hours in a "Topics" course of their choice (EBIO 561/562/563/668) before defending their proposal, and students are strongly encouraged to take at least one topics course per semester during all years of residency. Students must complete two semesters of EBIO 591 during their first four semesters to gain teaching experience; additional teaching experiences are available on an optional basis.

Evaluation of Progress in Graduate Study:

Students must maintain a minimum 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 the EEB Graduate Advising Committee. The review process requires that each student:

• presents a public seminar on their research on Graduate Science Day

· prepares a written report on their progress

First-year students must also participate in an interview with the EEB Graduate Advising Committee.

MS Program:

Although students are not normally admitted to study for an MS, graduate students may earn the MS after obtaining approval of their candidacy for the PhD. In addition to the general university requirements and those listed above, the Master of Science in

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. (The committee will be composed of at least four members. At least three must be members of the EEB graduate program faculty and one member has to be outside the EEB graduate program.)
- Complete an original investigation and a doctoral thesis with at least three chapters with the potential to produce publications in reputable, peer-reviewed scientific journals
- Present a departmental seminar on the research
- Publicly defend the doctoral thesis

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the various Biosciences graduate degree programs. The following is a quick reference:

Rice A-Z

Course Catalog/Schedule

- Course offerings/subject code: BIOC, EBIO

- Department Description and Code
 - Biosciences: BIOS
- Degree Descriptions and Codes
 - Master of Arts degree: MA
- Master of Science degree: MS
- Doctor of Philosophy degree: PhD
- Degree Program Description and Code

Web Services

- Degree Program in Biochemistry and Cell Biology: BIOC
- Degree Program in Ecology and Evolutionary Biology: EBIO

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Rice Home

University Calendar

Maps-Directions Feedback

263 of 923

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > BioSciences >

Undergraduate Students	BioSciences The Wiess School of Natural Sciences				
Graduate Students					
Non-Traditional Students	Department Undergraduate Graduate Course				
Faculty	Info Requirements Requirements Listings				
 Programs of Study Administration and Faculty Important Notices 	Course Listings The official course offerings, including course descriptions, can be found in Rice's Course Catalog: Biochemistry and Cell Biology 🗗 and Ecology and Evolutionary Biology. 🗗 To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule. 🗗				
	For additional information regarding Naval Science, see the department's website: http://biosciences.rice.edu/.				
	Last Revised : August 24, 2016				

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264 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Business >

Undergraduate Students

RICE

Business

The Jesse H. Jones Graduate School of Business

- Non-Traditional Students
- Faculty
- Programs of Study

Graduate Students

- Administration and Faculty
- Important Notices

Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings	
_				
Dean		Assistant Professors		
Peter Rodriguez		Hajo Adam		
Denote Deno		Brian Akins		
Deputy Dean		Dinah Cohen-Vernik		
Jeff Fleming		Alan Crane Kevin Crotty		
Sr. Associate Dean of D		David De Angelis		
Barbara Ostdiek	• •	Patricia Naranjo		
Darbara Ostalek		Otilia Obodaru		
Sr. Associate Dean of E	executive Education	Leila Peyravan		
D. Brent Smith		Anastasiya Zavyalova		
D. Dient Onnan				
Associate Dean of Degr	ee Programs	Emeritus Professors		
George Andrews	j	Bala G. Dharan		
Coolige / Indiews		G. Anthony Gorry		
Professors		George Kanatas		
Kerry Back		H. Albert Napier		
Alex Butler		Ronald N. Taylor		
Utpal Dholakia		Wilfred Uecker		
Jeff Fleming		Edward E. Williams		
Jennifer M. George				
William H. Glick		Clinical Assistant Professors	5	
Gustavo Grullon		Arzu Ozoguz	-	
Thomas Hemmer		Constance Porter		
Robert E. Hoskisson				
Ajay Kalra		Professor in the Practice of I	Vanagement	
Wagner Kamakura		William Arnold	U	
Haiyang Li		Jack M. Gill		
Vikas Mittal		Vincent Kaminski		
Amit Pazgal		Benjamin Lansford		
K. Ramesh		Dick Viebig		
Shiva Sivaramakrishnan		-		
Scott Sonenshein		Associate Professor in the P	ractice of	
Robert A. Westbrook		Management		
James Weston		David VanHorn		
Duane Windsor				
Stephen A. Zeff		Visiting Assistant Professor		
Yan "Anthea" Zhang		Heber Farnsworth		
Jing Zhou		Sean Wang		
Associate Professors		Senior Lecturers		

	Sharad Borle	Elizabeth O'Sullivan
	Erik Dane	Rick Schell
	Jefferson Duarte	David Tobin
	Yael Hochberg	
	Prashant Kale	Lecturers
	Balaji Koka	Abby Larson
	Barbara Ostdiek	Janet Moore
	Brian R. Rountree	Lydia Musher
	Douglas A. Schuler	Hesam Panahi
	D. Brent Smith	
	Yuhang Xing	Joint Appointments
		Linda Driskill
		Mikki Hebl
		David Lane
		Fred Oswald
Program	(Undergraduate): Minor	
Program	s (Graduate): MBA degree, MAcc deg	ree, MA degree, PhD degree

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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

266 of 923

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Business >

Undergraduate Stude	ents
---------------------	------

Business

The Jesse H. Jones Graduate School of Business

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department	
Info	

Undergraduate	Graduate	Course			
Requirements	Requirements	Listings			
for the Undergraduate Minor in Ducinese					

Program Learning Outcomes for the Undergraduate Minor in Business

Upon completing the Business minor, students will be able to:

- 1. Demonstrate an understanding of financial statements from the perspective of a user of this information.
- 2. Demonstrate an understanding of the major sociological and social psychological processes that underlie individual and group behavior in organizations.
- 3. Demonstrate an understanding of the basic concepts of corporate financial management and of the set of analytical tools used to evaluate corporate investment and financing decisions.
- 4. Demonstrate an understanding of the basic concepts of strategic management and the frameworks necessary to execute competitive and industry analysis and strategy formulation and implementation.
- 5. Demonstrate a basic understanding of the role of marketing in organizations and of the primary marketing decisions facing management.
- 6. Demonstrate effective written and verbal business communication skills.

Requirements for the Minor in Business

Students pursuing the Business (BUSI) minor must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- No more than 2 courses (6 credit hours) from transfer credit.

The business minor consists of six integrated courses designed to provide a strong foundation in the essential disciplines of business and to develop students' critical thinking and communication skills. All courses in the minor are taught by JGSB faculty. Rick Schell (schell@rice.edu) is the program director and advisor.

REQUIRED COURSEWORK

Students must complete the following 6 courses (18 credit hours) to satisfy the Business minor's requirements.

- BUSI 296 Business Communications [3 credit hours]
- BUSI 305 Financial Accounting [<u>3 credit hours</u>]
- BUSI 310 Leading People in Organizations [3 credit hours]
- BUSI 343 Financial Management [3 credit hours]
 - or ECON 343 Corporate Finance [3 credit hours]
- BUSI 380 Marketing [<u>3 credit hours</u>]
- BUSI 390 Strategic Management [<u>3 credit hours</u>]

Admission

BUSI courses are open to any degree-seeking Rice undergraduate student who meets enrollment requirements, not just to students who have declared an intention to complete the minor, and to graduate students on a space-available basis, with instructor approval. MBA-level courses (MGMT, MGMP, and MGMW) are not open to undergraduate students.

Prerequisites

Enrollment in BUSI 343, BUSI 380, and BUSI 390 requires completion of instruction in microeconomics and statistics. The statistics requirement can be fulfilled by completing STAT 280 or an approved alternative as listed on the Jones School website . The economics requirement can be fulfilled by completing ECON 100 OR ECON 201 OR ECON 301 *at Rice*. The program See the course descriptions for details on prerequisites.

Enrollment Lottery

If a given BUSI course is oversubscribed, the JGSB will conduct a weighted lottery to determine which students will be admitted to the course. The lottery will give greater preference to students who have successfully completed a greater number of BUSI courses and who are closer to graduation.

Declaration of the Business Minor

To declare the BUSI minor, students must bring a completed declaration form and unofficial transcript to the program director for review and signature. The form is available on ESTHER 🗗.

Description and Code Legend

***NOTE:** Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate minor in Business. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject: BUSI

Department Description and Code

- Business: BUSI

Minor Description and Code

- Minor in Business: BUSI

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268 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Business >

Business

The Jesse H. Jones Graduate School of Business

Department Undergraduate Graduate Course Info Requirements Requirements Listings Jump to: Full-Time MBA Degree Program MBA for Professionals Degree Program MBA for Executives Degree Program MBA/Master of Engineering Degree Program MBA/Professional Science Masters Degree Program MBA/MD Dual Degree Program Master of Accounting Degree Program PhD in Business Degree Program

Requirements for the MBA, MAcc, MA, and PhD Degrees in Business

Master of Business Administration Degree (MBA) Programs

The MBA degree can be obtained via the Full-Time 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 the MBA degree. The MBA for Professionals program has three formats: an evening format, an alternating weekend format, and an extended evening format.

A coordinated MBA/master of engineering program is offered by the Jones Graduate School of Business and the George R. Brown School of Engineering, in any of the departments of engineering. This program prepares students to become managers in organizations requiring a high level of technical expertise and management skills. Students must apply separately and be accepted by both the business school and by the appropriate engineering department.

A coordinated MBA/master of science program is offered by the Jones Graduate School of Business and the Weiss School of Natural Sciences Professional Science Master's (PSM) Program. This program prepares students to become managers in organizations requiring specialized technical knowledge and general management skills. Students must apply separately and be accepted by both the business school and by the appropriate PSM program.

An MBA/MD dual degree program is offered by the Jones Graduate School of Business and Baylor College of Medicine. This program 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 health care firms, and pharmaceutical and medical supply and equipment companies.

Program Learning Outcomes for the MBA Degree Programs

Upon completing the MBA degree programs, students will be able to:

- 1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior and strategic management.
- 2. Develop, evaluate and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
- 3. Function effectively in a team setting both as a leader and a contributor.

MBA Admission Requirements

Applicants to the MBA programs must submit scores on the Graduate Management Admission Test (GMAT) or the Graduate

Undergraduate Students

Graduate Students

RICE

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Record Examination (GRE). International applicants, who did not earn an undergraduate degree from an institution where the primary language of instruction was English must submit a valid score report from either TOEFL, PTE, or IELTS. Admission to the MBA programs 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 or GRE.

The MBA and MBA for Professionals Programs—The MBA and MBA for Professionals programs do not have specific prerequisite courses required for admission.

MBA for Executives Program—In addition to meeting the standards for admission to the other MBA programs, students admitted to the MBA for Executives program typically have at least 10 years of relevant work experience.

MBA/Master of Engineering Program—To enter this coordinated degree program, applicants must be accepted by both the Jones Graduate School of Business and the engineering department in which they wish to pursue graduate study. The program requires the Jones Graduate School of Business application, two letters of recommendation and the GMAT or GRE. Some engineering departments require advanced tests as well.

MBA/Professional Science Master's Program—To enter this coordinated degree program, applicants must be accepted by both the Jones Graduate School of Business and one of the following Weiss School of Natural Sciences Professional Science Master's (PSM) programs: Environmental Analysis and Decision Making, Nanoscale Physics, Space Studies or, Subsurface Geoscience. The program requires the Jones Graduate School of Business application, two letters of recommendation and the GMAT or GRE.

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 of Business. The MCAT is accepted rather than the GMAT or GRE, but the GMAT or GRE is required for scholarship consideration. Three years of medical school are required before starting MBA classes.

Requirements for the MBA Degree Programs

For university minimum graduation requirements, see Graduate Degrees.

Students who register for a standard course load of 9-18 credit hours per semester are considered full-time students. All registration and elective selection via add/drop is completed online through ESTHER ². It is the responsibility of the student to monitor and maintain his or her schedule and academic record.

Waivers and Transfers of Credit—At its sole discretion, the school may allow students to transfer up to a maximum of six credit hours. Students must follow the prescribed curriculum of study and are not allowed to waive any core requirements.

Requirements for the Full-Time MBA Degree Program

Students pursuing the full-time MBA degree program must complete:

A minimum of 60 credit hours to satisfy degree requirements taken over a two-year period.

Major Concentrations— The Rice MBA program at the Jones Graduate School of Business offers concentrations to students enrolled in the full-time MBA program. The goal of a concentration is to provide students with the ability to demonstrate functional, professional, or industry expertise in a particular area of interest within a general management program. Major concentrations are revised annually and students are encouraged to contact the Jones Graduate School of Business registrar department for additional information. Major concentrations available to students pursuing the full-time MBA program include (*click on the name of each major concentration to review current specific course requirements for each*):

- Accounting: The major concentration in Accounting provides a broad understanding of the use and importance of accounting information to decision makers within the firm and to external users of financial statements. The core financial and management accounting courses provide a basic understanding of accounting principles. Completion of the concentration in accounting will serve to reinforce the fundamental concepts for the core and to provide additional insight into accounting processes and principles, and to enhance the ability to analyze and interpret accounting reports.
- Energy: The major concentration in Energy provides commercial acumen and leadership perspective to students with a technical background and develops their capability for taking additional responsibilities and higher-level management roles at companies in the energy sector. This is accomplished by engaging students in a curriculum that addresses three distinct, but inter-related, career paths which are widely regarded as conduits to leadership positions in energy industry midstream and upstream organizations: finance, operations, and product/customer focus.
- Entrepreneurship: The major concentration in Entrepreneurship provides students a framework for being an entrepreneur. The required courses equip students with the tools and processes for starting a business. The remaining courses allow students to select specific entrepreneurial topics suited to their objectives.

- Finance: The major concentration in Finance provides students with a broad foundation in financial management principles and an opportunity for further specialization. Students are required to complete the primary finance electives in the MBA program and Financial Statement Analysis. Students supplement these foundational courses with at least two more specialized courses from a list of approved offerings.
- Health Care: The focus of the major concentration in Health Care is to provide students with an understanding of how management principles are interpreted and applied in the different inter-locking sectors (providers, hospitals/small practices, payers, pharmaceutical, biotechnology) of the health care industry, and how the different dynamics in these sectors make it uniquely health care.
- Marketing: The major concentration in Marketing prepares students for careers in strategic marketing across a wide range
 of organizations, markets and industries. It provides critical knowledge for understanding and analyzing customers, and
 emphasizes the development of requisite quantitative and conceptual skills to contribute to the firm's overall success.
 Among the career trajectories for which students will be prepared are product management, customer analytics and
 customer insights, and management consulting.
- Mastering Creativity and Innovation: The major concentration in Creativity and Innovation provides students with a theoretical understanding of creativity, innovation, and the entrepreneurial behaviors within the organization as a coherent management process and a set of conceptual frameworks that can be applied to the creation, identification, analysis, and implementation of new ideas and new ventures within firms. The major concentration helps students develop and strengthen managerial skills to nurture and promote creativity in their employees, and link creativity with innovation and entrepreneurial behaviors within their organizations.
- Operations Management: The major concentration in Operations Management presents students with a framework for design, planning, control, coordination and improvement of business processes, systems and resources essential to meet consumers' needs. Instead of the technical engineering view of operations, the focus is on managing the business well.
- Real Estate: The major concentration in Real Estate prepares students for a career in the real estate industry. The required course introduces a series of basic business concepts commonly used in the real estate industry and it covers in detail the application of the discounted cash flow model to real estate decisions. The elective courses provide for both a depth and breadth of understanding of the industry.
- Strategic Management: The major concentration in Strategic Management prepares students for careers in strategic planning, management consulting, and global business management across a variety of industries such as health care, energy, high technologies, consumer products, and professional services. It provides knowledge and analytic tools for students to understand why some companies are financially much more successful than others and to analyze how executives (at different levels) can devise a set of strategies and design processes that allow the companies to achieve competitive advantage.

CORE REQUIREMENTS

Students must complete 18 courses (30 credit hours) as listed below to satisfy the full-time MBA program's Core Requirements. The first year of the program is primarily dedicated to core courses in the basic functional areas of business. During the second semester of the first year, students participate in a team-based Action Learning Project (ALP - MGMT 599) in which they work with a company to solve a specific business problem. This project is the first-year capstone learning activity; it allows students to apply and integrate management principles learned throughout the first year of the program in a practical setting.

Required Courses

Students must complete 16 courses (27 credit hours) from the following:

- MGMT 501 Financial Accounting [3 credit hours]
- MGMT 502 Managerial Accounting [<u>3 credit hours</u>]
- MGMT 510 Organizational Behavior [<u>1.5 credit hours</u>]
- MGMT 512 Leading Change [.75 credit hours]
- MGMT 540 Managerial Economics [<u>1.5 credit hours</u>]
- MGMT 543 Finance [<u>3 credit hours</u>]
- MGMT 560 Corporate Responsibility [.75 credit hours]
- MGMT 570 Competitive Strategy [<u>1.5 credit hours</u>]
- MGMT 571 Strategy Formation and Implementation [<u>1.5 credit hours</u>]
- MGMT 580 Marketing [<u>3 credit hours</u>]
- MGMT 595 Data Analysis I [<u>1.5 credit hours</u>]
- MGMT 596 Leadership Communication [<u>1.5 credit hours</u>]
- MGMT 597 Data Analysis II [<u>1.5 credit hours</u>]
- MGMT 599 Action Learning Project [3 credit hours]
- MGMT 710 Leadership ILE [.75 credit hours]
- MGMT 711 Negotiations ILE [.75 credit hours]

Custom Core Courses

Students must complete 2 courses (3 credit hours) from the following. The custom core courses are taken during the student's second semester of their first year.

MGMT 503 Management Control [<u>1.5 credit hours</u>]

- MGMT 561 Business-Government Relations [<u>1.5 credit hours</u>]
- MGMT 574 Operations Management [<u>1.5 credit hours</u>]

ELECTIVES

To fulfill the remaining requirements for the full-time MBA degree program, students must complete an additional 30 credit hours from departmental (MGMT, MGMP, or MICO) course offerings at the 500-level or above. Students take two elective courses during the spring semester of the first year. The second year of the program is dedicated entirely to elective course work. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMT, MGMP, or MICO course offerings), the student must obtain permission from the Jones Graduate School of Business registrar department. Electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

Major Concentrations: Full-Time MBA Program

Students have the option of selecting up to two functional or professional major concentrations. Completing a major concentration is not required to complete the requirements for the MBA degree; it is optional. Students must officially declare the major concentration through the Jones Graduate School of Business registrar department. Major concentrations typically consist of 9 to 12 credit hours of course work. If a student completes two concentrations, a maximum of 3 credit hours can be shared between the two concentrations. Similarly, a custom core course listed in the Core Requirements above can be counted toward the completion of a concentration only if the student has taken two other custom core courses which can be counted toward the custom core requirement. Specific concentration requirements for the academic year are available on Campus Groups. Students must be aware that the classes listed below may not be offered each semester, and that the course offerings are subject to change. Students should see courses.rice.edu to review the course offerings each semester.

Major Concentration: Accounting

Students pursuing the major concentration in Accounting must complete:

A minimum of 9 credit hours as listed below to satisfy major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Accounting concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

COURSE REQUIREMENTS

Students must complete a minimum of 3 courses (minimum of 9 credit hours) from the following:

- MGMT 503 Management Control* [<u>1.5 credit hours</u>]
- MGMP 601 Using Financial Statements** [<u>1.5 credit hours</u>]
- MGMP 602 Accounting-based Valuation** [<u>1.5 credit hours</u>]
- MGMT 601 Financial Statement Analysis** [<u>3 credit hours</u>]
- MGMT 603/MGMP 603 Federal Taxation [3 credit hours/1.5 credit hours]
- MACC 521 Accounting Theory [<u>3 credit hours</u>]

Contact the Jones Graduate School of Business Registrar Department to determine if Master of Accounting (MAcc) electives open to MBA student enrollment can be counted towards this concentration.

* MGMT 503 *Management Control* only counts towards the concentration if it is not used to satisfy the Custom Core requirement.

**Students may not take both MGMT 601 Financial Statement Analysis and either MGMP 601 Using Financial Statements or MGMP 602 Accounting-based Valuation.

Major Concentration: Energy

Students pursuing the major concentration in Energy must complete:

A minimum of 9 credit hours as listed below to satisfy major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Energy concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the

BLOCK A - FOUNDATIONAL COURSES

Students must complete 2 courses (3 credit hours) from the following:

- MGMT 610 Fundamentals of the Energy Industry [<u>1.5 credit hours</u>]
- MGMT 611 Geopolitics of Energy [<u>1.5 credit hours</u>]

BLOCK B - ENVIRONMENT COURSES

Students must complete 1 course (1.5 credit hours) from the following:

- MGMT 541 Economic Environment of Business* [1.5 credit hours]
- MGMT 561 Business-Government Relations* [<u>1.5 credit hours</u>]

BLOCK C - APPLICATION AND CONTEXT COURSES

Students must complete 3 courses (a minimum of 4.5 credit hours) from the following:

- MGMT 609 Managing Energy Transitions [<u>1.5 credit hours</u>]
- MGMT 612 Competition, Carbon & Electricity Policy [1.5 credit hours]
- MGMT 616 Energy Market Organization [<u>1.5 credit hours</u>]
- MGMT 656 Energy Derivatives [<u>3 credit hours</u>]
- MGMT 708 Pricing Strategies in the Oil & Gas Industry [<u>1.5 credit hours</u>]
- MGMT 745 International Energy Development [<u>1.5 credit hours</u>]

INTEGRATIVE COURSE OFFERINGS

Students may complete courses from the following as substitutes for the credit hours required in Blocks A, B, and C.

- MICO 602 B2B Customer Focused Strategy [<u>1.5 credit hours</u>]
- MICO 603 Optimization and Management of Logistics Distribution Networks [1.5 credit hours]
- MICO 604 Mindfulness and Safety in High Reliability Organizations [1.5 credit hours]
- MICO 605 Managing Foreign Market Entry for the Energy Industry [1.5 credit hours]

*MGMT 541 *Economic Environment of Business* and MMGT 561 *Business-Government Relations* can be applied if the course is not used to satisfy the Custom Core requirement.

Major Concentration: Entrepreneurship

Students pursuing the major concentration in Entrepreneurship must complete:

A minimum of 12 credit hours as listed below to satisfy major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Entrepreneurship concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

CORE REQUIREMENTS

Students must complete the following 4 courses (6 credit hours):

- MGMT 620 The Entrepreneurial Toolkit [<u>1.5 credit hours</u>]
- MGMT 621 The New Enterprise [<u>3 credit hours</u>]
- MGMT 626 Financing the Start-Up Venture [<u>1.5 credit hours</u>]
- MGMT 641 Foundations of Entrepreneurship: Strategy [1.5 credit hours]

REQUIRED EXPERIENTIAL LEARNING

Students must complete a minimum of 1.5 credit hours from the following:

- MGMT 734 Technology Entrepreneurship [3 credit hours]
- MGMT 761 Enterprise Acquisition Lab [1.5-3 credit hours]
- MGMT 762 Entrepreneurial Lab: New Enterprise [<u>1.5 -3 credit hours</u>]
- MGMT 763 Entrepreneurial Lab: Technology [<u>1.5-3 credit hours</u>]
- MGMT 764 Entrepreneurial Lab: Health Care [<u>1.5-3 credit hours</u>]
- MGMT 766 Entrepreneurial Lab: Energy [<u>1.5-3 credit hours</u>]

ELECTIVES

Students must complete a minimum of 3 courses (4.5 credit hours) from the following:

- MGMT 623 Commercialization in Pharma/Biotech [<u>1.5 credit hours</u>]
- MGMT 627 Enterprise Acquisition [<u>1.5 credit hours</u>]
- MGMT 633 Life Science Entrepreneurship [<u>1.5 credit hours</u>]
- MGMT 676 Social Enterprise [<u>1.5 credit hours</u>]
- MGMT 724 Social Entrepreneurship [<u>1.5 credit hours</u>]
- MGMT 725 Intellectual Property Strategy for Entrepreneurs [<u>1.5 credit hours</u>]
- MGMT 730 Legal Aspects of Entrepreneurship [<u>1.5 credit hours</u>]

Major Concentration: Finance

Students pursuing the major concentration in Finance must complete:

A minimum of 12 credit hours as listed below to satisfy major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Finance concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

CORE REQUIREMENTS

Students must complete the following 5 courses (9 credit hours):

- MGMT 601 Financial Statement Analysis [<u>3 credit hours</u>]
- MGMT 642 Futures & Options [<u>1.5 credit hours</u>]
- MGMT 645 Portfolio Management [<u>1.5 credit hours</u>]
- MGMT 646 Corporate Investment Policy [<u>1.5 credit hours</u>]
- MGMT 648 Applied Finance [<u>1.5 credit hours</u>]

ELECTIVES

Students must complete a minimum of two courses from the following:

- MGMT 643 Equity Practicum I Wright Fund* [2 credit hours]
- MGMT 644 Equity Practicum II Wright Fund* [2 credit hours]
- MGMT 647 Corporate Financial Policy [<u>1.5 credit hours</u>]
- MGMT 652 Mergers & Acquisitions [<u>1.5 credit hours</u>]
- MGMT 656 Energy Derivatives [3 credit hours]
- MGMT 658 Financial Risk Management [<u>1.5 credit hours</u>]
- MGMT 659 Real Estate Finance: Asset Valuation [<u>1.5 credit hours</u>]
- MGMT 674 Real Estate Finance: Instruments [<u>1.5 credit hours</u>]
- MGMT 726 Fixed Income Practicum I Zions Portfolio* [<u>1.5 credit hours</u>]
- MGMT 727 Fixed Income Practicum II Zions Portfolio* [1.5 credit hours]

*Only 3 credit hours from an investment practicum course will count as elective hours toward the major concentration in finance. These 3 credit hours may come from either a) three of the four credit hours form the Wright Fund curriculum {MGMT 643 plus one credit hour form MGMT 644} or b) the two 1.5 credit hour courses in the Zions Portfolio curriculum {MGMT 726 and MGMT 727}.

Major Concentration: Health Care

Students pursuing the major concentration in Health Care must complete:

A minimum of 8 courses (12 credit hours) as listed below to satisfy the major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Health Care concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

CORE REQUIREMENT

Students must complete the following course:

ELECTIVES

Students must complete a minimum of 5 courses (minimum of 10.5 credit hours) from the following:

- MGMT 623 Commercialization in Pharma/Biotech [1.5 credit hours]
- MGMT 631 Health Insurance in the U.S.: The Essentials [<u>1.5 credit hours</u>]
- MGMT 633 Life Science Entrepreneurship [<u>1.5 credit hours</u>]
- MGMT 690 Health Care Strategy I [<u>1.5 credit hours</u>]
- MGMT 691 Negotiation for Health Care [<u>1.5 credit hours</u>]
- MGMT 694 Interpersonal Communication in Health Care [<u>1.5 credit hours</u>]
- MGMT 699 Strategic Considerations in Capital Investment: Health Care and Beyond [<u>1.5 credit hours</u>]
- MGMT 738 Customer Focus in Health Care and Service Industries: A Strategic Approach [1.5 credit hours]
- MGMT 750 Strategic Considerations in Health Informatics [<u>1.5 credit hours</u>]
- MGMT 751 Economics of Health Care Sectors [<u>1.5 credit hours</u>]
- MGMT 755 Hospital Management: The Building Blocks [<u>1.5 credit hours</u>]
- A maximum of 1 course (1.5 credit hours) from the following:
 - MGMT 712 Process Management and Quality Improvement [<u>1.5 credit hours</u>]
 MGMT 744 Service Operations and Marketing [<u>1.5 credit hours</u>]
- A maximum of 1 course (1.5-3 credit hours) from the following:
 - MGMT 753 Operations Lab: Health Care [<u>1.5-3 credit hours</u>]
 - MGMT 764 E-Lab: Health Care [.75-3 credit hours]

Major Concentration: Marketing

Students pursuing the major concentration in Marketing must complete:

A minimum of 8 courses (12 credit hours) as listed below to satisfy the major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Marketing concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

STRATEGIC MARKETING FOUNDATIONS

Students must complete a minimum of 4 courses (minimum of 6 credit hours) as listed below.

Quantitative Foundations

Students must complete a minimum of 2 courses (minimum of 3 credit hours) from the following:

- MGMT 680 Customer Analytics in Satisfaction & Loyalty [1.5 credit hours]
- MGMT 686 Marketing Research [<u>1.5 credit hours</u>]
- MGMT 689/MGMP 689 Decision Models [<u>3 credit hours/1.5 credit hours</u>]
- MGMT 707 Marketing Analytics for Managers & Consultants [1.5 credit hours]

Conceptual Foundations

Students must complete a minimum of 2 courses (3 credit hours) from the following:

- MGMT 682 Pricing Strategies [<u>1.5 credit hours</u>]
- MGMP 684 Brand Management [<u>1.5 credit hours</u>]
- MGMT 685 Marketing Channels [<u>1.5 credit hours</u>]
- MGMT 688 Buyer Behavior [<u>1.5 credit hours</u>]
- MGMT 692 Customer Relationship Management [1.5 credit hours]
- MGMT 693 New Products [<u>1.5 credit hours</u>]

MARKETING APPLICATIONS

Students must complete a minimum of 1 course (1.5 credit hours) from the following:

- MGMT 687 Applied Marketing Strategy [<u>1.5 credit hours</u>]
- MGMT 708 Pricing Strategies in the Oil & Gas Industry [<u>1.5 credit hours</u>]
- MGMT 718 Marketing-Based Project Analysis in Real Estate [<u>1.5 credit hours</u>]
- MGMT 770 Professional Selling [<u>1.5 credit hours</u>]

ELECTIVES

To fulfill the remaining requirements for the major concentration in Marketing, students must complete a total of 3 additional courses from the courses listed in the categories above.

Major Concentration: Mastering Creativity and Innovation

Students pursuing the major concentration in Mastering Creativity and Innovation must complete:

A minimum of 5 courses (9 credit hours) as listed below to satisfy the major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Mastering Creativity and Innovation concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

CORE REQUIREMENTS

Students must complete 2 courses (4.5 credit hours) from the following:

Students must complete 2 courses (4.5 credit hours) from the following:

- MGMT 625 Creative Entrepreneurship [<u>1.5 credit hours</u>]
- MGMT 734 Technology Entrepreneurship [<u>3 credit hours</u>]

ELECTIVES

Students must complete 3 courses (minimum of 4.5 credit hours) from the following:

- MGMT 618 Complexities of People and Organizations [<u>1.5 credit hours</u>]
- MGMT 621 The New Enterprise* [3 credit hours]
- MGMT 678 U.S. Health Care Management [<u>1.5 credit hours</u>]
- MGMT 693 New Products [<u>1.5 credit hours</u>]
- MGMT 715 Strategic Innovation Management [<u>1.5 credit hours</u>]

*MGMT 621 *The New Enterprise* (1.5 credit hours) and MGMT 640 *The Entrepreneurial Toolkit* (1.5 credit hours) completed in Spring 2016 is the equivalent of MGMT 621 *The New Enterprise* (3.0 credit hours) completed in Fall 2016 or Spring 2017.

Major Concentration: Operations Management

Students pursuing the major concentration in Operations Management must complete:

A minimum of 7 courses (10.5 credit hours) as listed below to satisfy the major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Operations Management concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

CORE REQUIREMENTS

Students must complete 3 courses (4.5 credit hours) from the following:

- MGMT 574 Operations* [<u>1.5 credit hours</u>]
- MGMT 622 Foundations of Supply Chain Management [<u>1.5 credit hours</u>]
- MGMT 670 Operations Strategy [<u>1.5 credit hours</u>]

*MGMT 574 Operations is a Custom Core course that must be taken for the major concentration, but the credit hours <u>do not</u> count towards the major concentration's minimum credit hour requirement.

FOUNDATION COURSES

Students must complete a minimum of 2 courses (minimum of 3 credit hours) from the following:

- MGMT 685 Marketing Channels [<u>1.5 credit hours</u>]
- MGMT 712 Process Management and Quality Improvement [1.5 credit hours]
- MGMT 744 Service Operations and Marketing [<u>1.5 credit hours</u>]
- MGMT 752 Operations Lab Energy [<u>1.5-3 credit hours</u>]
- MGMT 753 Operations Lab Health Care [<u>1.5-3 credit hours</u>]

ELECTIVES

Students may complete a minimum of 2 courses (minimum of 3 credit hours) from the following:

- MGMP 689 Decision Models [<u>1.5 credit hours</u>]
- MGMT 682 Pricing Strategies [<u>1.5 credit hours</u>]
- MGMT 715 Strategic Innovation Management [<u>1.5 credit hours</u>]
- MGMT 729 IT for Managers [<u>1.5 credit hours</u>]
- MGMT 750 Strategic Considerations in Health Information [<u>1.5 credit hours</u>]

Major Concentration: Real Estate

Students pursuing the major concentration in Real Estate must complete:

A minimum of 12 credit hours as listed below to satisfy the major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Real Estate concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

CORE REQUIREMENT

Students must complete the following course:

MGMT 659 Real Estate Finance: Asset Valuation [1.5 credit hours]

ELECTIVES

Students must complete a minimum of 10.5 credit hours from the following:

- MGMT 624 Real Estate Seminar [1.5 credit hours]
- MGMT 648 Applied Finance [<u>1.5 credit hours</u>]
- MGMT 654 Real Estate Capital Markets: Public and Private [<u>1.5 credit hours</u>]
- MGMT 660 Real Estate and the Law [<u>1.5 credit hours</u>]
- MGMT 674 Real Estate Finance: Instruments [<u>1.5 credit hours</u>]
- MGMT 675 Corporate Real Estate [<u>1.5 credit hours</u>]
- MGMT 718 Marketing Based Project Analysis [<u>1.5 credit hours</u>]
- MGMT 742 International Real Estate [<u>1.5 credit hours</u>]
- MGMT 746 Real Property ILE [0.5 credit hours]
- MGMT 757 Real Estate Lab: Development, Design and Construction [3 credit hours]
- MGMT 754 ULI Real Estate Lab* [<u>1.5 credit hours</u>]
- MGMT 776 Introduction to Real Estate [.75 credit hours]

*MGMT 754 ULI Real Estate Lab may be taken twice with approval of instructor.

Major Concentration: Strategic Management

Students pursuing the major concentration in Strategic Management must complete:

A minimum of 6 courses (9 credit hours) as listed below to satisfy the major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Strategic Management concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

CORE REQUIREMENTS

Students must complete a minimum of 3 courses (4.5) credit hours from the following:

- MGMT 676 Social Enterprise [<u>1.5 credit hours</u>]
- MGMT 713 Strategic Issues in Global Business [<u>1.5 credit hours</u>]
- MGMT 715 Strategic Innovation Management [<u>1.5 credit hours</u>]
- MGMT 720 Strategy and International Strategic Alliances [<u>1.5 credit hours</u>]
- MGMT 723 Strategic Management of Professional Service Firms [1.5 credit hours]

ELECTIVES

Students must complete a minimum of 3 courses (4.5 credit hours) from the following:

- MGMT 561 Business-Government Relations* [<u>1.5 credit hours</u>]
- MGMT 618 Complexities of People & Organizations [<u>1.5 credit hours</u>]
- MGMT 652 Mergers & Acquisitions [<u>1.5 credit hours</u>]
- MGMT 661 International Business Law [<u>1.5 credit hours</u>]
- MGMT 686 Marketing Research [<u>1.5 credit hours</u>]
- MGMT 690 Health Care Strategy [<u>1.5 credit hours</u>]
- MGMT 721 Business Law [<u>1.5 credit hours</u>]
- MGMT 747 Regulation of Business and Financial Markets [<u>1.5 credit hours</u>]
- MGMT 786 Jones EdGE (Asia)** [<u>1.5 credit hours</u>]
- MGMT 789 Jones EdGE (Central America)** [<u>1.5 credit hours</u>]
- MGMT 797 Jones EdGE (South America)** [<u>1.5 credit hours</u>]
- MICO 605 Managing Foreign Market Entry for the Energy Industry [1.5 credit hours]

*Can only be applied toward major concentration requirements if not counted as a Custom Core course.

**Students may only apply one *Jones EdGE* course towards major concentration requirements.

Back to menu

Requirements for the MBA for Professionals Degree Programs

The Jones Graduate School of Business offers the MBA for Professionals program in three formats. These programs cover the same content, but are offered at different times and over different periods. Students choose a program based on life-style preference and professional and personal commitments.

MBA for Professionals Evening Program

The MBA for Professionals Evening Program consists of a 22-month, lock-step curriculum delivered in four consecutive semesters over a two-year period. Students pursuing the MBA for Professionals Evening Program must complete:

A minimum of 54 credit hours as listed below to satisfy degree requirements.

CORE REQUIREMENTS

Students must complete 23 courses (40.5 credit hours) as listed below to satisfy the MBA for Professionals Evening program's Core Requirements. Required first year classes are offered during the week from 6:15pm to 9:30pm predominantly on Monday and Wednesday evenings.

Required Courses

Students must complete the following 22 courses (39 credit hours):

- MGMP 500 MBAP-E Immersion [1.5 credit hours]
- MGMP 501 Financial Accounting [<u>3 credit hours</u>]
- MGMP 502 Managerial Accounting [<u>1.5 credit hours</u>]
- MGMP 510 Organizational Behavior [<u>1.5 credit hours</u>]
- MGMP 511 ILE Organizational Change [.75 credit hours]
- MGMP 540 Managerial Economics [<u>1.5 credit hours</u>]
- MGMP 543 Finance [<u>3 credit hours</u>]
- MGMP 560 ILE Ethics I [.75 credit hours]
- MGMP 570 Competitive Strategy and Industry Analysis [<u>1.5 credit hours</u>]
- MGMP 571 Strategy Formulation and Implementation [<u>1.5 credit hours</u>]
- MGMP 574 Operations Management [<u>1.5 credit hours</u>]
- MGMP 580 Marketing [<u>3 credit hours</u>]
- MGMP 595 Data Analysis [<u>3 credit hours</u>]
- MGMP 596 Leadership Communication [<u>1.5 credit hours</u>]
- MGMP 597 ILE Integrative Competitive Experience [<u>1.5 credit hours</u>]
- MGMP 701 ILE Communications I [.75 credit hours]
- MGMP 703 ILE Ethics II [.75 credit hours]
- MGMP 704 ILE Communications II [.75 credit hours]
- MGMP 707 ILE Communications III [.75 credit hours]
- MGMP 708 ILE Leadership [<u>1.5 credit hours</u>]
- MGMP 709 ILE Negotiations [<u>1.5 credit hours</u>]
- MGMP 798 ILE First Year Capstone Simulation [3 credit hours]
- MGMP 799 Program Capstone [3 credit hours]

Custom Core Courses

Students must complete 1 course (1.5 credit hours) from the following:

- MGMP 541 Economic Environment of Business [1.5 credit hours]
- MGMP 561 Business Government Relations [<u>1.5 credit hours</u>]

ELECTIVES

To fulfill the remaining requirements for the MBA for Professionals Evening Degree Program, students must complete an additional 13.5 credit hours from departmental (MGMT, MGMP, or MICO) course offerings at the 500-level or above. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMT, MGMP, or MICO course offerings), the student must obtain permission from the Jones Graduate School of Business registrar department. Electives are offered on the evening schedule, the weekend schedule, and the daytime schedule.

MBA for Professionals Weekend Program

The MBA for Professionals Weekend Program consists of a 22-month, lock-step curriculum delivered in four consecutive semesters over a two-year period. Students pursuing the MBA for Professionals Weekend Program must complete:

A minimum of 54 credit hours as listed below to satisfy degree requirements.

CORE REQUIREMENTS

Students must complete the following 23 courses (42 credit hours) to satisfy the MBA for Professionals Weekend program's Core Requirements. Classes are offered predominately on Friday evenings from 4:00pm – 9:30pm and Saturdays from 7:30am – 6:30pm every other weekend.

- MGMW 500 MBAP-W Immersion [.75 credit hours]
- MGMW 501 Financial Accounting [<u>3 credit hours</u>]
- MGMW 510 Organizational Behavior [<u>1.5 credit hours</u>]
- MGMW 540 Managerial Economics [<u>1.5 credit hours</u>]
- MWMW 570 Competitive Strategy and Industry Analysis
- MWMW 595 Data Analysis [3 credit hours]
- MGMW 596 Leadership Communication [<u>3 credit hours</u>]
- MWMW 502 Managerial Accounting [<u>1.5 credit hours</u>]
- MWMW 543 Finance [3 credit hours]
- MGMW 571 Strategy Formulation and Implementation [<u>1.5 credit hours</u>]
- MGMW 574 Operations Management [<u>1.5 credit hours</u>]
- MGMW 580 Marketing [<u>3 credit hours</u>]
- MGMW 597 ILE Integrative Competitive Experience [1.5 credit hours]
- MGMW 798 First Year Capstone Simulation [<u>1.5 credit hours</u>]
- MGMW 700 2nd Year Immersion [.75 credit hours]
- MGMW 511 Organizational Change [.75 credit hours]
- MGMW 541 Economic Environment of Business [<u>1.5 credit hours</u>]
- MGMW 560 Ethics I [<u>1.5 credit hours</u>]
- MGMW 701 Communications [.75 credit hours]
- MGMW 709 Negotiations [<u>1.5 credit hours</u>]
- MGMW 561 Business-Government Relations [<u>1.5 credit hours</u>]
- MGMW 706 Leadership [<u>1.5 credit hours</u>]
- MGMW 799 Program Capstone [<u>3 credit hours</u>]

ELECTIVES

To fulfill the remaining requirements for the MBA for Professionals Weekend Program, students must complete an additional 12 credit hours from departmental (MGMT, MGMP, or MICO) course offerings at the 500-level or above. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMT, MGMP, or MICO course offerings), the student must obtain permission from the Jones Graduate School of Business registrar department. Electives are offered on the weekend schedule, the evening schedule, and the daytime schedule.

MBA for Professionals Evening Extended Program

The MBA for Professionals-Evening Extended Program allows students to complete the same curricular requirements as the

other programs (a minimum of 54 credit hours) over a longer period of time (typically 3-5 academic years). There are minimum requirements each semester, but the structure facilitates the alignment of the pace of completion with professional preferences and commitments.

Back to menu

Requirements for the MBA for Executives Degree Program

The program is a lock-step progression in which students take required courses in sequence. The program includes four 5-day intensive executive forums that focus on leadership, strategy, critical decision-making and global management. Students pursuing the MBA for Executives Degree Program must complete:

A minimum of 54 credit hours to satisfy degree requirements over a two-year period.

CORE REQUIREMENTS

Students must complete the following 18 courses (43.5 credit hours):

- MGMT 801 Financial Accounting [<u>3 credit hours</u>]
- MGMT 840 Economics of Business [3 credit hours]
- MGMT 895 Business Analytics [3 credit hours]
- EMBA 911 Executive Seminar I [<u>1.5 credit hours</u>]
- EMBA 991 Executive Forum [3 credit hours]
- EMBA 912 Executive Seminar II [3 credit hours]
- EMBA 992 Executive Forum II [3 credit hours]
- MGMT 802 Managerial Accounting [<u>1.5 credit hours</u>]
- MGMT 843 Corporate Financial Management [3 credit hours]
- MGMT 880 Strategic Marketing [<u>3 credit hours</u>]
- MGMT 874 Operations Management [<u>1.5 credit hours</u>]
- EMBA 913 Executive Seminar III [3 credit hours]
- EMBA 993 Executive Forum III [<u>1.5 credit hours</u>]
- EMBA 914 Executive Seminar IV [3 credit hours]
- EMBA 994 Executive Forum IV [3 credit hours]
- MGMT 921 Global Markets & Institutions [1.5 credit hours]
- MGMT 920 Managing the Global Firm [<u>1.5 credit hours</u>]
- MGMT 922 Managing the Global Firm: Strategy [<u>1.5 credit hours</u>]

ELECTIVES

To fulfill the remaining requirements for the MBA for Executives Program, students must complete an additional 10.5 credit hours from departmental (MGMT, MGMP, or MICO) course offerings at the 500-level or above. 9 credit hours are to be completed during the 3rd semester of the student's program of study along with EMBA 913 and EMBA 993. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMT, MGMP, or MICO course offerings), the student must obtain permission from the Jones Graduate School of Business registrar department. Electives are offered on the weekend schedule, the evening schedule, and the daytime schedule.

Back to menu

Requirements for the MBA/Master of Engineering Degree Program

Students may earn this non-thesis 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. Coordinated degree candidates, however, can fulfill requirements for both degrees in two academic years.

For the coordinated MBA/master of engineering degree, students must complete:

- At least two academic years in residence at Rice
- 69 semester hours in approved course work:
 - 24 hours in an engineering discipline
 45 hours in business
- At least 6 hours of the 45 hours in business must also meet the requirements towards the master of engineering degree and will be counted towards both degrees.

Students plan their course schedules in consultation with the engineering department in which they are enrolled and with the Jones Graduate School of Business Registrar Department.

Back to menu

Requirements for the MBA/Master of Science Professional Science Masters Degree Program

Students may earn a master of science degree from the Weiss School of Natural Science Professional Science Master's program in the following fields: (1) Environmental Analysis and Decision Making, (2) Nanoscale Physics, (3) Space Studies, (4) Subsurface Geoscience, and (5) Bioscience and Health Policy. Coordinated degree candidates can fulfill requirements for both degrees within three academic years.

For the coordinated MBA/master of science degree from the professional master's program, students must fulfill the following requirements:

- 75 credit hours of course work including at least 30 credits in a science discipline and 45 credits of business course work
- Satisfy all MBA core curriculum requirements
- Satisfy all PSM track-specific requirements
- Complete a summer internship

Students plan their course schedules in consultation with the PSM program director and with the Jones Graduate School of Business Registrar Department.

Back to menu

Requirements for the MBA/MD Dual Degree Program

Students earn both MD and MBA degrees in five years. They spend their time as follows:

- Years 1, 2 and 3 —medical training at Baylor College of Medicine
- Year 4—First-year MBA core courses at Rice including two custom core courses and two electives. MD, MBA students take the operations custom core and substitute the 2nd custom core with a health care elective. Depending on the career goals students can choose among Business Government or first year electives in finance, marketing or entrepreneurship for their electives.
- Summer: Students undertake internship/externship (titled Health Services Administration, MEOSA 413 at Baylor), which must have both health care and business content and should be approved by the program directors of both schools. There will be transfer of 15 credits for this internship/externship towards the MBA degree.
- Year 5—Second-year MBA elective courses in fall including US Health Care Management, and medical training at Baylor College of Medicine in the spring semester.

The students are expected to follow the requirements for the health care concentration as the blue print for their MBA studies, to the extent possible and in consultation with the Program Director of the Health Care Initiative at JGSB. To obtain the concentration, students take US Health Care Management in fall of their second year and complete 12 credits from a suite of health care courses offered throughout the year as listed here (provide the link to the site).

Students receive their MBA degree from Rice after they have completed 60 credit hours of course work, comprised of 45 credit hours at the Jones Graduate School of Business and the transferred 15 credit hours completed through the Baylor College of Medicine. The students also need to complete the requirements specified by Baylor College of Medicine.

Back to menu

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 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 towards the MBA degree (including approved courses taken at the university but outside the Jones Graduate School of Business) 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. A student who has been notified of dismissal may appeal to the Academic Standards Committee of the Jones Graduate School of

Business. 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 one 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. If permitted to return, the student will pay the current rate of tuition, based upon the class of students s/he is joining.

Only grades of C and above are counted for credit toward graduation. If students receive a grade below a C in a course required for graduation, they must repeat the course. If students receive a grade below a C in an elective course, they need not repeat the specific course, but they must make up the credits. If the required course is not offered again prior to graduation, the student will be permitted to take the course the following academic year, but will be charged the current pro-rated rate for the program in which the additional course work is completed.

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 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 coordinated MBA/master of engineering degrees, the coordinated MBA/Master of Science Professional Science Masters degrees, or the coordinated MBA/MD dual degree, but who have a cumulative grade point average lower than 3.00, are dismissed without graduation.

Jones Graduate School of Business students may not take courses pass/fail to count toward their degree requirements. Jones Graduate School of Business students may audit courses with professor approval. The courses will not count toward the MBA, but will appear on the transcript.

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 specific charges. (This probationary notice, however, is not required as a precondition for filing specific charges.)

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 chair of the Academic Standards Committee. These 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?

Students may include any additional information they deem relevant in the appeal letter.

Timing—The student must inform the senior associate dean of degree programs (by email or written note) immediately of the intention to appeal. The appeal letter to the committee must be filed within two weeks after receiving a dismissal letter. If a student plans to appeal, he/she should continue to attend classes. It is important to keep up in his/her studies during the appeal process. If his/her appeal is accepted, the student may continue progress towards the completion of their degree.

Appeals—Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. 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

Once a course grade has been assigned by an instructor, it is generally considered final and is rarely changed for any reason other than calculation or transcription errors. The procedure below outlines the process by which a student may appeal a course

- 1. The student should first pursue any grading question with the instructor following the formal or informal process the instructor 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 instructor and send a copy to the senior associate dean of degree programs. This written appeal must be filed no later than two weeks after the final grade for a course was assigned.
- 3. The instructor must schedule a meeting with the student within two 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 instructor to the senior associate dean of degree programs.
- 4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.
- 5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within six weeks of receiving a written notice of appeal (step 4).
- 6. Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean 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.

MBA Elective Course Add/Drop Policy and Procedures

Due to the unique term schedule followed by the Jones Graduate School of Business MBA programs, MBA students have special procedures they must follow to make schedule changes. The Jones Graduate School of Business Registrar Department administers an add/drop policy which allows students to add/drop elective courses at various times throughout the semester. For all elective courses, student may not add/drop a course after the deadline for the appropriate term.

MBA Course Registration Policy for non-Jones Graduate School of Business Rice University Students

Graduate students from outside the Jones Graduate School of Business may register for elective courses in the full-time MBA program and the MBA for Professionals program. To be eligible for a specific course, a student must be in good academic standing (3.0 GPA or above), have permission from the student's department advisor, and have satisfied the specified course prerequisites. In order to register for the course, the student should verify eligibility with the Jones Graduate School of Business associate registrar and then request approval from the course instructor. Non-Jones Graduate School of Business students may not register for elective courses in the MBA for Executives program or core (required) courses in any of the school's MBA programs. Rice undergraduate students are not allowed to register for any MBA-level courses (MGMT, MGMP, or MGMW) offered at the Jones Graduate School of Business.

Independent Study

Minimum Hours Requirement—Each credit of independent study should contain approximately as much time content as a one-credit course at Jones Graduate School of Business, 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 1.0, 1.5, 2.0, or 3.0 credit hours; 3.0 credit independent study projects will rarely be approved. 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 must be determined at the beginning of a project. Increases to the number of project credit hours after the project overview has been filed with the Jones Graduate School of Business associate registrar 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 second week of classes in the term in which the project begins.

Restrictions—No student may take more than three credit hours of independent study during the course of the MBA program without the approval of the Academic Standards Committee. If an independent study is proposed that would cause a student to exceed the 3.0 credit limit, the Academic Standards Committee will select two 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 3.0 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 Jones Graduate School of Business 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 work.

Faculty Sponsorship—Independent study projects normally are sponsored only by full-time Jones Graduate School of Business faculty; faculty typically sponsor projects only in their area of expertise. Students wanting 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 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 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, the Jones Graduate School of Business 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 Jones Graduate School of Business associate registrar 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 two to three weeks.
- Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, 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 Jones Graduate School of Business associate registrar.

Applications—Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.

Class Attendance Policy

Students are expected to be in class on the first day of each term. The instructor reserves the right to exclude a student from their course who is absent on the first day. Students should refer to the specific attendance policy for each program. This information can be found in the Jones Graduate School of Business Informational Guide, which is referenced below. For special circumstances, students should see the instructor.

Withdrawal Policy

A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition and fees, which can be found on the Rice Office of the Registrar website.

Jones Graduate School of Business Student Informational Guide

Generally, the Jones Graduate School of Business adheres to the academic regulations of Rice University. However, the Jones Graduate School of Business MBA program has unique policies and procedures that vary from the Office of Graduate and Postdoctoral Studies regarding, but not limited to, leave of absence, withdrawals and readmission, add/drop, academic discipline, dismissal, procedures for resolution of problems, and appeal of academic regulations. A copy of the guide is available on Campus Groups.

Financial Aid

Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

Back to menu

Master of Accounting Degree (MAcc)

284 of 923

The master of accounting (MAcc) program, offered by the Jones Graduate School of Business, is designed to enable students with a top-tier non-accounting undergraduate education to complete the educational requirements for becoming a certified public accountant. Certified public accountants conduct independent audits and provide accounting, tax, and consulting services. The program prepares students to enter careers in public accounting, corporate accounting, management accounting, governmental accounting, financial analysis, and law enforcement. Graduates of the program will excel in analytics, critical thinking, ethics, judgment, and communications, built on outstanding technical accounting skills. An understanding of global capital markets and macroeconomic forces will complement graduates' accounting expertise, along with proficiency in corporate finance, risk and valuation.

Program Learning Outcomes for the Master of Accounting Degree (MAcc)

Students graduating from this program will:

- 1. Demonstrate technical proficiency in the major aspects of public accounting.
- 2. Demonstrate financial valuation expertise.
- 3. Demonstrate strong written and verbal business communication skills.
- 4. Demonstrate a sound knowledge of public policy and corporate governance.
- 5. Demonstrate a critical and analytical approach to problem solving.

MAcc Admission Requirements

For general university requirements, see Graduate Degrees. Criteria for evaluating participants include: completion of (or plans for completion of) required undergraduate prerequisite courses, academic and professional accomplishments, GMAT or GRE test score, an interview, and, possibly, an admissions assessment examination. Current Rice students and Rice alumni are exempted from the test score requirement, although they may provide a GMAT or GRE score at their discretion.

Rice undergraduates: Students who are on track to fulfill the requirements of the Rice business minor prior to completing their undergraduate degree are eligible for admission to the program. Non-business minors are also eligible for admission if specific prerequisite courses will be completed before undergraduate graduation; the MAcc program director will consult prospective applicants to determine what prerequisite classes are needed. All MAcc applicants, regardless of being a business minor, need to have completed the first financial accounting course (BUSI 305), the intermediate financial accounting course (BUSI 405), and the auditing course (BUSI 440) prior to beginning the MAcc program. Students potentially interested in the MAcc program are encouraged to take BUSI 305 in the spring of their freshman year. Rice undergraduates can apply and gain conditional admission to the MAcc program as early as the fall semester of their junior year and as late as the fall semester of their senior year. Conditionally admitted students who lack any of the prerequisite accounting courses must take appropriate classes to correct their deficiency.

Non-Rice undergraduates: Students should apply in the fall semester of their senior year. Admitted students who lack the prerequisite accounting course work must take summer pre-term classes.

Requirements for the Master of Accounting Degree (MAcc)

Students pursuing the MAcc degree program in Accounting must complete:

• A minimum of 36 credit hours over one academic year to satisfy degree requirements. This course work is comprised of 24 credit hours of accounting coursework, 9 credit hours of business coursework, and 3 credit hours of ethics coursework.

REQUIRED ACCOUNTING COURSES

Students must complete the following 11 courses (24 credit hours):

- MACC 511 Issues in Financial Reporting II [<u>3 credit hours</u>]
- MACC 512 Financial Statement Analysis and Valuation [3 credit hours]
- MACC 513 Issues in Financial Reporting III [3 credit hours]
- MACC 514 Fair Value Accounting [<u>1.5 credit hours</u>]
- MACC 531 Advanced Management Accounting [<u>1.5 credit hours</u>]
- MACC 541 Control Systems [<u>1.5 credit hours</u>]
- MACC 561 Accounting Information Systems [<u>1.5 credit hours</u>]
- MACC 571 Federal Taxation [<u>3 credit hours</u>]
- MACC 572 Federal Taxation II [1.5 credit hours]
- MACC 581 Government and Not-For-Profit Accounting [<u>1.5 credit hours</u>]
- MACC 591 Accounting Theory [<u>3 credit hours</u>]

REQUIRED BUSINESS COURSES

Students must complete the following 5 courses (9 credit hours):

- MACC 503 Accounting and Auditing Regulation [<u>1.5 credit hours</u>]
- MACC 504 Financial Futures and Options [<u>1.5 credit hours</u>]
- MACC 505 F manifold r dates and options [<u>1.5 credit hours</u>]
 MACC 505 Economic Environment of Business [<u>1.5 credit hours</u>]
- MACC 562 Accounting and Data Analytics [<u>1.5 credit hours</u>]

MACC 562 Accounting and Data Analytics [1.5 credit no

REQUIRED ETHICS COURSE

Students must complete the following course (3 credit hours):

MACC 501 Accounting Ethics and Professionalism [3 credit hours]

Academic and Professional Standards

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MAcc 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 2.67 (B-) is required for graduation. All courses taken towards the MAcc degree are counted in the cumulative grade point average calculation.

Students with a cumulative grade point average lower than 2.67 at the end of any term will be notified of dismissal. A student who has been notified of dismissal may appeal to the Academic Standards Committee of the Jones Graduate School of Business. 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 one semester or an academic year, or (3) is to be dismissed from the MAcc program.

Students are removed from probation only upon achieving a cumulative grade point average of at least 2.67 at the end of the following semester of work.

Students proposing to return after a period of academic suspension must apply to the Academic Standards Committee and receive permission to be readmitted. If permitted to return, the student will pay the current rate of tuition, based upon the class of students s/he is joining.

Only grades of C and above are counted for credit toward graduation. If a student receives a grade below a C in a course, s/he[B01] must meet with the program director to determine remediation. Any plans for remediation must be approved by the Academic Standards Committee.

Professional Standards—Masters 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 specific charges. (This probationary notice, however, is not required as a precondition for filing specific charges.)

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 chair of the Academic Standards Committee. These questions should be answered in the appeal letter:

- 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?

Students may include any additional information they deem relevant in the appeal letter.

Timing—The student must inform the senior associate dean of degree programs (by email or written note) immediately of the intention to appeal. The appeal letter to the committee must be filed within two weeks after receiving a dismissal letter. If a student plans to appeal, s/he should continue to attend classes. It is important to keep up in program studies during the appeal process. If the appeal is accepted, the student may continue progress towards the completion of the degree.

Appeals—Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. 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

Once a course grade has been assigned by an instructor, it is generally considered final and is rarely changed for any reason other than calculation or transcription errors. The procedure below outlines the process by which a student may appeal a course grade.

- 1. The student should first pursue any grading question with the instructor following the formal or informal process the instructor 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 instructor and send a copy to the senior associate dean of degree programs. This written appeal must be filed no later than two weeks after the final grade for a course was assigned.
- 3. The instructor must schedule a meeting with the student within two 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 instructor to the senior associate dean of degree programs.
- 4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.
- 5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within six weeks of receiving a written notice of appeal (step 4).
- 6. Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean 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.

Back to menu

PhD in Business

The Jones Graduate School of Business PhD program is designed for candidates with outstanding intellectual abilities and a strong commitment to research. The goal of the PhD program is to train students for academic careers focused on cutting-edge, rigorous research and teaching in a business school environment. Applicants to the PhD program must hold a four-year bachelor's degree from an accredited institution. A masters degree and work experience are not required for PhD admission.* The Jones Graduate School of Business does not have an MA program, although during the course of the PhD program a masters degree (MA) will be awarded after students have achieved doctoral candidacy and are in the process of completing the doctorate.

Program Learning Outcomes for the PhD Degree in Business

Upon completing the PhD degree, students majoring in Business will be able to:

- 1. Summarize major themes and current research problems in their area of specialization.
- 2. Explain and identify open problems and areas needing development in their discipline.
- 3. Execute and present original research in their discipline.
- 4. Effectively communicate, orally and in writing, their research and the major tenets of their discipline.

Requirements for the PhD Degree in Business

For general university requirements, see Graduate Degrees. For program details, see the PhD Program Guidebook distributed by the Jones Graduate School of Business. Admissions applications should include scores on the Graduate Management Admissions Test (GMAT) or the Graduate Record Examination (GRE). Full financial support will be provided to admitted doctoral students. Candidates for the PhD degree spend at least two years in full-time course work and at least two years writing the dissertation. Four to five years is a reasonable goal for completing the program. For the PhD, students must:

- Complete a program of doctoral-level courses that is approved by the area faculty advisor. Students take courses from departments such as economics, psychology, statistics, and political science in addition to courses from Jones Graduate School of Business.
- Complete and defend orally a doctoral dissertation, setting forth in publishable form, the results of original research.

* While advanced degrees (e.g. masters) and prior work experience are taken into account in admission decisions, evidence of

Major Concentration: Economics and Finance

The PhD in Business degree program offers a wide range of areas of specialization, depending on each students interests and goals. Students are encouraged to contact the Jones Graduate School of Business for additional details regarding the areas of specialization available.

Students pursuing the PhD degree programs in Business or in Economics have the option to participate in a unique program of study, one recognized with a formal major concentration in *Economics and Finance*. To participate, PhD students in either program (Business of Economics) have the option to declare the Major Concentration in Economics and Finance. The Program Learning Outcomes and Requirements for this Major Concentration in Economics and Finance can be found in the General Announcements listing for the Department of Economics in the Graduate Requirements section.

Back to menu

Withdrawal Policy

A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition and fees, which can be found on the Rice Office of the Registrar website.

Financial Aid

Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

Rice A-Z

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Rice Home

University Calendar

Maps-Directions

Feedback

01/03/2017

288 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Business >

Business

The Jesse H. Jones Graduate School of Business

Department Undergraduate Graduate Course Info Requirements Requirements Listings Jump to: Full-Time MBA Degree Program MBA for Professionals Degree Program MBA for Executives Degree Program MBA/Master of Engineering Degree Program MBA/Professional Science Masters Degree Program MBA/MD Dual Degree Program Master of Accounting Degree Program PhD in Business Degree Program

Requirements for the MBA, MAcc, MA, and PhD Degrees in Business

Master of Business Administration Degree (MBA) Programs

The MBA degree can be obtained via the Full-Time 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 the MBA degree. The MBA for Professionals program has three formats: an evening format, an alternating weekend format, and an extended evening format.

A coordinated MBA/master of engineering program is offered by the Jones Graduate School of Business and the George R. Brown School of Engineering, in any of the departments of engineering. This program prepares students to become managers in organizations requiring a high level of technical expertise and management skills. Students must apply separately and be accepted by both the business school and by the appropriate engineering department.

A coordinated MBA/master of science program is offered by the Jones Graduate School of Business and the Weiss School of Natural Sciences Professional Science Master's (PSM) Program. This program prepares students to become managers in organizations requiring specialized technical knowledge and general management skills. Students must apply separately and be accepted by both the business school and by the appropriate PSM program.

An MBA/MD dual degree program is offered by the Jones Graduate School of Business and Baylor College of Medicine. This program 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 health care firms, and pharmaceutical and medical supply and equipment companies.

Program Learning Outcomes for the MBA Degree Programs

Upon completing the MBA degree programs, students will be able to:

- 1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior and strategic management.
- 2. Develop, evaluate and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
- 3. Function effectively in a team setting both as a leader and a contributor.

MBA Admission Requirements

Applicants to the MBA programs must submit scores on the Graduate Management Admission Test (GMAT) or the Graduate

Undergraduate Students

Graduate Students

RICE

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Record Examination (GRE). International applicants, who did not earn an undergraduate degree from an institution where the primary language of instruction was English must submit a valid score report from either TOEFL, PTE, or IELTS. Admission to the MBA programs 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 or GRE.

The MBA and MBA for Professionals Programs—The MBA and MBA for Professionals programs do not have specific prerequisite courses required for admission.

MBA for Executives Program—In addition to meeting the standards for admission to the other MBA programs, students admitted to the MBA for Executives program typically have at least 10 years of relevant work experience.

MBA/Master of Engineering Program—To enter this coordinated degree program, applicants must be accepted by both the Jones Graduate School of Business and the engineering department in which they wish to pursue graduate study. The program requires the Jones Graduate School of Business application, two letters of recommendation and the GMAT or GRE. Some engineering departments require advanced tests as well.

MBA/Professional Science Master's Program—To enter this coordinated degree program, applicants must be accepted by both the Jones Graduate School of Business and one of the following Weiss School of Natural Sciences Professional Science Master's (PSM) programs: Environmental Analysis and Decision Making, Nanoscale Physics, Space Studies or, Subsurface Geoscience. The program requires the Jones Graduate School of Business application, two letters of recommendation and the GMAT or GRE.

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 of Business. The MCAT is accepted rather than the GMAT or GRE, but the GMAT or GRE is required for scholarship consideration. Three years of medical school are required before starting MBA classes.

Requirements for the MBA Degree Programs

For university minimum graduation requirements, see Graduate Degrees.

Students who register for a standard course load of 9-18 credit hours per semester are considered full-time students. All registration and elective selection via add/drop is completed online through ESTHER ². It is the responsibility of the student to monitor and maintain his or her schedule and academic record.

Waivers and Transfers of Credit—At its sole discretion, the school may allow students to transfer up to a maximum of six credit hours. Students must follow the prescribed curriculum of study and are not allowed to waive any core requirements.

Requirements for the Full-Time MBA Degree Program

Students pursuing the full-time MBA degree program must complete:

A minimum of 60 credit hours to satisfy degree requirements taken over a two-year period.

Major Concentrations— The Rice MBA program at the Jones Graduate School of Business offers concentrations to students enrolled in the full-time MBA program. The goal of a concentration is to provide students with the ability to demonstrate functional, professional, or industry expertise in a particular area of interest within a general management program. Major concentrations are revised annually and students are encouraged to contact the Jones Graduate School of Business registrar department for additional information. Major concentrations available to students pursuing the full-time MBA program include (*click on the name of each major concentration to review current specific course requirements for each*):

- Accounting: The major concentration in Accounting provides a broad understanding of the use and importance of accounting information to decision makers within the firm and to external users of financial statements. The core financial and management accounting courses provide a basic understanding of accounting principles. Completion of the concentration in accounting will serve to reinforce the fundamental concepts for the core and to provide additional insight into accounting processes and principles, and to enhance the ability to analyze and interpret accounting reports.
- Energy: The major concentration in Energy provides commercial acumen and leadership perspective to students with a technical background and develops their capability for taking additional responsibilities and higher-level management roles at companies in the energy sector. This is accomplished by engaging students in a curriculum that addresses three distinct, but inter-related, career paths which are widely regarded as conduits to leadership positions in energy industry midstream and upstream organizations: finance, operations, and product/customer focus.
- Entrepreneurship: The major concentration in Entrepreneurship provides students a framework for being an entrepreneur. The required courses equip students with the tools and processes for starting a business. The remaining courses allow students to select specific entrepreneurial topics suited to their objectives.

- Finance: The major concentration in Finance provides students with a broad foundation in financial management principles and an opportunity for further specialization. Students are required to complete the primary finance electives in the MBA program and Financial Statement Analysis. Students supplement these foundational courses with at least two more specialized courses from a list of approved offerings.
- Health Care: The focus of the major concentration in Health Care is to provide students with an understanding of how management principles are interpreted and applied in the different inter-locking sectors (providers, hospitals/small practices, payers, pharmaceutical, biotechnology) of the health care industry, and how the different dynamics in these sectors make it uniquely health care.
- Marketing: The major concentration in Marketing prepares students for careers in strategic marketing across a wide range
 of organizations, markets and industries. It provides critical knowledge for understanding and analyzing customers, and
 emphasizes the development of requisite quantitative and conceptual skills to contribute to the firm's overall success.
 Among the career trajectories for which students will be prepared are product management, customer analytics and
 customer insights, and management consulting.
- Operations Management: The major concentration in Operations Management presents students with a framework for design, planning, control, coordination and improvement of business processes, systems and resources essential to meet consumers' needs. Instead of the technical engineering view of operations, the focus is on managing the business well.
- Real Estate: The major concentration in Real Estate prepares students for a career in the real estate industry. The required course introduces a series of basic business concepts commonly used in the real estate industry and it covers in detail the application of the discounted cash flow model to real estate decisions. The elective courses provide for both a depth and breadth of understanding of the industry.
- Strategic Management: The major concentration in Strategic Management prepares students for careers in strategic planning, management consulting, and global business management across a variety of industries such as health care, energy, high technologies, consumer products, and professional services. It provides knowledge and analytic tools for students to understand why some companies are financially much more successful than others and to analyze how executives (at different levels) can devise a set of strategies and design processes that allow the companies to achieve competitive advantage.

CORE REQUIREMENTS

Students must complete 18 courses (30 credit hours) as listed below to satisfy the full-time MBA program's Core Requirements. The first year of the program is primarily dedicated to core courses in the basic functional areas of business. During the second semester of the first year, students participate in a team-based Action Learning Project (ALP - MGMT 599) in which they work with a company to solve a specific business problem. This project is the first-year capstone learning activity; it allows students to apply and integrate management principles learned throughout the first year of the program in a practical setting.

Required Courses

Students must complete 16 courses (27 credit hours) from the following:

- MGMT 501 Financial Accounting [<u>3 credit hours</u>]
- MGMT 502 Managerial Accounting [<u>1.5 credit hours</u>]
- MGMT 510 Organizational Behavior [<u>1.5 credit hours</u>]
- MGMT 512 Leading Change [.75 credit hours]
- MGMT 540 Managerial Economics [<u>1.5 credit hours</u>]
- MGMT 543 Finance [<u>3 credit hours</u>]
- MGMT 560 Corporate Responsibility [.75 credit hours]
- MGMT 570 Competitive Strategy [<u>1.5 credit hours</u>]
- MGMT 571 Strategy Formation and Implementation [<u>1.5 credit hours</u>]
- MGMT 580 Marketing [<u>3 credit hours</u>]
- MGMT 595 Data Analysis I [<u>1.5 credit hours</u>]
- MGMT 596 Leadership Communication [<u>1.5 credit hours</u>]
- MGMT 597 Data Analysis II [<u>1.5 credit hours</u>]
- MGMT 599 Action Learning Project [3 credit hours]
- MGMT 710 Leadership ILE [.75 credit hours]
- MGMT 711 Negotiations ILE [.75 credit hours]

Custom Core Courses

Students must complete 2 courses (3 credit hours) from the following. The custom core courses are taken during the student's second semester of their first year.

- MGMT 503 Management Control [<u>1.5 credit hours</u>]
- MGMT 541 Economic Environment of Business [1.5 credit hours]
- MGMT 561 Business-Government Relations [<u>1.5 credit hours</u>]
- MGMT 574 Operations Management [<u>1.5 credit hours</u>]

ELECTIVES

To fulfill the remaining requirements for the full-time MBA degree program, students must complete an additional 30 credit hours

from departmental (MGMT, MGMP, or MICO) course offerings at the 500-level or above. Students take two elective courses during the spring semester of the first year. The second year of the program is dedicated entirely to elective course work. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMT, MGMP, or MICO course offerings), the student must obtain permission from the Jones Graduate School of Business registrar department. Electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

Major Concentrations: Full-Time MBA Program

Students have the option of selecting up to two functional or professional major concentrations. Completing a major concentration is not required to complete the requirements for the MBA degree; it is optional. Students must officially declare the major concentration through the Jones Graduate School of Business registrar department. Major concentrations typically consist of 9 to 12 credit hours of course work. If a student completes two concentrations, a maximum of 3 credit hours can be shared between the two concentrations. Similarly, a custom core course listed in the Core Requirements above can be counted toward the completion of a concentration only if the student has taken two other custom core courses which can be counted toward the custom core requirement. Specific concentration requirements for the academic year are available on Campus Groups. Students must be aware that the classes listed below may not be offered each semester, and that the course offerings are subject to change. Students should see courses.rice.edu to review the course offerings each semester.

Major Concentration: Accounting

Students pursuing the major concentration in Accounting must complete:

A minimum of 9 credit hours as listed below to satisfy major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Accounting concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

COURSE REQUIREMENTS

Students must complete a minimum of 3 courses (minimum of 9 credit hours) from the following:

- MGMT 503 Management Control* [<u>1.5 credit hours</u>]
- MGMP 601 Using Financial Statements** [<u>1.5 credit hours</u>]
- MGMP 602 Accounting-based Valuation** [<u>1.5 credit hours</u>]
- MGMT 601 Financial Statement Analysis** [<u>3 credit hours</u>]
- MGMT 603/MGMP 603 Federal Taxation [3 credit hours/1.5 credit hours]
- MACC 521 Accounting Theory [<u>3 credit hours</u>]

Contact the Jones Graduate School of Business Registrar Department to determine if Master of Accounting (MAcc) electives open to MBA student enrollment can be counted towards this concentration.

* MGMT 503 *Management Control* only counts towards the concentration if it is not used to satisfy the Custom Core requirement.

**Students may not take both MGMT 601 Financial Statement Analysis and either MGMP 601 Using Financial Statements or MGMP 602 Accounting-based Valuation.

Major Concentration: Energy

Students pursuing the major concentration in Energy must complete:

A minimum of 9 credit hours as listed below to satisfy major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Energy concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

BLOCK A - FOUNDATIONAL COURSES

Students must complete 2 courses (3 credit hours) from the following:

MGMT 610 Fundamentals of the Energy Industry [<u>1.5 credit hours</u>]

MGMT 611 Geopolitics of Energy [<u>1.5 credit hours</u>]

BLOCK B - ENVIRONMENT COURSES

Students must complete 1 course (1.5 credit hours) from the following:

- MGMT 541 Economic Environment of Business* [<u>1.5 credit hours</u>]
- MGMT 561 Business-Government Relations* [1.5 credit hours]

BLOCK C - APPLICATION AND CONTEXT COURSES

Students must complete 3 courses (a minimum of 4.5 credit hours) from the following:

- MGMT 609 Managing Energy Transitions [<u>1.5 credit hours</u>]
- MGMT 612 Competition, Carbon & Electricity Policy [<u>1.5 credit hours</u>]
- MGMT 616 Energy Market Organization [<u>1.5 credit hours</u>]
- MGMT 656 Energy Derivatives [<u>3 credit hours</u>]
- MGMT 708 Pricing Strategies in the Oil & Gas Industry [<u>1.5 credit hours</u>]
- MGMT 745 International Energy Development [<u>1.5 credit hours</u>]

INTEGRATIVE COURSE OFFERINGS

Students may complete courses from the following as substitutes for the credit hours required in Blocks A, B, and C.

- MICO 602 B2B Customer Focused Strategy [<u>1.5 credit hours</u>]
- MICO 603 Optimization and Management of Logistics Distribution Networks [<u>1.5 credit hours</u>]
- MICO 604 Mindfulness and Safety in High Reliability Organizations [<u>1.5 credit hours</u>]
- MICO 605 Managing Foreign Market Entry for the Energy Industry [<u>1.5 credit hours</u>]

*MGMT 541 *Economic Environment of Business* and MMGT 561 *Business-Government Relations* can be applied if the course is not used to satisfy the Custom Core requirement.

Major Concentration: Entrepreneurship

Students pursuing the major concentration in Entrepreneurship must complete:

A minimum of 12 credit hours as listed below to satisfy major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Entrepreneurship concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

CORE REQUIREMENTS

Students must complete the following 4 courses (6 credit hours):

- MGMT 620 The Entrepreneurial Toolkit [<u>1.5 credit hours</u>]
- MGMT 621 The New Enterprise [3 credit hours]
- MGMT 626 Financing the Start-Up Venture [<u>1.5 credit hours</u>]
- MGMT 641 Foundations of Entrepreneurship: Strategy [<u>1.5 credit hours</u>]

REQUIRED EXPERIENTIAL LEARNING

Students must complete a minimum of 1.5 credit hours from the following:

- MGMT 734 Technology Entrepreneurship [<u>3 credit hours</u>]
- MGMT 761 Enterprise Acquisition Lab [<u>1.5-3 credit hours</u>]
- MGMT 762 Entrepreneurial Lab: New Enterprise [<u>1.5 -3 credit hours</u>]
- MGMT 763 Entrepreneurial Lab: Technology [<u>1.5-3 credit hours</u>]
- MGMT 764 Entrepreneurial Lab: Health Care [<u>1.5-3 credit hours</u>]
- MGMT 766 Entrepreneurial Lab: Energy [<u>1.5-3 credit hours</u>]

ELECTIVES

Students must complete a minimum of 3 courses (4.5 credit hours) from the following:

- MGMT 623 Commercialization in Pharma/Biotech [<u>1.5 credit hours</u>]
- MGMT 627 Enterprise Acquisition [<u>1.5 credit hours</u>]
- MGMT 633 Life Science Entrepreneurship [<u>1.5 credit hours</u>]

- MGMT 676 Social Enterprise [<u>1.5 credit hours</u>]
- MGMT 724 Social Entrepreneurship [<u>1.5 credit hours</u>]
- MGMT 725 Intellectual Property Strategy for Entrepreneurs [<u>1.5 credit hours</u>]
- MGMT 730 Legal Aspects of Entrepreneurship [<u>1.5 credit hours</u>]

Major Concentration: Finance

Students pursuing the major concentration in Finance must complete:

• A minimum of 12 credit hours as listed below to satisfy major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Finance concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

CORE REQUIREMENTS

Students must complete the following 5 courses (9 credit hours):

- MGMT 601 Financial Statement Analysis [<u>3 credit hours</u>]
- MGMT 642 Futures & Options [<u>1.5 credit hours</u>]
- MGMT 645 Portfolio Management [<u>1.5 credit hours</u>]
- MGMT 646 Corporate Investment Policy [<u>1.5 credit hours</u>]
- MGMT 648 Applied Finance [<u>1.5 credit hours</u>]

ELECTIVES

Students must complete a minimum of two courses from the following:

- MGMT 643 Equity Practicum I Wright Fund* [2 credit hours]
- MGMT 644 Equity Practicum II Wright Fund* [2 credit hours]
- MGMT 647 Corporate Financial Policy [<u>1.5 credit hours</u>]
- MGMT 652 Mergers & Acquisitions [<u>1.5 credit hours</u>]
- MGMT 656 Energy Derivatives [<u>3 credit hours</u>]
- MGMT 658 Financial Risk Management [<u>1.5 credit hours</u>]
- MGMT 659 Real Estate Finance: Asset Valuation [<u>1.5 credit hours</u>]
- MGMT 674 Real Estate Finance: Instruments [<u>1.5 credit hours</u>]
- MGMT 726 Fixed Income Practicum I Zions Portfolio* [<u>1.5 credit hours</u>]
- MGMT 727 Fixed Income Practicum II Zions Portfolio* [1.5 credit hours]

*Only 3 credit hours from an investment practicum course will count as elective hours toward the major concentration in finance. These 3 credit hours may come from either a) three of the four credit hours form the Wright Fund curriculum {MGMT 643 plus one credit hour form MGMT 644} or b) the two 1.5 credit hour courses in the Zions Portfolio curriculum {MGMT 726 and MGMT 727}.

Major Concentration: Health Care

Students pursuing the major concentration in Health Care must complete:

A minimum of 8 courses (12 credit hours) as listed below to satisfy the major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Health Care concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

CORE REQUIREMENT

Students must complete the following course:

MGMT 678 U.S. Health Care Management [<u>1.5 credit hours</u>]

ELECTIVES

Students must complete a minimum of 5 courses (minimum of 10.5 credit hours) from the following:

MGMT 623 Commercialization in Pharma/Biotech [<u>1.5 credit hours</u>]

- MGMT 633 Life Science Entrepreneurship [<u>1.5 credit hours</u>]
- MGMT 690 Health Care Strategy I [<u>1.5 credit hours</u>]
- MGMT 691 Negotiation for Health Care [<u>1.5 credit hours</u>]
- MGMT 694 Interpersonal Communication in Health Care [<u>1.5 credit hours</u>]
- MGMT 699 Strategic Considerations in Capital Investment: Health Care and Beyond [<u>1.5 credit hours</u>]
- MGMT 738 Customer Focus in Health Care and Service Industries: A Strategic Approach [<u>1.5 credit hours</u>]
- MGMT 750 Strategic Considerations in Health Informatics [<u>1.5 credit hours</u>]
- MGMT 751 Economics of Health Care Sectors [<u>1.5 credit hours</u>]
- MGMT 755 Hospital Management: The Building Blocks [<u>1.5 credit hours</u>]
- A maximum of 1 course (1.5 credit hours) from the following:
 - o MGMT 712 Process Management and Quality Improvement [1.5 credit hours]
 - MGMT 744 Service Operations and Marketing [<u>1.5 credit hours</u>]
- A maximum of 1 course (1.5-3 credit hours) from the following:
 - MGMT 753 Operations Lab: Health Care [<u>1.5-3 credit hours</u>]
 - MGMT 764 E-Lab: Health Care [<u>.75-3 credit hours</u>]

Major Concentration: Marketing

Students pursuing the major concentration in Marketing must complete:

A minimum of 8 courses (12 credit hours) as listed below to satisfy the major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Marketing concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

STRATEGIC MARKETING FOUNDATIONS

Students must complete a minimum of 4 courses (minimum of 6 credit hours) as listed below.

Quantitative Foundations

Students must complete a minimum of 2 courses (minimum of 3 credit hours) from the following:

- MGMT 680 Customer Analytics in Satisfaction & Loyalty [<u>1.5 credit hours</u>]
- MGMT 686 Marketing Research [<u>1.5 credit hours</u>]
- MGMT 689/MGMP 689 Decision Models [3 credit hours/1.5 credit hours]
- MGMT 707 Marketing Analytics for Managers & Consultants [1.5 credit hours]

Conceptual Foundations

Students must complete a minimum of 2 courses (3 credit hours) from the following:

- MGMT 682 Pricing Strategies [<u>1.5 credit hours</u>]
- MGMP 684 Brand Management [<u>1.5 credit hours</u>]
- MGMT 685 Marketing Channels [<u>1.5 credit hours</u>]
- MGMT 688 Buyer Behavior [<u>1.5 credit hours</u>]
- MGMT 692 Customer Relationship Management [1.5 credit hours]
- MGMT 693 New Products [<u>1.5 credit hours</u>]

MARKETING APPLICATIONS

Students must complete a minimum of 1 course (1.5 credit hours) from the following:

- MGMT 687 Applied Marketing Strategy [<u>1.5 credit hours</u>]
- MGMT 708 Pricing Strategies in the Oil & Gas Industry [<u>1.5 credit hours</u>]
- MGMT 718 Marketing-Based Project Analysis in Real Estate [<u>1.5 credit hours</u>]
- MGMT 770 Professional Selling [<u>1.5 credit hours</u>]

ELECTIVES

To fulfill the remaining requirements for the major concentration in Marketing, students must complete a total of 3 additional courses from the courses listed in the categories above.

Major Concentration: Operations Management

Students pursuing the major concentration in Operations Management must complete:

A minimum of 7 courses (10.5 credit hours) as listed below to satisfy the major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Operations Management concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

CORE REQUIREMENTS

Students must complete 3 courses (4.5 credit hours) from the following:

- MGMT 574 Operations* [<u>1.5 credit hours</u>]
- MGMT 622 Foundations of Supply Chain Management [<u>1.5 credit hours</u>]
- MGMT 670 Operations Strategy [<u>1.5 credit hours</u>]

*MGMT 574 *Operations* is a Custom Core course that must be taken for the major concentration, but the credit hours <u>do not</u> count towards the major concentration's minimum credit hour requirement.

FOUNDATION COURSES

Students must complete a minimum of 2 courses (minimum of 3 credit hours) from the following:

- MGMT 685 Marketing Channels [<u>1.5 credit hours</u>]
- MGMT 712 Process Management and Quality Improvement [<u>1.5 credit hours</u>]
- MGMT 744 Service Operations and Marketing [<u>1.5 credit hours</u>]
- MGMT 752 Operations Lab Energy [<u>1.5-3 credit hours</u>]
- MGMT 753 Operations Lab Health Care [<u>1.5-3 credit hours</u>]

ELECTIVES

Students may complete a minimum of 2 courses (minimum of 3 credit hours) from the following:

- MGMP 689 Decision Models [<u>1.5 credit hours</u>]
- MGMT 682 Pricing Strategies [<u>1.5 credit hours</u>]
- MGMT 715 Strategic Innovation Management [1.5 credit hours]
- MGMT 729 IT for Managers [<u>1.5 credit hours</u>]
- MGMT 750 Strategic Considerations in Health Information [<u>1.5 credit hours</u>]

Major Concentration: Real Estate

Students pursuing the major concentration in Real Estate must complete:

A minimum of 12 credit hours as listed below to satisfy the major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Real Estate concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

CORE REQUIREMENT

Students must complete the following course:

MGMT 659 Real Estate Finance: Asset Valuation [<u>1.5 credit hours</u>]

ELECTIVES

Students must complete a minimum of 10.5 credit hours from the following:

- MGMT 624 Real Estate Seminar [<u>1.5 credit hours</u>]
- MGMT 648 Applied Finance [<u>1.5 credit hours</u>]
- MGMT 654 Real Estate Capital Markets: Public and Private [1.5 credit hours]
- MGMT 660 Real Estate and the Law [<u>1.5 credit hours</u>]
- MGMT 674 Real Estate Finance: Instruments [<u>1.5 credit hours</u>]
- MGMT 675 Corporate Real Estate [<u>1.5 credit hours</u>]
- MGMT 718 Marketing Based Project Analysis [<u>1.5 credit hours</u>]
- MGMT 728 Real Estate Development [<u>1.5 credit hours</u>]
- MGMT 742 International Real Estate [<u>1.5 credit hours</u>]
- MGMT 746 Real Property ILE [0.5 credit hours]

- MGMT 757 Real Estate Lab: Development, Design and Construction [3 credit hours]
- MGMT 754 ULI Real Estate Lab* [<u>1.5 credit hours</u>]
- MGMT 776 Introduction to Real Estate [.75 credit hours]

*MGMT 754 ULI Real Estate Lab may be taken twice with approval of instructor.

Major Concentration: Strategic Management

Students pursuing the major concentration in Strategic Management must complete:

A minimum of 6 courses (9 credit hours) as listed below to satisfy the major concentration requirements.

Please note: The courses listed below are approved to satisfy the requirements for the Strategic Management concentration for the 2016-2017 academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

CORE REQUIREMENTS

Students must complete a minimum of 3 courses (4.5) credit hours from the following:

- MGMT 676 Social Enterprise [<u>1.5 credit hours</u>]
- MGMT 713 Strategic Issues in Global Business [<u>1.5 credit hours</u>]
- MGMT 715 Strategic Innovation Management [<u>1.5 credit hours</u>]
- MGMT 720 Strategy and International Strategic Alliances [<u>1.5 credit hours</u>]
- MGMT 723 Strategic Management of Professional Service Firms [1.5 credit hours]

ELECTIVES

Students must complete a minimum of 3 courses (4.5 credit hours) from the following:

- MGMT 561 Business-Government Relations* [<u>1.5 credit hours</u>]
- MGMT 618 Complexities of People & Organizations [<u>1.5 credit hours</u>]
- MGMT 652 Mergers & Acquisitions [<u>1.5 credit hours</u>]
- MGMT 661 International Business Law [<u>1.5 credit hours</u>]
- MGMT 686 Marketing Research [<u>1.5 credit hours</u>]
- MGMT 690 Health Care Strategy [<u>1.5 credit hours</u>]
- MGMT 721 Business Law [<u>1.5 credit hours</u>]
- MGMT 747 Regulation of Business and Financial Markets [<u>1.5 credit hours</u>]
- MGMT 786 Jones EdGE (Asia)** [<u>1.5 credit hours</u>]
- MGMT 789 Jones EdGE (Central America)** [<u>1.5 credit hours</u>]
- MGMT 797 Jones EdGE (South America)** [<u>1.5 credit hours</u>]
- MICO 605 Managing Foreign Market Entry for the Energy Industry [1.5 credit hours]

*Can only be applied toward major concentration requirements if not counted as a Custom Core course.

**Students may only apply one *Jones EdGE* course towards major concentration requirements.

Back to menu

Requirements for the MBA for Professionals Degree Programs

The Jones Graduate School of Business offers the MBA for Professionals program in three formats. These programs cover the same content, but are offered at different times and over different periods. Students choose a program based on life-style preference and professional and personal commitments.

MBA for Professionals Evening Program

The MBA for Professionals Evening Program consists of a 22-month, lock-step curriculum delivered in four consecutive semesters over a two-year period. Students pursuing the MBA for Professionals Evening Program must complete:

A minimum of 54 credit hours as listed below to satisfy degree requirements.

CORE REQUIREMENTS

Students must complete 23 courses (40.5 credit hours) as listed below to satisfy the MBA for Professionals Evening program's Core Requirements. Required first year classes are offered during the week from 6:15pm to 9:30pm predominantly on Monday

Required Courses

Students must complete the following 22 courses (39 credit hours):

- MGMP 500 MBAP-E Immersion [<u>1.5 credit hours</u>]
- MGMP 501 Financial Accounting [3 credit hours]
- MGMP 502 Managerial Accounting [<u>1.5 credit hours</u>]
- MGMP 510 Organizational Behavior [1.5 credit hours]
- MGMP 511 ILE Organizational Change [.75 credit hours]
- MGMP 540 Managerial Economics [<u>1.5 credit hours</u>]
- MGMP 543 Finance [3 credit hours]
- MGMP 560 ILE Ethics I [.75 credit hours]
- MGMP 570 Competitive Strategy and Industry Analysis [<u>1.5 credit hours</u>]
- MGMP 571 Strategy Formulation and Implementation [1.5 credit hours]
- MGMP 574 Operations Management [<u>1.5 credit hours</u>]
- MGMP 580 Marketing [3 credit hours]
- MGMP 595 Data Analysis [3 credit hours]
- MGMP 596 Leadership Communication [<u>1.5 credit hours</u>]
- MGMP 597 ILE Integrative Competitive Experience [<u>1.5 credit hours</u>]
- MGMP 701 ILE Communications I [.75 credit hours]
- MGMP 703 ILE Ethics II [.75 credit hours]
- MGMP 704 ILE Communications II [.75 credit hours]
- MGMP 707 ILE Communications III [.75 credit hours]
- MGMP 708 ILE Leadership [<u>1.5 credit hours</u>]
- MGMP 709 ILE Negotiations [<u>1.5 credit hours</u>]
- MGMP 798 ILE First Year Capstone Simulation [3 credit hours]
- MGMP 799 Program Capstone [<u>3 credit hours</u>]

Custom Core Courses

Students must complete 1 course (1.5 credit hours) from the following:

- MGMP 541 Economic Environment of Business [1.5 credit hours]
- MGMP 561 Business Government Relations [<u>1.5 credit hours</u>]

ELECTIVES

To fulfill the remaining requirements for the MBA for Professionals Evening Degree Program, students must complete an additional 13.5 credit hours from departmental (MGMT, MGMP, or MICO) course offerings at the 500-level or above. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMT, MGMP, or MICO course offerings), the student must obtain permission from the Jones Graduate School of Business registrar department. Electives are offered on the evening schedule, the weekend schedule, and the daytime schedule.

MBA for Professionals Weekend Program

The MBA for Professionals Weekend Program consists of a 22-month, lock-step curriculum delivered in four consecutive semesters over a two-year period. Students pursuing the MBA for Professionals Weekend Program must complete:

A minimum of 54 credit hours as listed below to satisfy degree requirements.

CORE REQUIREMENTS

Students must complete the following 23 courses (42 credit hours) to satisfy the MBA for Professionals Weekend program's Core Requirements. Classes are offered predominately on Friday evenings from 4:00pm – 9:30pm and Saturdays from 7:30am – 6:30pm every other weekend.

- MGMW 500 MBAP-W Immersion [.75 credit hours]
- MGMW 501 Financial Accounting [<u>3 credit hours</u>]
- MGMW 510 Organizational Behavior [<u>1.5 credit hours</u>]
- MGMW 540 Managerial Economics [<u>1.5 credit hours</u>]
- MWMW 570 Competitive Strategy and Industry Analysis
- MWMW 595 Data Analysis [<u>3 credit hours</u>]
- MGMW 596 Leadership Communication [<u>3 credit hours</u>]
- MWMW 502 Managerial Accounting [<u>1.5 credit hours</u>]
- MWMW 543 Finance [3 credit hours]

- MGMW 574 Operations Management [<u>1.5 credit hours</u>]
- MGMW 580 Marketing [<u>3 credit hours</u>]
- MGMW 597 ILE Integrative Competitive Experience [<u>1.5 credit hours</u>]
- MGMW 798 First Year Capstone Simulation [1.5 credit hours]
- MGMW 700 2nd Year Immersion [.75 credit hours]
- MGMW 511 Organizational Change [.75 credit hours]
- MGMW 541 Economic Environment of Business [1.5 credit hours]
- MGMW 560 Ethics I [<u>1.5 credit hours</u>]
- MGMW 701 Communications [.75 credit hours]
- MGMW 709 Negotiations [<u>1.5 credit hours</u>]
- MGMW 561 Business-Government Relations [<u>1.5 credit hours</u>]
- MGMW 706 Leadership [<u>1.5 credit hours</u>]
- MGMW 799 Program Capstone [<u>3 credit hours</u>]

ELECTIVES

To fulfill the remaining requirements for the MBA for Professionals Weekend Program, students must complete an additional 12 credit hours from departmental (MGMT, MGMP, or MICO) course offerings at the 500-level or above. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMT, MGMP, or MICO course offerings), the student must obtain permission from the Jones Graduate School of Business registrar department. Electives are offered on the weekend schedule, the evening schedule, and the daytime schedule.

MBA for Professionals Evening Extended Program

The MBA for Professionals-Evening Extended Program allows students to complete the same curricular requirements as the other programs (a minimum of 54 credit hours) over a longer period of time (typically 3-5 academic years). There are minimum requirements each semester, but the structure facilitates the alignment of the pace of completion with professional preferences and commitments.

Back to menu

Requirements for the MBA for Executives Degree Program

The program is a lock-step progression in which students take required courses in sequence. The program includes four 5-day intensive executive forums that focus on leadership, strategy, critical decision-making and global management. Students pursuing the MBA for Executives Degree Program must complete:

A minimum of 54 credit hours to satisfy degree requirements over a two-year period.

CORE REQUIREMENTS

Students must complete the following 18 courses (43.5 credit hours):

- MGMT 801 Financial Accounting [<u>3 credit hours</u>]
- MGMT 840 Economics of Business [<u>3 credit hours</u>]
- MGMT 895 Business Analytics [3 credit hours]
- EMBA 911 Executive Seminar I [1.5 credit hours]
- EMBA 991 Executive Forum [3 credit hours]
- EMBA 912 Executive Seminar II [3 credit hours]
- EMBA 992 Executive Forum II [3 credit hours]
- MGMT 802 Managerial Accounting [<u>1.5 credit hours</u>]
- MGMT 843 Corporate Financial Management [<u>3 credit hours</u>]
- MGMT 880 Strategic Marketing [<u>3 credit hours</u>]
- MGMT 874 Operations Management [<u>1.5 credit hours</u>]
- EMBA 913 Executive Seminar III [3 credit hours]
- EMBA 993 Executive Forum III [<u>1.5 credit hours</u>]
- EMBA 914 Executive Seminar IV [3 credit hours]
- EMBA 994 Executive Forum IV [3 credit hours]
- MGMT 921 Global Markets & Institutions [<u>1.5 credit hours</u>]
- MGMT 920 Managing the Global Firm [<u>1.5 credit hours</u>]
- MGMT 922 Managing the Global Firm: Strategy [<u>1.5 credit hours</u>]

ELECTIVES

To fulfill the remaining requirements for the MBA for Executives Program, students must complete an additional 10.5 credit hours from departmental (MGMT, MGMP, or MICO) course offerings at the 500-level or above. 9 credit hours are to be completed during the 3rd semester of the student's program of study along with EMBA 913 and EMBA 993. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMT, MGMP, or MICO course offerings), the student must obtain permission from the Jones Graduate School of Business registrar department. Electives are offered on the weekend schedule, the evening schedule, and the daytime schedule.

Back to menu

Requirements for the MBA/Master of Engineering Degree Program

Students may earn this non-thesis 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. Coordinated degree candidates can fulfill requirements for both degrees in two academic years.

For the coordinated MBA/master of engineering degree, students must complete:

- At least two academic years in residence at Rice
- 69 semester hours in approved course work:
- 24 hours in an engineering discipline
- 45 hours in business
- At least 6 hours of the 45 hours in business must also meet the requirements towards the master of engineering degree and will be counted towards both degrees.

Students plan their course schedules in consultation with the engineering department in which they are enrolled and with the Jones Graduate School of Business Registrar Department.

Back to menu

Requirements for the MBA/Master of Science Professional Science Masters Degree Program

Students may earn a master of science degree from the Weiss School of Natural Science Professional Science Master's program in the following fields: (1) Environmental Analysis and Decision Making, (2) Nanoscale Science, (3) Space Studies, (4) Subsurface Geoscience, and (5) Bioscience and Health Policy. Coordinated degree candidates can fulfill requirements for both degrees within three academic years.

For the coordinated MBA/master of science degree from the professional master's program, students must fulfill the following requirements:

- 75 credit hours of course work including at least 30 credits in a science discipline and 45 credits of business course work
- Satisfy all MBA core curriculum requirements
- Satisfy all PSM track-specific requirements
- Complete a summer internship

Students plan their course schedules in consultation with the PSM program director and with the Jones Graduate School of Business Registrar Department.

Back to menu

Requirements for the MBA/MD Dual Degree Program

Students earn both MD and MBA degrees in five years. They spend their time as follows:

- Years 1, 2 and 3 —medical training at Baylor College of Medicine
- Year 4—First-year MBA core courses at Rice including two custom core courses and two electives. MD, MBA students take the operations custom core and substitute the 2nd custom core with a health care elective. Depending on the career goals students can choose among Business Government or first year electives in finance, marketing or entrepreneurship for their electives.
- Summer: Students undertake internship/externship (titled Health Services Administration, MEOSA 413 at Baylor), which must have both health care and business content and should be approved by the program directors of both schools. There

will be transfer of 15 credits for this internship/externship towards the MBA degree.

 Year 5—Second-year MBA elective courses in fall including US Health Care Management, and medical training at Baylor College of Medicine in the spring semester.

The students are expected to follow the requirements for the health care concentration as the blue print for their MBA studies, to the extent possible and in consultation with the Program Director of the Health Care Initiative at JGSB. To obtain the concentration, students take US Health Care Management in fall of their second year and complete 12 credits from a suite of health care courses offered throughout the year as listed here.

Students receive their MBA degree from Rice after they have completed 60 credit hours of course work, comprised of 45 credit hours at the Jones Graduate School of Business and the transferred 15 credit hours completed through the Baylor College of Medicine. The students also need to complete the requirements specified by Baylor College of Medicine.

Back to menu

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 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 towards the MBA degree (including approved courses taken at the university but outside the Jones Graduate School of Business) 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. A student who has been notified of dismissal may appeal to the Academic Standards Committee of the Jones Graduate School of Business. 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 one 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. If permitted to return, the student will pay the current rate of tuition, based upon the class of students s/he is joining.

Only grades of C and above are counted for credit toward graduation. If students receive a grade below a C in a course required for graduation, they must repeat the course. If students receive a grade below a C in an elective course, they need not repeat the specific course, but they must make up the credits. If the required course is not offered again prior to graduation, the student will be permitted to take the course the following academic year, but will be charged the current pro-rated rate for the program in which the additional course work is completed.

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 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 coordinated MBA/master of engineering degrees, the coordinated MBA/Master of Science Professional Science Masters degrees, or the coordinated MBA/MD dual degree, but who have a cumulative grade point average lower than 3.00, are dismissed without graduation.

Jones Graduate School of Business students may not take courses pass/fail to count toward their degree requirements. Jones Graduate School of Business students may audit courses with professor approval. The courses will not count toward the MBA, but will appear on the transcript.

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 specific charges. (This probationary notice, however, is not required as a precondition for filing specific charges.)

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 chair of the Academic Standards Committee. These 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?

Students may include any additional information they deem relevant in the appeal letter.

Timing—The student must inform the senior associate dean of degree programs (by email or written note) immediately of the intention to appeal. The appeal letter to the committee must be filed within two weeks after receiving a dismissal letter. If a student plans to appeal, he/she should continue to attend classes. It is important to keep up in his/her studies during the appeal process. If his/her appeal is accepted, the student may continue progress towards the completion of their degree.

Appeals—Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. 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

Once a course grade has been assigned by an instructor, it is generally considered final and is rarely changed for any reason other than calculation or transcription errors. The procedure below outlines the process by which a student may appeal a course grade.

- 1. The student should first pursue any grading question with the instructor following the formal or informal process the instructor has outlined for the course.
- If the matter is not resolved in step 1 above, the student must file a written appeal to the instructor and send a copy to the senior associate dean of degree programs. This written appeal must be filed no later than two weeks after the final grade for a course was assigned.
- The instructor must schedule a meeting with the student within two 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 instructor to the senior associate dean of degree programs.
- 4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.
- 5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within six weeks of receiving a written notice of appeal (step 4).
- 6. Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean 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.

MBA Elective Course Add/Drop Policy and Procedures

Due to the unique term schedule followed by the Jones Graduate School of Business MBA programs, MBA students have special procedures they must follow to make schedule changes. The Jones Graduate School of Business Registrar Department administers an add/drop policy which allows students to add/drop elective courses at various times throughout the semester. For all elective courses, student may not add/drop a course after the deadline for the appropriate term.

MBA Course Registration Policy for non-Jones Graduate School of Business Rice University Students

Graduate students from outside the Jones Graduate School of Business may register for elective courses in the full-time MBA program and the MBA for Professionals program. To be eligible for a specific course, a student must be in good academic standing (3.0 GPA or above), have permission from the student's department advisor, and have satisfied the specified course prerequisites. In order to register for the course, the student should verify eligibility with the Jones Graduate School of Business associate registrar and then request approval from the course instructor. Non-Jones Graduate School of Business students may not register for elective courses in the MBA for Executives program or core (required) courses in any of the school's MBA programs. Rice undergraduate students are not allowed to register for any MBA-level courses (MGMT, MGMP, or MGMW)

Independent Study

Minimum Hours Requirement—Each credit of independent study should contain approximately as much time content as a one-credit course at Jones Graduate School of Business, 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 1.0, 1.5, 2.0, or 3.0 credit hours; 3.0 credit independent study projects will rarely be approved. 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 must be determined at the beginning of a project. Increases to the number of project credit hours after the project overview has been filed with the Jones Graduate School of Business associate registrar 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 second week of classes in the term in which the project begins.

Restrictions—No student may take more than three credit hours of independent study during the course of the MBA program without the approval of the Academic Standards Committee. If an independent study is proposed that would cause a student to exceed the 3.0 credit limit, the Academic Standards Committee will select two 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 3.0 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 Jones Graduate School of Business 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 work.

Faculty Sponsorship—Independent study projects normally are sponsored only by full-time Jones Graduate School of Business faculty; faculty typically sponsor projects only in their area of expertise. Students wanting 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 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 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, the Jones Graduate School of Business 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 Jones Graduate School of Business associate registrar 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 two to three weeks.
- Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, 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 Jones Graduate School of Business associate registrar.

Applications—Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.

Class Attendance Policy

Students are expected to be in class on the first day of each term. The instructor reserves the right to exclude a student from their course who is absent on the first day. Students should refer to the specific attendance policy for each program. This information can be found in the Jones Graduate School of Business Informational Guide, which is referenced below. For special circumstances, students should see the instructor.

A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition and fees, which can be found on the Rice Office of the Registrar website.

Jones Graduate School of Business Student Informational Guide

Generally, the Jones Graduate School of Business adheres to the academic regulations of Rice University. However, the Jones Graduate School of Business MBA program has unique policies and procedures that vary from the Office of Graduate and Postdoctoral Studies regarding, but not limited to, leave of absence, withdrawals and readmission, add/drop, academic discipline, dismissal, procedures for resolution of problems, and appeal of academic regulations. A copy of the guide is available on Campus Groups.

Financial Aid

Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

Back to menu

Master of Accounting Degree (MAcc)

The master of accounting (MAcc) program, offered by the Jones Graduate School of Business, is designed to enable students with a top-tier non-accounting undergraduate education to complete the educational requirements for becoming a certified public accountant. Certified public accountants conduct independent audits and provide accounting, tax, and consulting services. The program prepares students to enter careers in public accounting, corporate accounting, management accounting, governmental accounting, financial analysis, and law enforcement. Graduates of the program will excel in analytics, critical thinking, ethics, judgment, and communications, built on outstanding technical accounting skills. An understanding of global capital markets and macroeconomic forces will complement graduates' accounting expertise, along with proficiency in corporate finance, risk and valuation.

Program Learning Outcomes for the Master of Accounting Degree (MAcc)

Students graduating from this program will:

- 1. Demonstrate technical proficiency in the major aspects of public accounting.
- 2. Demonstrate financial valuation expertise.
- 3. Demonstrate strong written and verbal business communication skills.
- 4. Demonstrate a sound knowledge of public policy and corporate governance.
- 5. Demonstrate a critical and analytical approach to problem solving.

MAcc Admission Requirements

For general university requirements, see Graduate Degrees. Criteria for evaluating participants include: completion of (or plans for completion of) required undergraduate prerequisite courses, academic and professional accomplishments, GMAT or GRE test score, an interview, and, possibly, an admissions assessment examination. Current Rice students and Rice alumni are exempted from the test score requirement, although they may provide a GMAT or GRE score at their discretion.

Rice undergraduates: Students who are on track to fulfill the requirements of the Rice business minor prior to completing their undergraduate degree are eligible for admission to the program. Non-business minors are also eligible for admission if specific prerequisite courses will be completed before undergraduate graduation; the MAcc program director will consult prospective applicants to determine what prerequisite classes are needed. All MAcc applicants, regardless of being a business minor, need to have completed the first financial accounting course (BUSI 305), the intermediate financial accounting course (BUSI 440) prior to beginning the MAcc program. Students potentially interested in the MAcc program are encouraged to take BUSI 305 in the spring of their freshman year. Rice undergraduates can apply and gain conditional admission to the MAcc program as early as the fall semester of their junior year and as late as the fall semester of their senior year. Conditionally admitted students who lack any of the prerequisite accounting courses must take appropriate classes to correct their deficiency.

Non-Rice undergraduates: Students should apply in the fall semester of their senior year. Admitted students who lack the prerequisite accounting course work must take summer pre-term classes.

Requirements for the Master of Accounting Degree (MAcc)

Students pursuing the MAcc degree program in Accounting must complete:

A minimum of 36 credit hours over one academic year to satisfy degree requirements. This course work is comprised of 24 credit hours of accounting coursework, 9 credit hours of business coursework, and 3 credit hours of ethics coursework.

REQUIRED ACCOUNTING COURSES

Students must complete the following 11 courses (24 credit hours):

- MACC 511 Issues in Financial Reporting II [<u>3 credit hours</u>]
- MACC 512 Financial Statement Analysis and Valuation [3 credit hours]
- MACC 513 Issues in Financial Reporting III [<u>3 credit hours</u>]
- MACC 514 Fair Value Accounting [<u>1.5 credit hours</u>]
- MACC 531 Advanced Management Accounting [<u>1.5 credit hours</u>]
- MACC 541 Control Systems [<u>1.5 credit hours</u>]
- MACC 561 Accounting Information Systems [<u>1.5 credit hours</u>]
- MACC 571 Federal Taxation [3 credit hours]
- MACC 572 Federal Taxation II [<u>1.5 credit hours</u>]
- MACC 581 Government and Not-For-Profit Accounting [<u>1.5 credit hours</u>]
- MACC 591 Accounting Theory [3 credit hours]

REQUIRED BUSINESS COURSES

Students must complete the following 5 courses (9 credit hours):

- MACC 502 Advanced Uniform Commercial Code and Commercial [3 credit hours]
- MACC 503 Accounting and Auditing Regulation [<u>1.5 credit hours</u>]
- MACC 504 Financial Futures and Options [<u>1.5 credit hours</u>]
- MACC 505 Economic Environment of Business [<u>1.5 credit hours</u>]
- MACC 562 Accounting and Data Analytics [<u>1.5 credit hours</u>]

REQUIRED ETHICS COURSE

Students must complete the following course (3 credit hours):

MACC 501 Accounting Ethics and Professionalism [3 credit hours]

Academic and Professional Standards

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MAcc 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 2.67 (B-) is required for graduation. All courses taken towards the MAcc degree are counted in the cumulative grade point average calculation.

Students with a cumulative grade point average lower than 2.67 at the end of any term will be notified of dismissal. A student who has been notified of dismissal may appeal to the Academic Standards Committee of the Jones Graduate School of Business. 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 one semester or an academic year, or (3) is to be dismissed from the MAcc program.

Students are removed from probation only upon achieving a cumulative grade point average of at least 2.67 at the end of the following semester of work.

Students proposing to return after a period of academic suspension must apply to the Academic Standards Committee and receive permission to be readmitted. If permitted to return, the student will pay the current rate of tuition, based upon the class of students s/he is joining.

Only grades of C and above are counted for credit toward graduation. If a student receives a grade below a C in a course, s/he[B01] must meet with the program director to determine remediation. Any plans for remediation must be approved by the Academic Standards Committee.

Professional Standards—Masters 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 specific charges. (This probationary notice, however, is not required as a precondition for filing specific charges.)

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 chair of the Academic Standards Committee. These 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?

Students may include any additional information they deem relevant in the appeal letter.

Timing—The student must inform the senior associate dean of degree programs (by email or written note) immediately of the intention to appeal. The appeal letter to the committee must be filed within two weeks after receiving a dismissal letter. If a student plans to appeal, s/he should continue to attend classes. It is important to keep up in program studies during the appeal process. If the appeal is accepted, the student may continue progress towards the completion of the degree.

Appeals—Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. 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

Once a course grade has been assigned by an instructor, it is generally considered final and is rarely changed for any reason other than calculation or transcription errors. The procedure below outlines the process by which a student may appeal a course grade.

- 1. The student should first pursue any grading question with the instructor following the formal or informal process the instructor has outlined for the course.
- If the matter is not resolved in step 1 above, the student must file a written appeal to the instructor and send a copy to the senior associate dean of degree programs. This written appeal must be filed no later than two weeks after the final grade for a course was assigned.
- 3. The instructor must schedule a meeting with the student within two 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 instructor to the senior associate dean of degree programs.
- 4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.
- 5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within six weeks of receiving a written notice of appeal (step 4).
- 6. Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean 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.

Back to menu

PhD in Business

The Jones Graduate School of Business PhD program is designed for candidates with outstanding intellectual abilities and a strong commitment to research. The goal of the PhD program is to train students for academic careers focused on cutting-edge, rigorous research and teaching in a business school environment. Applicants to the PhD program must hold a four-year bachelor's degree from an accredited institution. A masters degree and work experience are not required for PhD admission.*

The Jones Graduate School of Business does not have an MA program, although during the course of the PhD program a masters degree (MA) will be awarded after students have achieved doctoral candidacy and are in the process of completing the doctorate.

Program Learning Outcomes for the PhD Degree in Business

Upon completing the PhD degree, students majoring in Business will be able to:

- 1. Summarize major themes and current research problems in their area of specialization.
- 2. Explain and identify open problems and areas needing development in their discipline.
- 3. Execute and present original research in their discipline.
- 4. Effectively communicate, orally and in writing, their research and the major tenets of their discipline.

Requirements for the PhD Degree in Business

For general university requirements, see Graduate Degrees. For program details, see the PhD Program Guidebook distributed by the Jones Graduate School of Business. Admissions applications should include scores on the Graduate Management Admissions Test (GMAT) or the Graduate Record Examination (GRE). Full financial support will be provided to admitted doctoral students. Candidates for the PhD degree spend at least two years in full-time course work and at least two years writing the dissertation. Four to five years is a reasonable goal for completing the program. For the PhD, students must:

- Complete a program of doctoral-level courses that is approved by the area faculty advisor. Students take courses from departments such as economics, psychology, statistics, and political science in addition to courses from Jones Graduate School of Business.
- Complete and defend orally a doctoral dissertation, setting forth in publishable form, the results of original research.

* While advanced degrees (e.g. masters) and prior work experience are taken into account in admission decisions, evidence of strong intellectual ability is of utmost importance.

Major Concentration: Economics and Finance

The PhD in Business degree program offers a wide range of areas of specialization, depending on each students interests and goals. Students are encouraged to contact the Jones Graduate School of Business for additional details regarding the areas of specialization available.

Students pursuing the PhD degree programs in Business or in Economics have the option to participate in a unique program of study, one recognized with a formal major concentration in *Economics and Finance*. To participate, PhD students in either program (Business of Economics) have the option to declare the Major Concentration in Economics and Finance. The Program Learning Outcomes and Requirements for this Major Concentration in Economics and Finance can be found in the General Announcements listing for the Department of Economics in the Graduate Requirements section.

Back to menu

Withdrawal Policy

A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition and fees, which can be found on the Rice Office of the Registrar website.

Financial Aid

Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

Description and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the various Jones Graduate School of Business graduate degree programs. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: BUSI, MACC, MGMP, MGMT, MGMW, MICO

Department Description and Code

- Management: Management
- Degree Descriptions and Codes
 - Master of Accounting degree: MACC
 - Master of Business Administration degree: MBA
 - Master of Arts degree: MA
- Doctor of Philosophy degree: PhD
- Degree Program Descriptions and Codes
 - Degree Program in Accounting: ACCO
- Degree Program in Business Administration: MGMT
- Major Concentration Descriptions and Codes (attached to full-time MBA program only)
- Major concentration in Accounting: BACT
- Major concentration in Energy: BENR
- Major concentration in Entrepreneurship: BENT
- Major concentration in Finance: BFIN
- Major concentration in Health Care: BHCR
- Major concentration in Marketing: BMKT
- Major concentration in Operations Management: BOPM
- Major concentration in Real Estate: BRES
- Major concentration in Strategic Management: BSTM

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University Calendar

Rice A-Z

Maps-Directions

Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Business >

RICE

Undergraduate Students	Business							
Graduate Students	The Jesse H. Jones Graduate School of Business							
Non-Traditional Students	DepartmentUndergraduateGraduateCourseInfoRequirementsRequirementsListings							
▶ Faculty	Course Listings							
Programs of Study	The official course offerings, including course descriptions, for Business can be found in Rice's Course Catalog.							
Administration and Faculty	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.							
Important Notices	For additional information regarding Business, see the department's website: http://business.rice.edu/.							
	Last Revised : August 24, 2016							

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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Chemical and Biomolecular Engineering >

Chemical and Biomolecular Engineering

The George R. Brown School of Engineering

•	Graduate	Students
-		

RICE

Non-Traditional Students

Undergraduate Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department	Undergraduate	Graduate	Course				
Info	Requirements	Requirements	Listings				
Chair		Professors in the Practice					
Michael S. Wong		Kenneth R. Cox					
Wichael S. Wong		Rennetit R. Cox					
Professors	I	Lecturers					
Walter G. Chapman		Dilip Asthagiri					
Ramon Gonzalez	Marya Cokar						
George J. Hirasaki							
Frederick C. Mackintosh		Joint Appointments					
Clarence A. Miller		Pulickel M. Ajayan					
Matteo Pasquali		George N. Bennett					
Marc A. Robert		Cecilia Clementi					
Kyriacos Zygourakis		Rob Griffin					
		Qilin Li					
Associate Professors	Anatoly B. Kolomeisky						
Sibani Lisa Biswal	Antonios G. Mikos						
Laura Segatori	Peter J. Rossky						
Rafael Verduzco		Ka-Yiu San					
		Edwin L. Thomas					
Assistant Professors							
Deepak Nagrath		Research Professor					
Francisco Vargas	:	Scott L. Wellington					
Professors Emeriti		Adjunct Professors					
William W. Akers		Sivaran Arepalli					
Constantine Armeniades		Marek Behr					
Sam H. Davis		Michael A. Reynolds					
Derek C. Dyson		Richard B. Strait					
Jesse David Hellums		Vahid Taghikhani					
		Adjunct Associate Professo	ors				
		Rouhollah Farajzadeh					
		A diverset L s strenser					
		Adjunct Lecturer					

Programs (Undergraduate): BA degree, BSChE degree

Programs (Graduate): MChE degree, MS degree, PhD degree

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, product and process design. Course electives may be used to create a focus area in one of the following five disciplines: biotechnology/bioengineering, environmental engineering, materials science/engineering, sustainability and energy engineering and computational engineering. Upon completing either the flexible BA requirements or the more scientific and professional BSChE requirements, students may apply for a fifth year of study leading to the nonthesis Master of Chemical Engineering (MChE) degree. A coordinated MBA/MChE degree also is available in conjunction with the Jesse H. Jones Graduate School of Business.

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.

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 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Chemical and Biomolecular Engineering >

۲	Un	derg	raduate	e Stuc	lents
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Chemical and Biomolecular Engineering

Graduate Students

RICE

- Non-Traditional Students
- Faculty

Programs of Study

Administration and Faculty

Important Notices

The George R. Brown School of Engineering

	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings				
Jump to: BSChE Degree with a Major in Chemical Engineering BA Degree with a Major in Chemical Engineering								
Program Learning Outcomes for the BSChE Degree with a Major in Chemical Engineering								

Upon completing the BSChE degree, students majoring in Chemical Engineering will be able to demonstrate:

- 1. An ability to apply knowledge of mathematics, science, and engineering.
- 2. An ability to design and conduct experiments, as well as analyze and interpret data.
- 3. An ability to design a system, component, or process to meet desired needs within realistic constraints.
- 4. An ability to function on multidisciplinary teams.
- 5. An ability to identify, formulate and solve engineering problems.
- 6. An understanding of professional and ethical responsibility.
- 7. An ability to communicate effectively.
- 8. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- 9. A recognition of the need for, and have an ability to engage in life-long learning.
- 10. A knowledge of contemporary issues.
- 11. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

Requirements for the BSChE Degree with a Major in Chemical Engineering

For general university requirements, see Graduation Requirements. Students pursuing the BSChE degree with a major in Chemical Engineering (CENG) must complete:

- A minimum of 132 credit hours to satisfy degree requirements.
- The requirements of a major concentration. When students declare the major in Chemical Engineering, students must additionally identify and declare one of the major concentrations, either in a.) Biotechnology/Bioengineering or b.) Computational Engineering or c.) Environmental Engineering or d.) Materials Science/Engineering or e.) Sustainability and Energy Engineering or f..) Engineering Breadth (Engineering Breadth is a major concentration comprised of electives from a mix of engineering disciplines).

The program leading to the BS degree in Chemical Engineering is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org/.

CORE REQUIREMENTS

Students must complete a total of 85 credit hours as listed below to satisfy the Chemical Engineering (CENG) major's Core Requirements.

Chemistry

Students must complete 9-10 courses (18 credit hours) depending on course selection as listed below:

- CHEM 121 General Chemistry [<u>3 credit hours</u>] and CHEM 123 General Chemistry Lab I [<u>1 credit hour</u>]
- CHEM 122 General Chemistry II [<u>3 credit hours</u>] and CHEM 124 General Chemistry Lab II [<u>1 credit hour</u>]

- CHEM 211 Organic Chemistry I [<u>3 credit hours</u>] and CHEM 213 Organic Chemistry Discussion [<u>0 credit</u>]
- CHEM 217 Organic Lab Chemistry for Engineers [<u>1 credit hour</u>]
- Choose 2-3 courses, depending on course selection, from the following:
 - CHEM 212 Organic Chem. II [3 credit hours] and CHEM 214 Organic Chem. II Discussion [0 credit]
 - CHEM 311 Physical Chemistry I [3 credit hours]
 - CHEM 312 Physical Chemistry II [3 credit hours]

Notes regarding the Chemistry course requirements: CHEM 121 and CHEM 123 can be satisfied by completing CHEM 151 Honors Chemistry I [<u>3 credit hours</u>] and CHEM 153 Honors Chemistry Laboratory I [<u>1 credit hour</u>]. CHEM 122 and CHEM 124 can be satisfied by completing CHEM 151 Honors Chemistry II and CHEM 154 Honors Chemistry Laboratory II [<u>1 credit hour</u>]. For students planning advanced studies in medicine or biotechnology, CHEM 217 Organic Chemistry Lab for Engineers can be satisfied by completing CHEM 215 Organic Chemistry Lab [<u>2 credit hours</u>].

Chemical and Biomolecular Engineering Core Courses

Students must complete the following 15 courses (44 credit hours):

- CHBE 301 Chemical Engineering Fundamentals [3 credit hours]
- CHBE 303 Computer Programming in Chemical Engineering [2 credit hours]
- CHBE 305 Computational Methods for Chemical Engineers [3 credit hours]
- CHBE 310 Fundamentals of Biomolecular Engineering [3 credit hours]
- CHBE 343 Chemical Engineering Lab I [3 credit hours]
- CHBE 350 Process Safety [1 credit hour]
- CHBE 390 Kinetics and Reactor Design [<u>3 credit hours</u>]
- CHBE 401 Transport Phenomena I [3 credit hours]
- CHBE 402 Transport Phenomena II [<u>3 credit hours</u>]
- CHBE 403 Design Fundamentals [<u>4 credit hours</u>]
- CHBE 404 Chemical Engineering Design [<u>4 credit hours</u>]
- CHBE 411 Thermodynamics I [3 credit hours]
- CHBE 412 Thermodynamics II [3 credit hours]
- CHBE 443 Chemical Engineering Lab II [3 credit hours]
- CHBE 470 Process Dynamics and Control [3 credit hours]

Mathematics

Students must complete the following 5 courses (15 credit hours):

- MATH 101 Single Variable Calculus I [<u>3 credit hours</u>]
- MATH 102 Single Variable Calculus II [3 credit hours]
- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours]
- MATH 212 Multivariable Calculus* [<u>3 credit hours</u>]
- CAAM 336 Differential Equations in Science and Engineering [3 credit hours]

*MATH 221 Honors Calculus III and MATH 212 Honors Calculus IV may substitute for MATH 212.

Physics

Students must complete a total of 2-4 courses (8 credit hours) depending on course selection as listed below.

- PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>] or PHYS 111 Mechanics (with Lab) [<u>4 credit hours</u>]
- PHYS 102 Electricity and Magnetism [<u>4 credit hours</u>] and PHYS 104 E&M Discussion [<u>0 credit</u>] or PHYS 112 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>]

Jump to Major Concentration Requirements:

Engineering Breadth Biotechnology and Bioengineering Computational Engineering Environmental Engineering Materials Science and Engineering Sustainability and Energy Engineering

MAJOR CONCENTRATION: ENGINEERING BREADTH

To fulfill the remaining Chemical Engineering (CENG) major requirements, students pursuing the Engineering Breadth major concentration must complete a total of 12 credit hours as listed below.

Please Note: The following list of approved courses can be used to satisfy the requirements of the major concentration.

Courses not on the list may be taken upon approval of the academic advisor.

Core Requirement

Students must complete 1 course (3 credit hours) from the following to satisfy the Core Requirement for the Engineering Breadth major concentration.

- BIOC 201 Introductory Biology [3 credit hours]
- CHEM 212 Organic Chemistry II [3 credit hours] and CHEM 214 Organic Chemistry II Discussion [0 credit]
- CHEM 311 Physical Chemistry I [3 credit hours]
- CHEM 312 Physical Chemistry II [3 credit hours]
- CHEM 330 Analytical Chemistry [3 credit hours]
- CHEM 360 Inorganic Chemistry [<u>3 credit hours</u>]
- ESCI 334 Geological Techniques [3 credit hours]
- ESCI 340/EBIO 340/ESNT 340 Global Biogeochemical Cycles [3 credit hours]
- PHYS 201 Waves and Optics [3 credit hours]
- PHYS 202 Modern Physics [3 credit hours]

Electives

Students must complete a total of 9 credit hours from at least 3 categories below. A maximum of 3 credit hours for CHBE 499 *Undergraduate Research* or CHBE 495 *Special Topics* may replace 3 credit hours of any of the discipline electives below, but not the Core Requirement.

Environmental Engineering Courses

- CEVE 310 Principles of Environmental Engineering [3 credit hours]
- CEVE 311/MECH 311 Mechanics of Solids and Structures [3 credit hours]
- CEVE 434 Fate and Transport of Contaminants in the Environment [3 credit hours]

Materials Science Engineering Courses

- MSNE 301 Materials Science [3 credit hours]
- MSNE 402 Mechanical Properties of Materials [<u>3 credit hours</u>]
- MSNE 406 Physical Properties of Solids [<u>3 credit hours</u>]
- CHBE 594/MSNE 594 Properties of Polymers [3 credit hours]

Bioengineering Courses

- BIOE 370 Biomaterials [3 credit hours]
- BIOE 372 Biomechanics [3 credit hours]
- BIOE 470/COMP 470/STAT 470 From Sequence to Structure [4 credit hours]
- BIOE 480/ELEC 480 Introduction to Neuroengineering [3 credit hours]
- CHBE 420/BIOE 420 Biosystems Transport and Reaction Process [3 credit hours]
- CHBE 460/BIOE 460 Biochemical Engineering [3 credit hours]
- CHBE 640/BIOC 540 Metabolic Engineering [3 credit hours]

Sustainability and Energy Courses

- CEVE 302/ENGI 302 Sustainable Design [3 credit hours]
- CEVE 307/ENST 307/ESCI 307 Energy and the Environment [3 credit hours]
- CHBE 281 Engineering Sustainable Communities [3 credit hours]
- CHBE 450 Petroleum Phase Behavior and Flow Assurance [3 credit hours]
- CHBE 455 Two Phase Flow/Multiphase Flow in Pipes [3 credit hours]

Computation and Applied Mathematics Courses

CAAM 335 Matrix Analysis [3 credit hours]

Other Approved Engineering Courses

- CHBE 560/MSNE 560 Colloidal and Interfacial Phenomena [3 credit hours]
- ELEC 242 Fundamentals of Electrical Engineering II [3 credit hours]
- ELEC 261 Electronic Materials and Quantum Devices [3 credit hours]

Back to menu

MAJOR CONCENTRATION: BIOTECHNOLOGY AND BIOENGINEERING

To fulfill the remaining Chemical Engineering (CENG) requirements, students pursuing the major concentration in Biotechnology and Bioengineering must complete a total of 15 credit hours as listed below.

Please Note: The following list of approved courses can be used to satisfy the requirements of the major concentration. Courses not on the list may be taken upon approval of the academic advisor.

Core Requirement

Students must complete the following course to satisfy the Core Requirement for the major concentration in Biotechnology and Bioengineering:

BIOC 201 Introductory Biology [3 credit hours]

Electives

Students must complete 4 courses (12 credit hours) from the following:

- BIOC 301 Biochemistry I [3 credit hours]
- BIOE 321 Cellular Engineering [3 credit hours]
- BIOE 330 Bioreaction Engineering [3 credit hours]
- BIOE 370 Biomaterials [3 credit hours]
- BIOE 372 Biomechanics [3 credit hours]
- BIOE 381 Fundamentals of Nerve and Muscle Electrophysiology [3 credit hours]
- BIOE 383 Biomed Engineer Instrumentation [3 credit hours]
- BIOE 420/CHBE 420 Biosystems Transport and Reaction Processes [3 credit hours]
- BIOE 460/CHBE 460 Biochemical Engineering [3 credit hours]
- BIOE 464/BIOC 464 Extracellular Matrix [3 credit hours]
- BIOE 470/COMP 470/STAT 470 From Sequence to Structure [4 credit hours]
- BIOE 480/ELEC 480 Introduction to Neuroengineering [3 credit hours]
- BIOE 482/ELEC 482 Physiological Control Systems [3 credit hours]
- BIOE 485/COMP 485/ELEC 485 Fundamentals of Medical Imaging I [3 credit hours]
- BIOE 620/CHBE 620 Tissue Engineering [3 credit hours]

Back to menu

MAJOR CONCENTRATION: COMPUTATIONAL ENGINEERING

To fulfill the remaining Chemical Engineering (CENG) requirements, students pursuing the major concentration in Computational Engineering must complete a total of 15 credit hours as listed below.

Please Note: The following list of approved courses can be used to satisfy the requirements of the major concentration. Courses not on the list may be taken upon approval of the academic advisor.

Core Requirements

Students must complete the following 2 courses (6 credit hours) to satisfy the Core Requirement for the major concentration in Computational Engineering:

- CAAM 335 Matrix Analysis [3 credit hours]
- CAAM 378 Introduction to Operations Research and Optimization [3 credit hours]

Electives

Students must complete a total of 3 courses (9 credit hours) from the following:

- CAAM 415/ELEC 488/NEUR 415 Theoretical Neuroscience / [3 credit hours]
- CAAM 416/ELEC 489/NEUR 416 Theoretical Neuroscience II [3 credit hours]
- CAAM 423/MATH 423 Partial Differential Equations I [3 credit hours]
- CAAM 435/MATH 435 Dynamical Systems [3 credit hours]
- CAAM 436 Partial Differential Equations of Mathematical Physics [3 credit hours]
- CAAM 454 Numerical Analysis II [3 credit hours]
- CAAM 471 Linear and Integer Programming [3 credit hours]

Back to menu

MAJOR CONCENTRATION: ENVIRONMENTAL ENGINEERING

To fulfill the remaining Chemical Engineering (CENG) requirements, students pursuing the major concentration in Environmental Engineering must complete a total of 15 credit hours as listed below.

Please Note: The following list of approved courses can be used to satisfy the requirements of the major concentration.

Courses not on the list may be taken upon approval of the academic advisor.

Core Requirements

Students must complete the following 2 courses (6 credit hours) to satisfy the Core Requirements for the major concentration in Environmental Engineering:

- CEVE 310 Principles of Environmental Engineering [3 credit hours]
- CEVE 434 Fate and Transport of Contaminants in the Environment [3 credit hours]

Electives

Students must complete 3 courses (9 credit hours) from the following:

- CEVE 302/ENGI 302 Sustainable Design [3 credit hours]
- CEVE 307/ENST 307/ESCI 307 Energy and the Environment [3 credit hours]
- CEVE 401 Chemistry and Environmental Engineering and Science Lab [4 credit hours]
- CEVE 411 Atmospheric Processes [3 credit hours]
- CEVE 412 Hydrology & Water Resources Engineering [3 credit hours]
- CEVE 420 Environmental Remediation Restoration [3 credit hours]
- CEVE 484/STAT 484 Environmental Risk Assessment and Human Health [3 credit hours]
- CEVE 518 Contaminant Hydrogeology [3 credit hours]
- CEVE 535 Physical Chemical Processes for Water Quality Control [3 credit hours]
- CEVE 536 Environmental Biotechnology and Bioremediation [3 credit hours]
- CEVE 550 Environmental Organic Chemistry [3 credit hours]

Back to menu

MAJOR CONCENTRATION: MATERIALS SCIENCE AND ENGINEERING

To fulfill the remaining Chemical Engineering (CENG) major requirements, students pursuing the major concentration in Materials Science and Engineering must complete a total of 15 credit hours as listed below.

Please Note: The following list of approved courses can be used to satisfy the requirements of the major concentration. Courses not on the list may be taken upon approval of the academic advisor.

Core Requirements

Students must complete the following 2 courses (6 credit hours) to satisfy the Core Requirements for the major concentration in Materials Science and Engineering:

- MSNE 301 Materials Science [<u>3 credit hours</u>]
- MSNE 402 Mechanical Properties of Materials [<u>3 credit hours</u>]

Electives

Students must complete a total of 3 courses (9 credit hours) from the following:

- BIOE 431 Biomaterials Applications [3 credit hours]
- CHBE 560/MSNE 560 Colloidal and Interfacial Phenomena [3 credit hours]
- CHBE 594/MSNE 594 Properties of Polymers [3 credit hours]
- ELEC 361 Quantum Mechanics for Engineers [3 credit hours]
- MSNE 401 Thermodynamics and Transport Phenomena in Materials Science [4 credit hours]
- MSNE 406 Physical Properties of Solids [<u>3 credit hours</u>]
- MSNE 411 Metallography and Phase Relations [<u>3 credit hours</u>]
- MSNE 415 Ceramics and Glasses [<u>3 credit hours</u>]
- MSNE 433 Computational Materials Modeling [<u>3 credit hours</u>]
- MSNE 435 Crystallography & Diffraction [<u>3 credit hours</u>]
- MSNE 523 Properties, Synthesis and Design of Composite Materials [<u>3 credit hours</u>]
- MSNE 545/ELEC 545 Thin Films [3 credit hours]

Back to menu

MAJOR CONCENTRATION: SUSTAINABILITY AND ENERGY ENGINEERING

To fulfill the remaining Chemical Engineering (CENG) major requirements, students pursuing the major concentration in Sustainability and Energy must complete a total of 15 credit hours as listed below.

Please Note: The following list of approved courses can be used to satisfy the requirements of the major concentration. Courses not on the list may be taken upon approval of the academic advisor.

Students must complete a total of 3 courses (9 credit hours) from the following to satisfy the Core Requirements for the major concentration in Sustainability and Energy Engineering:

- CEVE 307/ENST 307/ESCI 307 Energy and the Environment [3 credit hours]
- CEVE 314/BIOE 365/GLHT 314 Sustainable Water Purification for the Developing World [3 credit hours]
- CEVE 401 Chemistry for Environmental Engineering and Science Lab [4 credit hours]
- CEVE 434 Fate and Transport of Contaminants in the Environment [3 credit hours]
- CEVE 518 Contaminant Hydrogeology [<u>3 credit hours</u>]
- CEVE 535 Physical Chemical Processes for Water Quality Control [3 credit hours]
- CHBE 281 Engineering Sustainable Communities [<u>3 credit hours</u>]
- CHBE 450 Petroleum Phase Behavior and Flow Assurance [3 credit hours]
- CHBE 455 Two Phase Flow/Multiphase Flow in Pipes [3 credit hours]
- CHBE 571 Flow and Transport Through Porous Media I [3 credit hours]
- CHBE 671 Flow and Transport Through Porous Media II [3 credit hours]

Electives

Students must complete 2 additional courses (6 credit hours) from either the CEVE and CHBE course offerings listed above, or from the following:

- CHBE 570 Industrial Catalysis [3 credit hours]
- ESCI 415 Economic Geology-Petroleum [<u>3 credit hours</u>]
- ESCI 417 Petroleum Industry Economics and Management [3 credit hours]
- ESCI 442 Exploration Geophysics [4 credit hours]
- ESCI 460 Geological and Geophysical Fluid Dynamics [3 credit hours]
- CHEM 425/ENST 425/ESCI 425 Organic Geochemistry [3 credit hours]

Back to menu

Requirements for the BA Degree with a Major in Chemical Engineering

The BA in chemical engineering is a flexible program and allows a student to pursue other areas of interest with or without a double major. Students pursuing the BA degree with a major in Chemical Engineering (CENG) must complete:

A minimum of 132 credit hours to satisfy degree requirements.

REQUIRED COURSEWORK

Students pursuing the BA degree must complete a total of 72 credit hours as listed below to satisfy the Chemical Engineering (CENG) major's Core Requirements.

Chemistry

Students must complete 9-10 courses (18 credit hours) depending on course selection as listed below.

- CHEM 121 General Chemistry [3 credit hours] and CHEM 123 General Chemistry Lab / [1 credit hour]
- CHEM 122 General Chemistry II [3 credit hours] and CHEM 124 General Chemistry Lab II [1 credit hour]
- CHEM 211 Organic Chemistry I [3 credit hours] and CHEM 213 Organic Chemistry Discussion [0 credit]
- CHEM 217 Organic Lab Chemistry for Engineers [<u>1 credit hour</u>]
- Choose 2-3 courses, depending on course selection, from the following:
 - CHEM 212 Organic Chem. II [3 credit hours] and CHEM 214 Organic Chem. II Discussion [0 credit]
 - CHEM 311 Physical Chemistry I [3 credit hours]
 - CHEM 312 Physical Chemistry II [3 credit hours]

Notes regarding the Chemistry course requirements: CHEM 121 and CHEM 123 can be satisfied by completing CHEM 151 Honors Chemistry / [<u>3 credit hours</u>] and CHEM 153 Honors Chemistry Laboratory / [<u>1 credit hour</u>]. CHEM 122 and CHEM 124 can be satisfied by completing CHEM 151 Honors Chemistry // and CHEM 154 Honors Chemistry Laboratory // [<u>1 credit hour</u>]. For students planning advanced studies in medicine or biotechnology, CHEM 217 Organic Chemistry Lab for Engineers can be satisfied by completing CHEM 215 Organic Chemistry Lab [<u>2 credit hours</u>].

Chemical and Biomolecular Engineering Core Courses

Students must complete the following 11 courses (31 credit hours):

- CHBE 301 Chemical Engineering Fundamentals [3 credit hours]
- CHBE 303 Computer Programming in Chemical Engineering [<u>2 credit hours</u>]
- CHBE 305 Computational Methods for Chemical Engineers [3 credit hours]

- CHBE 390 Kinetics and Reactor Design [3 credit hours]
- CHBE 401 Transport Phenomena I [<u>3 credit hours</u>]
- CHBE 402 Transport Phenomena II [3 credit hours]
- CHBE 403 Design Fundamentals [4 credit hours]
- CHBE 411 Thermodynamics / [3 credit hours]
- CHBE 412 Thermodynamics II [3 credit hours]

Mathematics

Students must complete the following 5 courses (15 credit hours):

- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [3 credit hours]
- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours]
- MATH 212 Multivariable Calculus* [3 credit hours]
- CAAM 336 Differential Equations in Science and Engineering [3 credit hours]

*MATH 221 Honors Calculus III and MATH 212 Honors Calculus IV may substitute for MATH 212.

Physics

Students must complete a total of 2-4 courses (8 credit hours) depending on course selection as listed below.

- PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>] or PHYS 111 Mechanics (with Lab) [<u>4 credit hours</u>]
- PHYS 102 Electricity and Magnetism [<u>4 credit hours</u>] and PHYS 104 E&M Discussion [<u>0 credit</u>] or PHYS 112 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>]

Description and Codes Legend

Note: Internally, the university uses the following abbreviations to identify the Chemical Engineering undergraduate degrees, major, and major concentrations. The following is a quick reference:

Course Catalog/Schedule:

- Course offerings/subject code: CHBE
- Department Description and Code
 - Chemical and Biomolecular Engineering: CHBE
- Degree Descriptions and Codes
 - Bachelor of Arts degree: BA
 - Bachelor of Science in Chemical and Engineering degree: BSCHE
- Major Description and Code

- Major in Chemical Engineering (offered to students pursuing both the BA and BSCE degrees) code: CENG *Minor Concentration Descriptions and Codes*

- Major concentration in Engineering Breadth (offered to students pursuing the BSCHE degree): CEBR
- Major concentration in Biotechnology and Bioengineering (offered to students pursuing the BSCHE degree): CEBB
- Major concentration in Environmental Engineering (offered to students pursuing the BSCHE degree): CEEE
- Major concentration in Materials Science and Engineering (offered to students pursuing the BSCHE degree); CEMS
- Major concentration in Computational Engineering (offered to students pursuing the BSCHE degree) code: CECE
- Major concentration in Sustainable and Energy Engineering (offered to students pursuing the BSCHE degree): CESE

Last Revised : August 29, 2016

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Rice Home

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University Calendar Rice A-Z

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Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Chemical and Biomolecular Engineering >

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Undergraduate Students
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RICE

Chemical and Biomolecular Engineering

Graduate Students

- Non-Traditional Students
- Faculty

Programs of Study

- Administration and Faculty
- Important Notices

The George R. Brown School of Engineering

	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings	
MS D	: E Degree in Chemical Engir egree in Chemical Enginee Degree in Chemical Engine	ring			
Progr (MCh	•	comes for the Maste	er of Chemical Engin	eering Degree	

Upon completing the MChE degree in Chemical Engineering, students will be able to:

- 1. Identify, formulate, and solve complex engineering problems that require synthesis of advanced knowledge in chemical engineering fundamentals.
- 2. Demonstrate broad advanced knowledge in science and math, and depth in one chemical engineering sub-discipline (energy engineering, biomolecular engineering, materials science).
- 3. Demonstrate knowledge of business policies and practices in the current business environment in identifying, formulating, and solving engineering challenges in a problem/engineering challenge they undertake to solve as part of independent study.
- 4. Demonstrate effective oral and written communication skills.

Requirements for the Master of Chemical Engineering Degree (MChE)

For general university requirements, see Graduate Degrees. Students pursuing the MChE degree program in Chemical Engineering must complete:

- A minimum of 30 credit hours at the 500-level or above with a grade of B- or better in each course to satisfy degree requirements.
- A minimum of 24 credit hours at Rice.
- A minimum of 6 courses (18 credit hours) from Chemical and Biomolecular Engineering (CHBE) course offerings.

CORE REQUIREMENTS

Students must complete the following 5 courses (15 credit hours) to satisfy the MChE degree's Core Requirements.

- CHBE 501 Fluid Mechanics and Transport Processes [3 credit hours]
- CHBE 590 Kinetics, Catalysis, and Reaction Engineering [3 credit hours]
- CHBE 602 Physico-Chemical Hydrodynamics [3 credit hours]
- CHBE 611 Advanced Topics Thermodynamics [3 credit hours]
- CHBE 692 Applied Mathematics for Chemical Engineering* [3 credit hours]

*Upon approval of their advisor, students may substitute CHBE 692 with a comparable Math course offered by another department.

ELECTIVES

To fulfill the remaining requirements for the MChE degree, students must complete a total of 5 courses (15 credit hours) at the 500-level or above. At least 1 of the Electives must be completed from a CHBE course offering.

Professional Science Master's 5th Year Degree Option for Rice Undergraduates

Rice students have an option to achieve the Master of Chemical Engineering degree by adding an additional fifth year to the four undergraduate years of science studies. Advanced Rice students in good standing may apply during their junior year to the graduate program. Upon acceptance, depending on course load, financial aid status, and other variables they may then start taking required core courses of the chemical engineering program during their senior year. A plan of study based on their particular focus area will need to be approved by the program director and the PSM director. Students should be aware there could be financial aid implications, if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time (12 credit hours) status.

Master of Chemical Engineering /Master of Business Administration Degree Requirements

For general university requirements, see Graduate Degrees. Candidates for the MChE degree in the MChE / MBA program must complete all requirements as listed above for the MChE degree and must apply and be accepted by both programs.

back to menu

Requirements for the MS Degree in Chemical Engineering

For general university requirements, see Graduate Degrees. Students pursuing the MS degree program in Chemical Engineering must:

- Complete at least 18 approved advanced course credit hours with high standing.
- Submit an original research thesis.
- Defend the thesis in a public oral examination.
- Complete a teaching requirement.

Program Learning Outcomes for the PhD Degree in Chemical Engineering

Upon completing the PhD degree program in Chemical Engineering, students will be able to:

- Demonstrate a solid foundation in the fundamentals of chemical engineering in four areas: applied mathematics, kinetics and reaction engineering, thermodynamics and transport phenomena.
- 2. Apply advanced knowledge from several major areas of modern chemical engineering.
- 3. Conduct independent research by working on research projects, individually and in interdisciplinary groups.
- 4. Demonstrate professional written and oral communication skills.

back to menu

Requirements for the PhD Degree in Chemical Engineering

For general university requirements, see Graduate Degrees. Students pursuing the PhD degree program in Chemical Engineering must:

- Satisfactorily complete 24 credit hours of advanced course work, including both general and specialized topics (students
 who already have an MS degree in chemical engineering can request departmental approval for a reduction in the number
 of required courses)
- Pass qualifying examinations demonstrating a general understanding of reaction engineering, thermodynamics, transport
 phenomena, and applied mathematics
- Prepare and present a thesis proposal
- Complete a publishable thesis representing research that is an original and significant contribution to the field of chemical and biomolecular engineering
- Pass a public oral examination in defense of the thesis
- Fullfill a residency requirement
- Complete a teaching assignment

back to menu

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Chemical and Bimolecular Engineering graduate degree programs. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: CHBE Department Description and Code

2016-2017 General Announcements		320 of 923
	- Chemical and Bimolecular Engineering: CHBE	
	Degree Descriptions and Codes	
	- Master of Chemical Engineering degree: MCHE	
	- Master of Science degree: MS	
	- Doctor of Philosophy degree: PhD	
	Degree Program Description and Code	
	- Degree Program in Chemical Engineering: CENG	
	Last Revised : August 18, 2016	

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321 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Chemical and Biomolecular Engineering >

Undergraduate Students	Chemical and Biomolecular Engineering								
Graduate Students	The George R. Brown School of Engineering								
▶ Non-Traditional Students	DepartmentUndergraduateGraduateCourseInfoRequirementsRequirementsListings								
▶ Faculty	Info Requirements Requirements Listings Course Listings Info Info								
Programs of Study	The official course offerings, including course descriptions, for Chemical and Bimolecular Engineering can be found in Rice's								
Administration and Faculty	Course Catalog. 🗗								
Important Notices	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.								
	For additional information regarding Chemical and Bimolecular Engineering, see the department's website: http://chbe.rice.edu/.								
	Last Revised : August 24, 2016								

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RICE

322 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Chemical Physics >

Undergraduate Students	Chemical Physics								
Graduate Students	The Wiess School of Natural Sciences								
Non-Traditional Students	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings					
▶ Faculty		Requirements	Requirements	Listings					
Programs of Study	Co-directors Stanley A. Dodds								
Administration and Faculty	R. Bruce Weisman								
Important Notices									
	Program (Undergraduate): BS degree								
	Program (Graduate): N/A								
	The BS degree in Chemical Physics is jointly managed by the Department of Chemistry and the Department of Physics and Astronomy. Students take upper-level courses in both chemistry and physics, focusing on the applications of physics and chemical systems. See Undergraduate Requirements tab for information regarding degree requirements.								

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University Calendar

Rice A-Z

Maps-Directions

Feedback

RICE

323 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Chemical Physics >

Undergraduate Students	Chemical Physics								
Graduate Students	The Wiess School of Natural Sciences								
Non-Traditional Students		Department	Undergraduate	Graduate	Course				
▶ Faculty	Info Requirements Requirements Listings Program Learning Outcomes for the BS Degree with a Major in Chemical Physics								
Programs of Study	 Upon completing the Bachelor of Science Degree, a student majoring in Chemical Physics will be able to: 1. Acquire and demonstrate a solid foundation of knowledge in chemical physics and deeper knowledge of subdivisions of the field related to their interests. 2. Develop the ability to identify, formulate, and solve challenging scientific and technical problems as encountered in chemical physics. 3. Learn to read scientific literature and communicate scientific results orally and in writing for scientists and the general public. Requirements for the BS Degree with a Major in Chemical Physics 								
Administration and Faculty									
Important Notices									
	For general university requirements, see Graduation Requirements. Students majoring in Chemical Physics (CPHY) must complete:								
	 A minimum of 27-29 courses (73 credit hours) to satisfy major requirements. 								

A minimum of 133 credit hours to satisfy degree requirements.

The Chemical Physics major leading to a BS degree is offered jointly by the Chemistry Department and 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 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.

CORE REQUIREMENTS

Students must complete a total of 20-22 courses (54 credit hours) depending on course selection as listed below to complete Chemical Physics major's Core Requirements.

- CHEM 121 General Chemistry I [3 credit hours] and CHEM 123 General Chemistry Lab I [1 credit hour]
- CHEM 122 General Chemistry II [3 credit hours] and CHEM 124 General Chemistry Lab II [1 credit hour]
- CHEM 211 Organic Chemistry I [3 credit hours] and CHEM 213 Organic Chemistry Discussion [0 credit]
- CHEM 215 Organic Chemistry Lab [2 credit hours]
- CHEM 311 Physical Chemistry I [3 credit hours]
- CHEM 312 Physical Chemistry II [3 credit hours]
- PHYS 101 Mechanics (with lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>] or PHYS 111 Mechanics (with lab) [<u>4 credit hours</u>]
- PHYS 102 Electricity and Magnetism (with lab) [<u>4 credit hours</u>] and PHYS 104 E&M Discussion [<u>0 credit</u>] or PHYS 112 Electricity and Magnetism (with lab) [<u>4 credit hours</u>]
- PHYS 201 Waves and Optics [3 credit hours]
- PHYS 202 Modern Physics [<u>3 credit hours</u>]
- PHYS 231 Elementary Physics Laboratory II [1 credit hours]
- PHYS 301 Intermediate Mechanics [<u>4 credit hours</u>]
- PHYS 302 Intermediate Electrodynamics [<u>4 credit hours</u>]
- MATH 101 Single Variable Calculus I [<u>3 credit hours</u>]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- MATH 211 Ordinary Differential Equations and Linear Algebra [<u>3 credit hours</u>] or MATH 221 Honors Calculus III [<u>3 credit hours</u>]

 MATH 212 Multivariable Calculus [<u>3 credit hours</u>] or MATH 222 Honors Calculus IV [<u>3 credit hours</u>]

Note: CHEM 121 and CHEM 123 can also be satisfied by completing CHEM 151 *Honors Chem*. [<u>3 credit hours</u>] and CHEM 153 *Honors Chem*. Lab. /[<u>1 credit hour</u>]. CHEM 122 and CHEM 124 can also be satisfied by completing CHEM 152 *Honors Chem*. *II*[<u>3 credit hours</u>] and CHEM 154 *Honors Chem*. Lab. *II*[<u>1 credit hour</u>].

ELECTIVES

To fulfill the remaining Chemical Physics major requirements, students must complete 7 additional courses (19 credit hours) as listed below.

Advanced Coursework in Physics and Chemistry

Students must complete a total of 3 courses (9 credit hours) from the following:

- PHYS 311 Introduction to Quantum Physics I [3 credit hours]
- PHYS 312 Introduction to Quantum Physics II [<u>3 credit hours</u>]
- or CHEM 430 Quantum Chemistry [3 credit hours]
- CHEM 360 Inorganic Chemistry [<u>3 credit hours</u>]
- CHEM 415 Chemical Kinetics and Dynamics [<u>3 credit hours</u>]
- CHEM 420 Classical and Statistical Thermodynamics [3 credit hours] or PHYS 425 Statistical and Thermal Physics [3 credit hours]

Advanced Laboratories

Students must complete a total of 2 courses (4 credit hours) from the following:

- CHEM 365 Organic Chemistry Lab [2 credit hours]
- CHEM 366 Inorganic Chemistry Lab [2 credit hours]
- CHEM 367 Materials Chemistry Lab [2 credit hours]
- CHEM 368 Chemical Measurement Lab [2 credit hours]
- CHEM 491 Research for Undergraduates [2 credit hours] or PHYS 461 Independent Research [2 credit hours] or PHYS 462 Independent Research [2 credit hours]
- PHYS 331 Junior Physics Laboratory I [2 credit hours]
- PHYS 332 Junior Physics Laboratory II [2 credit hours]

Note: A limit of 2 credit hours from CHEM 491 or PHYS 461 or PHYS 462 may count toward the Advanced Laboratories requirement.

Advanced Coursework in CAAM or MATH

Students must complete a total of 2 courses (6 credit hours) from MATH or CAAM courses at the 300-level or above.

Department and Code Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Chemical Physics undergraduate degree and major. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses from other departments apply towards the major in Chemical Physics.

- Department Description and Code
 - Chemical Physics: CPHY

Degree Description and Code

- Bachelor of Science degree: BS

Major Description and Code

- Major in Chemical Physics: CPHY

Last Revised : August 29, 2016

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RICE

325 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Chemical Physics >

Undergraduate Students		Chemical Physics								
Graduate Students	The Wi	The Wiess School of Natural Sciences								
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate	Course					
▶ Faculty	Info Requirements Requirements Listings Chemical Physics does not offer an academic program at the graduate level. Example 1 Example 2 Example 2									
Programs of Study										
Administration and Faculty	Last Revise	ed : August 12, 2016								
Important Notices										

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Chemical Physics >

Undergraduate Students	Chemical Physics
Graduate Students	The Wiess School of Natural Sciences
Non-Traditional Students	Department Undergraduate Graduate Course
Faculty	Info Requirements Requirements Listings Course Listings Info Info
Programs of Study	The official course offerings, including course descriptions, for Chemical Physics can be found in Rice's Course Catalog
Administration and Faculty	Chemistry 🗗 and Physics 🗗.
Important Notices	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.
	For additional information regarding Chemical Physics, see the department's website: http://chemistry.rice.edu/Content.aspx?id=450.
	Last Revised : August 24, 2016

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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

Chemistry

2016-2017 > Programs of Study > Chemistry >

۲	Unde	rgraduate	Students
---	------	-----------	----------

The Wiess School of Natural Sciences

Graduate Students

RICE

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department	Undergraduate		Graduate	Course
Info	Requirements		Requirements	Listings
Chair		Ass	istant Professors	
Matteo Pasquali		Emi	lie Ringe	
			ell Thomann	
Professors		Juni	ong Zheng	
Pulickel M. Ajayan			0 0	
Pedro J.J. Alvarez		Pro	fessors Emeriti	
Enrique Barrera		W. E	Edward Billups	
Andrew R. Barron		Vick	i Colvin	
Philip R. Brooks		Rob	ert F. Curl, Jr.	
Cecilia Clementi		Gra	ham P. Glass	
Paul S. Engel		Ron	ald J. Parry	
Naomi Halas				
Jeffrey D. Hartgerink		Lec	turers	
John S. Hutchinson		Law	rence B. Alemany	
Anatoly B. Kolomeisky		Mich	nelle Gilbertson	
Seiichi P. T. Matsuda		Kris	ti Kincaid	
George L. McLendon		Car	oline V. McNeil	
Antonios G. Mikos				
Emilia Morosan		Inst	ructors	
K. C. Nicolaou		Lesa	a Tran	
Jose N. Onuchic		Julia	anne M. Yost	
George N. Phillips				
Peter J. Rossky		Res	earch Professor	
Gustavo E. Scuseria		Bruc	ce Johnson	
Edwin (Ned) Thomas				
James M. Tour		Ass	istant Research Professo	r
R. Bruce Weisman		Car	olyn Nichol	
Kenton H. Whitmire				
Lon J. Wilson		Adj	unct Faculty	
Peter G. Wolynes			co A. Ciufolini	
Michael S. Wong		Toh	ru Fukuyama	
Boris I. Yakobson		Sco	tt R. Gilbertson	
			ten M. Kulinowski	
Associate Professors		Luz	Maria Martinez Calderon	
Zachary T. Ball			nael L. Metzker	
Michael Diehl			Iontgomery Pettit	
Jason H. Hafner			na Rogge	
Laszlo Kurti			ong Shi	
Christy F. Landes		Yon	gcheng Song	
Stephan Link			celo Videa Vargas	
Jun Lou		Dan	nian Young	

Programs (Undergraduate): BA degree, BS degree

Programs (Graduate): MA degree, PhD degree

Angel A. Marti Eugene R. Zubarev

The Department of Chemistry offers undergraduate chemistry majors leading to both the bachelor of science degree and the bachelor of arts degree. The BS program rigorously prepares students for advanced work in chemistry or a related discipline, and the degree requirements are consistent with the guidelines for certification by the American Chemical Society. This curriculum provides a broad and comprehensive introduction to core areas of chemistry while promoting depth of understanding in one or more specific fields. BS students complete a series of foundation courses in general chemistry, analytical chemistry, biological chemistry, inorganic chemistry, organic chemistry, and physical chemistry. Students then complete one or more specializations, or "tracks," consisting of in-depth courses both in and out of the specialization. The BA degree is a more flexible program that provides a comprehensive overview of all areas of chemistry, including laboratory experiences, but can be coupled more easily with other majors or professional career paths. Both degree programs offer students a solid background in the fundamental principles of chemistry, the properties and reactions of chemical compounds, and their uses.

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; supramolecular chemistry, molecular recognition and biological catalysis; bioinorganic and organometallic chemistry; main group element and transition metal chemistry; 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; the study of fullerene molecules, carbon nanotubes, and their derivatives; polymer synthesis and characterization; molecular electronics; molecular machines; and chemical-based nanotechnology.

Last Revised : August 17, 2016

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Chemistry >

Undergraduate Students

Non-Traditional Students

Administration and Faculty

Graduate Students

Programs of Study

Important Notices

Faculty

Chemistry

The Wiess School of Natural Sciences

Department Undergraduate Graduate Course Info **Requirements** Requirements Listings Jump to: BS Degree with a Major in Chemistry BA Degree with a Major in Chemistry

Program Learning Outcomes for the BA and BS Degrees with a Major in Chemistry

Upon completing the BA and BS degrees, students majoring in Chemistry will be able to:

- 1. Demonstrate understanding of and proficiency with: (a) the structure, bonding, spectroscopy, and reactivity of organic compounds and functional groups; (b) curved-arrow formalism to describe reaction mechanisms, and (c) the synthesis of organic compounds.
- 2. Demonstrate understanding of and proficiency with: (a) thermochemical principles, acid-base and redox reactions, (b) structure of simple solids and construction of molecular orbital diagrams (group theory), and (c) survey of main group chemistry
- 3. Demonstrate understanding of: (a) the principles of quantum mechanics and applications to atomic and molecular structure and spectroscopy, (b) classical and basic statistical thermodynamics and applications to equilibrium physicochemical systems, and (c) kinetics of gas phase processes and chemical reactions.
- 4. Design, conduct, record, and analyze chemical experiments, while practicing responsible and ethical scientific conduct (For the BS degree only).

Requirements for the BS Degree with a Major in Chemistry

For general university requirements, see Graduation Requirements. Students pursuing the BS degree with a major in Chemistry (CHEM) must complete:

- A minimum of 24-28 courses depending on course selection (69 credit hours) to satisfy major requirements.
- A minimum of 129 credit hours to satisfy degree requirements.
- A minimum of 14-16 courses depending on course selection (41 credit hours) at the 300-level or above.
- The requirements for one area of specialization.

The areas of specialization for the Chemistry major in the BS degree are:

- Biological and Medicinal Chemistry
- Inorganic Chemistry and Inorganic Materials
- **Organic Chemistry**
- Physical and Theoretical Chemistry

CORE REQUIREMENTS

Students pursuing the BS degree must complete a total of 20-24 courses (57 credit hours) depending on course selection as listed below to satisfy the Chemistry major's Core Requirements.

General Chemistry

Students must complete the following 4 courses (8 credit hours):

- CHEM 151 Honors Chemistry I [<u>3 credit hours</u>] and CHEM 153 Honors Chemistry Lab I [<u>1 credit hour</u>]
- CHEM 152 Honors Chemistry II [3 credit hours] and CHEM 154 Honors Chemistry Lab II [1 credit hour]

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Chemistry Foundation Courses

Students must complete the following 6 courses (18 credit hours):

- BIOC 301 Biochemistry I [3 credit hours]
- CHEM 211 Organic Chemistry I [3 credit hours] and CHEM 213 Organic Chemistry Discussion [0 credit]
- CHEM 311 Physical Chemistry I [3 credit hours]
- CHEM 312 Physical Chemistry II [3 credit hours]
- CHEM 330 Analytical Chemistry [3 credit hours]
- CHEM 360 Inorganic Chemistry [3 credit hours]

Mathematics

Students must complete the following 3 courses (9 credit hours):

- MATH 101 Single Variable Calculus I [<u>3 credit hours</u>]
- MATH 102 Single Variable Calculus II [3 credit hours]
- MATH 212 Multivariable Calculus [3 credit hours]

Notes: MATH 221 and 222 *Honors Calculus III* and *IV* may substitute for MATH 212. MATH 211 *Ordinary Differential Equations and Linear Algebra* is strongly recommended for students planning to specialize in Physical and Theoretical Chemistry or pursue graduate studies. 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 that for which the student has received 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.

Physics

Students must complete 2-4 courses (8 credit hours) depending on course selection as listed below.

- PHYS 101 Mechanics (with Lab) and PHYS 103 Mechanics Discussion [4 credit hours] or PHYS 111 Mechanics (with lab) [4 credit hours] or PHYS 125 General Physics (with lab) [4 credit hours]
- PHYS 102 Electricity and Magnetism (with Lab) and PHYS 104 E & M Discussion [4 credit hours] or PHYS 112 Electricity and Magnetism (with lab) [4 credit hours] or PHYS 126 General Physics II (with lab) [4 credit hours]

Advanced Laboratories

Students must complete a total of 3 courses (6 credit hours) from the following:

- BIOC 311 Advanced Experimental Biosciences [2 credit hours]
- CHEM 365 Organic Chemistry Laboratory [2 credit hours]
- CHEM 366 Inorganic Chemistry Laboratory [2 credit hours]
- CHEM 367 Materials Chemistry Laboratory [2 credit hours]
- CHEM 368 Chemical Measurement Laboratory [2 credit hours]

Research

Students must complete a minimum of 8 credit hours from the list below. CHEM 391 must be taken as part of the Research requirement and for at least 3 credit hours. The other 5 credit hours can be selected from the additional courses in the list below. Enrollment in CHEM 391 requires permission of the course instructor. *Students are expected to complete CHEM 391 before the end of their junior year; permission will not normally be granted for students in their final year of undergraduate study.*

- CHEM 391 Research for Undergraduates [minimum of 3 credit hours]
- CHEM 365 Organic Chemistry Laboratory [2 credit hours]
- CHEM 366 Inorganic Chemistry Laboratory [2 credit hours]
- CHEM 367 Materials Chemistry Laboratory [2 credit hours]
- CHEM 368 Chemical Measurement Laboratory [2 credit hours]
- CHEM 491 Research for Undergraduates [1-5 credit hours]
- CHEM 492 Undergraduate Honors Research [5 credit hours]
- CHEM 493 Undergraduate Honors Research [5 credit hours]
- CHEM 700 Teaching Practicum [up to 2 credit hours]

AREAS OF SPECIALIZATION

To fulfill the remaining Chemistry major requirements, students must complete advanced work that satisfies the requirements of one specialization as listed below. A student may, working with his or her chemistry major advisor and with the approval of the

Director of the Undergraduate Program, propose a track in another specialization. Such proposed tracks must have course and laboratory experiences comparable to those of the tracks listed below. A double specialization can be earned by completing the requirements for two specialities. For double specialization, only two advanced lecture courses may count towards both specializations. The remaining two advanced courses in each specialization must be unique (i.e., double specialization requires six advanced lecture courses, and triple specialization require eight). A Nanochemistry specialization can be added to any of the standard tracks by adding two nanoscience courses.

For purposes of this requirement, "advanced coursework" includes chemistry lecture courses at the 400-level or higher (courses in Rice's course catalog that have a course type listed as "lecture"). CHEM 212 or CHEM 320 or BIOC 302 counts as "advanced coursework" for purposes of this requirement. Courses in other departments at the 400-level or higher with substantial chemistry content may count toward this requirement with approval of the Director of the Undergraduate Program.

Biological and Medicinal Chemistry

Students must complete a total of 4 courses (12 credit hours) as listed below.

- CHEM 212 Organic Chemistry II [<u>3 credit hours</u>] and CHEM 214 Organic Chemistry II Discussion [<u>0 credit</u>] or CHEM 320 Organic Chemistry II [<u>3 credit hours</u>]
- BIOC 302 Biochemistry II [3 credit hours]
- 6 credit hours of additional advanced coursework in chemistry

Inorganic Chemistry and Inorganic Materials

Students must complete a total of 4 courses (12 credit hours) as listed below.

- CHEM 475 Physical Methods in Inorganic Chemistry [3 credit hours]
- CHEM 495 Transition Metal Chemistry [<u>3 credit hours</u>]
- 6 credit hours of additional advanced coursework in chemistry

Organic Chemistry

Students must complete a total of 4 courses (12 credit hours) as listed below.

- CHEM 212 Organic Chemistry II [3 credit hours] and CHEM 214 Organic Chemistry II Discussion [0 credit] or CHEM 320 Organic Chemistry II [3 credit hours]
- CHEM 401 Advanced Organic Chemistry [3 credit hours]
- 6 credit hours of additional advanced coursework in chemistry

Physical and Theoretical Chemistry

Students must complete a total of 4 courses (12 credit hours) as listed below.

- CHEM 430 Quantum Chemistry [3 credit hours]
- CHEM 420 Classical and Statistical Thermodynamics [3 credit hours]
- 1 course (3 credit hours) from an advanced course in physical chemistry:
 - CHEM 415 Chemical Kinetics and Dynamics [3 credit hours]
 - CHEM 450 Chemical Physics of Condensed and Biological Matter [3 credit hours]
 - CHEM 531 Advanced Quantum Chemistry [3 credit hours]
 - CHEM 559 Spectroscopy at the Single Molecule/Particle Limit [3 credit hours]
- 1 course (3 credit hours) from MATH or PHYS course offerings at the 400-level or above.

Honors Research

The Chemistry Honors Research Program is a suite of courses (CHEM 492/493) offering the opportunity for a rigorous twosemester "capstone" individual research project in Chemistry. This immersive program is intended to give students a first-hand experience of a career in research. Students interested in graduate school are strongly encouraged to apply. Students having completed previous independent research (as CHEM 391 and/or CHEM 491) in an off-campus laboratory in the Texas Medical Center are eligible to apply to perform honors research in that laboratory. The honors research courses (CHEM 492 and CHEM 493) function as a pair and must all be taken in the same academic year. Registration for CHEM 492 requires a commitment to register for CHEM 493.

Students who complete the Chemistry Honors Research Program are given primary consideration for "Distinction in Research and Creative Work," a university award for select undergraduates, chosen by the department and granted at commencement, which appears on the transcript and diploma.

Chemistry Honors Research Program components

CHEM 492 Undergraduate Honors Research. Fall semester, 5 credit hours. For approved students only, requires a formal

application and recommendation of a faculty research advisor. Requirements include at least 15 hours of laboratory research per week and regular written and/or oral progress reports.

- CHEM 493 Undergraduate Honors Research. Spring semester, 5 credit hours. Requirements include at least 15 hours of laboratory research per week and a formal thesis.
- Applications may be submitted to the course instructor, February 1-August 1. Students are encouraged to apply early.

back to menu

Program Learning Outcomes for the BA Degree with a Major in Chemistry

Upon completing the BA degree, students majoring in Chemistry will be able to:

- 1. Master and apply the fundamentals of chemistry (organic, inorganic, analytical, physical, and biological chemistry).
- 2. Solve chemical problems using critical thinking and analytical reasoning.
- 3. Use standard laboratory equipment and techniques, computers, and modern instrumentation.
- 4. Know and practice proper safety procedures in the laboratory.
- 5. Use literature search methods to locate and retrieve scientific information.
- 6. Read, understand, and critically assess chemical literature.
- 7. Effectively communicate the results of their work orally and in writing.
- Demonstrate preparation for careers that require technical expertise but are not primarily research-based, such as the health sciences, the public sector, and diverse industrial positions.

Requirements for the BA Degree with a Major in Chemistry

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Chemistry (CHEM) must complete:

- A minimum of 18-20 courses (55 credit hours) depending on course selection to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 10 courses (27 credit hours) at the 300-level or above.

CORE REQUIREMENTS

Students pursuing the BA degree must complete a total of 16 courses (48 credit hours) as listed below to satisfy the Chemistry major's Core Requirements.

General Chemistry

Students must complete the following 4 courses (8 credit hours):

- CHEM 151 Honors Chemistry I [<u>3 credit hours</u>] and CHEM 153 Honors Chemistry Lab I [<u>1 credit hour</u>]
- CHEM 152 Honors Chemistry II [3 credit hours] and CHEM 154 Honors Chemistry Lab II [1 credit hour]

Note: The CHEM 121/123 and CHEM 122/124 General Chemistry sequence is an acceptable substitute.

Chemistry Foundation Courses

Students must complete a total of 6 courses (18 credit hours) as listed below.

- CHEM 211 Organic Chemistry I [3 credit hours] and CHEM 213 Organic Chemistry Discussion [0 credit]
- CHEM 330 Analytical Chemistry [3 credit hours]
- CHEM 360 Inorganic Chemistry [3 credit hours]
- BIOC 301 Biochemistry I [3 credit hours]
- Two courses from the following:
 - CHEM 311 Physical Chemistry I [3 credit hours]
 - CHEM 312 Physical Chemistry II [3 credit hours]
 - BIOC 352 Physical Chemistry for the Biosciences [3 credit hours]

Mathematics

Students must complete the following 3 courses (9 credit hours):

- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [3 credit hours]
- MATH 212 Multivariable Calculus [3 credit hours]

Notes: MATH 221 and 222 Honors Calculus III and IV may substitute for MATH 212. MATH 211 Ordinary Differential Equations and Linear Algebra is strongly recommended for students planning to specialize in Physical and Theoretical chemistry or pursue

graduate studies.

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 that for which the student has received 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.

Physics

Students must complete 2-4 courses (8 credit hours) depending on course selection as listed below.

- PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>] or PHYS 111 Mechanics (with lab) [<u>4 credit hours</u>] or PHYS 125 General Physics (with lab) [<u>4 credit hours</u>]
- PHYS 102 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>] and PHYS 104 E & M Discussion [<u>0 credit</u>] or PHYS 112 Electricity and Magnetism (with lab) [<u>4 credit hours</u>] or PHYS 126 General Physics II (with lab) [<u>4 credit hours</u>]

Advanced Laboratories

Students must complete a minimum of 3 courses (6 credit hours) from the following advanced laboratories:

- BIOC 311 Advanced Experimental Biosciences [2 credit hours]
- CHEM 365 Organic Chemistry Laboratory [2 credit hours]
- CHEM 366 Inorganic Chemistry Laboratory [2 credit hours]
- CHEM 367 Materials Chemistry Laboratory [2 credit hours]
- CHEM 368 Chemical Measurement Laboratory [2 credit hours]

ELECTIVES

To fulfill the remaining Chemistry major requirements, students must complete 2 additional courses (6 credit hours) from additional advanced coursework in chemistry. For the purposes of this requirement, "advanced coursework" includes chemistry lecture courses at the 400-level or higher (courses in Rice's course catalog that have a course type listed as "lecture"). CHEM 212 or CHEM 320 or BIOC 302 counts as "advanced coursework" for purposes of this requirement. Courses in other departments with substantial chemistry content may count toward this requirement with approval of the Director of the Undergraduate Program.

back to menu

Requirements for the BS Degree with a Major in Chemical Physics

This degree is jointly managed by the Department of Chemistry and the Department of Physics and Astronomy. For more information, see Chemical Physics.

Department And Code Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Chemistry undergraduate degrees and major. The following is a quick reference:

Course Catalog/Schedule:

- Course offerings/subject code: CHEM
- Department Code and Description

Chemistry: CHEM

Degree Codes and Descriptions

- Bachelor of Arts degree: BA
- Bachelor of Science degree: BS
- Major Codes and Descriptions:

- Major in Chemistry: CHEM

Last Revised : August 23, 2016

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Chemistry >

Undergraduate Students

Chemistry

The Wiess School of Natural Sciences

Department	Undergraduate	Graduate	Course
Info	Requirements	Requirements	Listings
egree in Chemistry gree in Chemistry			

Students graduating from this program will:

- 1. Design and conduct independent and novel experimental and/or theoretical/computational chemical-based research that contributes to the existing body of knowledge in the field.
- 2. Locate, retrieve, read, and interpret current chemical literature using modern literature search methods.
- 3. Demonstrate an awareness of the ethical, societal, and environmental impact of chemistry.
- 4. Effectively communicate to both the scientific community and the general public the results of their work both orally and in writing.

Requirements for the MA and PhD Degrees in Chemistry

For general university requirements, see Graduate Degrees. 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. Students are not normally admitted to study for an MA degree.

Requirements for the PhD Degree in Chemistry

Research—The PhD in chemistry is awarded for original research in chemistry. During the first semester of residence, students select a research advisor from among the members of the faculty. In some cases, students may choose research advisors outside of the department. Approval of the department chair is required to formalize these advising relationships. 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 successfully complete CHEM 800 *Graduate Research* and CHEM 600 *Graduate Seminar* every semester of residence. Candidates earn 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.

Coursework—Within the first two years, the student must complete six 3-semester-hour graduate-level lecture courses at Rice University, or their approved equivalent. 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.
- Chemistry graduate courses must be at the 500 level or higher. Certain 300- and 400-level courses in other departments may be acceptable with prior approval by the department's graduate advising committee, but a maximum of three lower-level courses in other departments can count towards the six-class requirement, and these do not count towards the university-wide requirement of 90 credits at the 500 level. Courses must be in technical subjects in science or engineering. Courses in teaching, presentation, or management will not be counted toward the six-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 two courses can be repeated/replaced.
- Students who pursue both the BS and the PhD at Rice need not duplicate course work for the two degrees. However, teaching as an undergraduate does not substitute for the teaching requirements in the PhD program.

Graduate Students

RICE

- Non-Traditional Students
- Faculty

Programs of Study

- Administration and Faculty
- Important Notices

Teaching—Each graduate student must participate in teaching (CHEM 700) for the equivalent of three semesters. Assignments are determined by departmental needs.

335 of 923

Qualifying Examination—The qualifying exam has written and oral components, and the expectations for these are available in the department office. The examination committee will be composed of three faculty members, excluding the research advisor. The written document must be submitted to the committee at least one week before the date of the oral examination. The examination must be taken by the last day of class at the end of the student's fourth semester in residency. Any follow-up work required by the committee must be completed by the assigned date, and the exam must be passed by the end of the sixth semester.

Advancement to Candidacy for the PhD—After completing the required coursework, teaching, and qualifying examination, 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 three faculty members with the guidance and approval of the research advisor and department chair. The thesis committee must include one faculty member whose primary appointment is outside of the chemistry department.

Satisfactory Performance

To remain in good standing, a student must maintain a GPA of 3.00 (B) or higher in all lecture courses, a GPA of 3.00 (B) or higher in all semesters of CHEM 700, and a grade of B or higher in every semester of CHEM 600 and CHEM 800. Failure to maintain satisfactory grades and sufficient progress in research will result in probation and possible dismissal. The student must be enrolled full time in a departmentally approved research group beginning the second semester, and every semester thereafter. All graduate students are evaluated annually to ensure that they are making appropriate progress towards the degree. The student, advisor, or department may request a meeting between the student and a faculty committee at any time to evaluate progress or to determine a course of action. 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 probationary semester.

back to menu

Requirements for the MA Degree in Chemistry

MA Program—Although students are not normally admitted to study for an MA, graduate students may earn the MA after obtaining approval of their candidacy for the PhD. The MA degree may also be earned by students who do not achieve PhD candidacy by:

- Completing the six one-semester courses required for PhD candidacy
- Producing a master's thesis that presents the results of a program of research approved by the department
- Passing a final master's thesis defense and submitting the thesis to the Office of Graduate and Postdoctoral Studies.

Appeal

Students may petition the Chemistry Department Graduate Advising Committee for variances on these academic regulations.

back to menu

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Chemistry graduate degree programs. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: CHEM

- Department Description and Code
 - Chemistry: CHEM

Degree Descriptions and Codes

- Master of Arts degree: MA
- Doctor of Philosophy degree: PhD
- Degree Program Description and Code
 - Degree Program in Chemistry: CHEM

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-----------------------	-----------	--------------	---------------------	----------	-----------------	----------

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Chemistry >

Undergraduate Students	Chemistry							
Graduate Students	The Wiess School of Natural Sciences							
Non-Traditional Students	Department Undergraduate Graduate Course Info Requirements Requirements Listings							
▶ Faculty	Course Listings							
Programs of Study	The official course offerings, including course descriptions, for Chemistry can be found in Rice's Course Catalog.							
Administration and Faculty	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.							
Important Notices	For additional information regarding Chemistry, see the department's website: https://chemistry.rice.edu/.							
	Last Revised : August 24, 2016							

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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

RICE

338 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Civic Leadership >

Undergraduate Students		Civic Leadership							
Graduate Students	The Ce	The Center for Civic Leadership							
Non-Traditional Students		Department Info	Undergraduate	Graduate	Course				
► Faculty		IIIO	Requirements	Requirements	Listings				
Programs of Study		Executive Director Caroline Quenemoen		ndergraduate Advisor adalina Akli					
Administration and Faculty		Faculty Director							
Important Notices		Bob Stein							

Program (Undergraduate): Certificate

Program (Graduate): N/A

In support of Rice's mission of providing a distinctive undergraduate experience, the Center for Civic Leadership (CCL) helps undergraduate students develop the knowledge, skills, and values to address the problems of the 21st century and to lead in a variety of community environments. The focus on civic leadership reflects not only Rice's mission but a broader trend that recognizes the civic purpose of 21st century institutions of higher education to cultivate social responsibility and active citizenship. The CCL's approach to leadership education stresses the development of knowledge to understand the complex challenges facing today's society, skills to motivate and collaborate with diverse stakeholders to take informed action, and values to effect positive change.

All students begin the program by completing a CCL Immersion Program, which introduces them to problems facing the city of Houston (through lectures, community tours, and short-term service) and develops skills in reflective practice critical to leadership development.

Additionally, students will complete one 3-credit elective in social issues and one 3-credit elective in leadership chosen from a list of courses covering relevant topics. Timely, personalized advising will play an important role in the selection of the electives in order to ensure that students follow an academically coherent path to the certificate. The purpose of this element of the certificate pathway is to provide foundational knowledge directly pertinent to a student's capstone project.

Subsequently, students will apply to participate in a CCL Action Program that allows them to work in collaboration with a community partner to address a problem or need. To be selected to one of these programs, students must demonstrate relevant academic preparation.

Upon completion of the above listed requirements, students with a minimum overall GPA of 3.3 may apply in the spring of their sophomore or junior year for admittance to the Certificate in Civic Leadership.

To receive the certificate, students must complete a substantial civic leadership project in partnership with a community organization under the guidance of one faculty and one CCL advisor. In the fall semester, all admitted certificate students take a course (UNIV 402) in which they prepare for their capstone projects by researching the community need or problem, designing a sustainable response, developing a project proposal, and reflecting on leadership challenges and solutions. Students subsequently carry out their projects independently in the spring semester under the direction of their faculty advisor and the capstone instructor (UNIV 403). To register for UNIV 403, students must have successfully completed UNIV 402 and received approval for their CCL capstone project proposal from their advisors, their community partner, and the UNIV 402 course instructor. UNIV 403 students must present their project results to the community partner through a formal presentation and written report before the conclusion of the course. Additionally, students are encouraged to present at a formal venue, such as a conference or symposium, within one year of course completion.

To be considered for receipt of the certificate requires submission of a portfolio that includes the capstone project and description of its outcomes, a reflection essay on civic leadership, and a public presentation to the campus and community. Upon recommendation of the capstone instructor and faculty advisor, the certificate will be awarded by vote of the faculty advisory board and recognized on the student's official transcript.

Last Revised : August 17, 2016

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-----------------------	-----------	--------------	---------------------	----------	-----------------	----------

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Civic Leadership >

Þ	Une	dergr	aduate	Stud	lents
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Civic Leadership

The Center for Civic Leadership

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department	
Info	

Undergraduate	Graduate	Course
Requirements	Requirements	Listings
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Program Learning Outcomes for the Certificate in Civic Leadership

Upon completing the Certificate in Civic Leadership, students will be able to:

- 1. Integrate academic and experiential knowledge in new settings and be able to identify, frame, and analyze issues.
- 2. Address real world issues through interaction and collaboration with diverse community partners.
- 3. Communicate with and present their work effectively to a range of audiences both within and beyond the academic community.
- 4. Identify and express their individual values and goals and be able to act on them.
- 5. Demonstrate motivation to make a positive impact on society.

Requirements for the Certificate in Civic Leadership

Students pursuing the Certificate in Civic Leadership must complete:

- A minimum of 4 courses (12 credit hours) to satisfy certificate requirements.
- A minimum of 3 Experiential Learning Programs.
- A 2.0 minimum GPA in all requirements.
- Submission of a portfolio by the last day of the semester that includes work samples completed for the certificate and a
 reflection essay that addresses how these experiences contributed to civic leadership development.
- All required coursework associated with the student's corresponding degree program. Upon completion, the certificate is
 awarded at the same time as the conferral of the student's Rice degree, along with a formal notation on their academic
 transcript.

REQUIRED ELECTIVES

Students must complete two courses (six credit hours) to complete the Certificate's Required Electives. The courses that satisfy the electives in Leadership and Social Issues requirements can be found in the list below, but additional courses may be available that satisfy these requirements. Students should meet with their advisor to identify and receive approval for additional courses based on their program of study.

Leadership

Students must complete 3 from the following:

- BUSI 310 Leading in Organizations [3 credit hours]
- ENGI 140 Engineering Leadership Development [2 credit hours]
- ENGI 315 Leading Teams and Innovation [3 credit hours]
- ENGI 320/CEVE 320 Ethics and Engineering Leadership [3 credit hours]
- FWIS 175 Entrepreneurial Leadership [3 credit hours]
- LEAD 102 Introduction to Civic Leadership [3 credit hours]
- LEAD 301/HUMA 312 Historical and Intellectual Foundations of Leadership [3 credit hours]
- LEAD 309 Leadership: Theory to Practice [3 credit hours]
- LEAD 311 Leadership and Creativity [<u>1 credit hour</u>]
- LEAD 313 Entrepreneurial Leadership [2 credit hours]
- LEAD 321 Leadership Communication [<u>3 credit hours</u>]
- LEAD 325 Applied Leadership [3 credit hours]
- LEAD 330 Leadership in Higher Education [1 credit hour]
- LEAD 335 Crisis Leadership [<u>1 credit hour</u>]

- NAVA 203 Leadership and Management I [3 credit hours]
- PHIL 306 Ethics [<u>3 credit hours</u>]

Social Issues

Students must complete at least 1 course (minimum of 3 credit hours) from the following:

- ANTH 332/ENST 332 The Social Life of Clean Energy [3 credit hours]
- ANTH 344 City/Culture [<u>3 credit hours</u>]
- ANTH 358 The Fourth World: Issues of Indigenous People [3 credit hours]
- ARCH 313/ENST 313 Case Studies in Sustainable Design [3 credit hours]
- ARCH 455 Housing and Urban Programs: Issues in Policy [3 credit hours]
- ASIA 387/ANTH 387 Asian American Contemporary Communities [3 credit hours]
- CEVE 302/ENGI 302 Sustainable Design [3 credit hours]
- CEVE 307/ENST 307/ESCI 307 Energy and the Environment [3 credit hours]
- CHBE 281/ENST 281 Chemical Engineering Fundamentals [3 credit hours]
- EBIO 204/ENST 204 Community Garden [1 credit hour]
- ECON 432 Political Economy [3 credit hours]
- ECON 450 Economic Development [3 credit hours]
- ECON 460 Advanced Topics in Economic Development [3 credit hours]
- ECON 462 Economics of Human Capital [4 credit hours]
- ECON 479 Economic Modeling & Public Policy [3 credit hours]
- ECON 480/ENST 480 Environmental Economics [3 credit hours]
- ECON 481 Health Economics [3 credit hours]
- EDUC 335 Urban Education: Issues, Policy, and Practice [3 credit hours]
- EDUC 350/POST 340 Education Policy: From Legislatures to Classrooms [3 credit hours]
- ELEC 419/BIOE 419 Innovation Lab for Mobile Health [3 credit hours]
- ENGL 278 Medicine in the Age of Networked Intelligence [3 credit hours]
- ENGL 367/SWGS 367 Literature and Culture of the US-Mexico Borderlands [3 credit hours]
- GLHT 201 Introduction to Global Health [<u>3 credit hours</u>]
- HEAL 360 Violence in America: A Public Health Perspective [3 credit hours]
- HEAL 460 Planning and Evaluation of Health Promotion and Education [3 credit hours]
- HIST 268 Modern Slavery [<u>3 credit hours</u>]
- HIST 328 Poverty and Social Justice in Latin America [3 credit hours]
- HIST 421 Race, Education, and Society in the Urban South [3 credit hours]
- HUMA 202/ENST 202 Culture, Energy, and the Environment [3 credit hours]
- HUMA 320 From Physics Labs to Oil Futures: Social Studies of Energy [3 credit hours]
- LASR 375/SWGS 375 Women's Activism in the Urban Metropolis [3 credit hours]
- LASR 376/SWGS 376 Chicana and Latina Experience Thru Film [3 credit hours]
- PHIL 315 Ethics, Medicine, and Public Policy [3 credit hours]
- POLI 315 Elections and Voting Behavior [3 credit hours]
- POLI 320/RELI 320 The Legal Framework of Religious Tolerance [2 credit hours]
- POLI 362 Comparative Urban Policy [<u>3 credit hours</u>]
- POST 300 Public Policy Planning, Management, and Advocacy [3 credit hours]
- POST 420 Health Care: Competition and Managed Care [3 credit hours]
- PSYC 341 Human-Computer Interaction [<u>3 credit hours</u>]
- PSYC 345 Health Psychology [3 credit hours]
- PSYC 435 Pollution and Psychological Development [<u>3 credit hours</u>]
- SOCI 301 Social Inequality [<u>3 credit hours</u>]
- SOCI 306/SWGS 324 Sociology of Gender [3 credit hours]
- SOCI 308 Houston: The Sociology of a City [3 credit hours]
- SOCI 314 Science at Risk? Out of the Lab and Into Public Sphere [3 credit hours]
- SOCI 340 Sociology of Immigration [<u>3 credit hours</u>]
- SOCI 343 Race, Society, and Population Change [3 credit hours]
- SOSC 330 Health Care Reform in the 50 States [3 credit hours]

CCL EXPERIENTIAL LEARNING PROGRAMS

Students must complete a total of 3 Experiential Learning Programs as listed below.

- One Center for Civic Leadership Immersion Program, selected from the following:
 - Urban Immersion
 - Beyond the Sallyport
 - Leading Edge Workshop and LEAD 150
 - Alternative Spring Break Participant
 - Group International Service Project Participant

- Urban Immersion Coordinator
- Alternative Spring Break Site Leader
- Group International Service Project Site Leader
- Houston Action Research Team (HART)
- Leadership Rice Summer Mentorship Experience
- $\circ~$ Loewenstern Fellowship
- $\circ~$ Houston Internship Program
- One Civic Leadership Portfolio submitted on the last day of the semester in which the student completes UNIV 403

CAPSTONE

To complete the Certificate in Civic Leadership, students must complete the following 2 courses (6 credit hours):

- UNIV 402 Civic Leadership Capstone I [<u>3 credit hours</u>]
- UNIV 403 Civic Leadership Capstone II [3 credit hours]

Admission

Upon completion of the Required Electives and Center for Civic Leadership Experiential Learning Programs, students with a minimum overall GPA of 3.3 or higher may apply in the spring of their sophomore or junior year for admittance to the Certificate in Civic Leadership.

To apply students must submit the following:

- a transcript demonstrating successful completion of required electives and eligible minimum GPA of 3.3
- an abstract of their project proposal for the capstone course (UNIV 402/403), which is designed to yield high level, independent, community-based projects, and the signature of the faculty member who agrees to serve as the advisor
- a paragraph explaining the relevance of their elective courses and CCL Action Program to the proposed capstone project

Only students who propose a feasible project and demonstrate a coherent path of preparation will be admitted to the Center in Civic Leadership Certificate Program.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify Civic Leadership. The following is a quick reference:

Rice A-Z

Course Catalog/Schedule

- Course offerings/subject code: Courses from other departments apply towards the certificate.

Department (or Center) Description and Code

- Center for Civic Leadership: LEAD

Certificate Description and Code

- Certificate in Civic Leadership: CCL

Last Revised : August 25, 2016

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University Calendar

Maps-Directions

Feedback

RICE

343 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Civic Leadership >

Undergraduate Students	Civic Leadership						
Graduate Students	The Center for Civic Leadership						
Non-Traditional Students		Department	Undergraduate	Graduate	Course		
▶ Faculty	Info Requirements Requirements Listings Graduate Requirements Figure State <						
Programs of Study			academic program at the grad	duate level.			
Administration and Faculty							
Important Notices	Last Revised : August 12, 2016						

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Civic Leadership >

Undergraduate Students	Civic Leadership						
Graduate Students	The Center for Civic Leadership						
Non-Traditional Students	DepartmentUndergraduateGraduateCourseInfoRequirementsRequirementsListings						
▶ Faculty	Course Listings						
Programs of Study	The official course offerings, including course descriptions, for courses that can be applied to the Certificate in Civic Leadership can be found in Rice's Course Catalog.						
Administration and Faculty	To view the most recent course schedule for the 2016-2017 academic year see Rice's Course Schedule.						
Important Notices	For additional information regarding the Civic Leadership, see the department's website:https://ccl.rice.edu/.						
	Last Revised : August 24, 2016						

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RICE

345 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Civil and Environmental Engineering >

Undergraduate Students	ate Students Civil and Environmental Engineering						
Graduate Students	The George R. Brown S	School of Engineering					
Non-Traditional Students	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings			
Faculty		Requirements	Requirements	Listings			
Programs of Study	Chair Robert J. Griffin		Professor in the Practice of E aw	nvironmental			
Administration and Faculty		J	ames B. Blackburn				
	Professors						
Important Notices	Pedro J. J. Alvarez		Professors in the Practice in Civil Engineering Edmund P. Segner, III				
	Philip B. Bedient	E					
	Satish Nagarajaiah	1	.ecturers				
	Pol D. Spanos Mason B. Tomson		landi Chapa				
	Mason B. Tomson		Philip C. deBlanc				
	Associate Professo		Noyeen Haque				
	Daniel S. Cohan		Charles M. Penland				
	Leonardo A. Duenas	s-Osorio N	lestor Rubiano-Benavides				
	Qilin Li		Christof Spieler				
	Jamie E. Padgett	S	Steven M. Wilkerson				
	llinca Stanciulescu						
		J	oint Appointments				
	Assistant Professo	vrs V	Villiam T. Cannady				
	Rouzbeh Shahsavar	ri K	Cenneth Medlock				
	Lauren Stadler	Ν	lichael S. Wong				
	Professors Emeriti	A	djunct Professors				
	Ahmad J. Durrani	J	ean-Yves Bottero				
	John E. Merwin	V	Vei Chen				
	Ronald P. Nordgren	Ν	lick Fang				
	Anestis S. Veletsos	J	orge Loyo				
	Calvin H. Ward	C	Charles J. Newell				
		C	Carroll L. Oubre				
		J	avier Rojo				
			erome Rose				
		E	Baxter E. Vieux				

Programs (Undergraduate): BA degree, BS degree

Programs (Graduate): MCEE degree, MS degree, PhD degree

Civil and Environmental Engineering (CEE) 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 and pursue a Bachelor of Science (BS) that has four areas of specialization or pursue a Bachelor of Arts (BA) that affords more flexibility, or complete a double major with any other Rice University major. One nonthesis graduate degree, the Master of Civil & Environmental Engineering (MCEE), is also available to students who desire additional education and specialization in the

Students admitted for graduate study leading to a Master of Science (MS) or Doctor of Philosophy (PhD) degree 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, infrastructure reliability, hydrology, water resources and water quality management, air pollution and its control, and hazardous waste treatment.

Last Revised : August 17, 2016

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Civil and Environmental Engineering >

۶l	Und	dergr	aduat	te Stu	udents
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Civil and Environmental Engineering

- Graduate Students
- Non-Traditional Students
- Faculty

Programs of Study

- Administration and Faculty
- Important Notices

The George R. Brown School of Engineering

Info Requirements Requirements Listings

Jump to:

BSCE Degree with a Major in Civil Engineering

Bachelor of Arts Degree (BA) with a Major in Civil and Environmental Engineering

Program Learning Outcomes for the Bachelor of Science in Civil Engineering Degree (BSCE)

Upon completing the BSCE degree, students majoring in Civil Engineering (CIVI*) will be able to:

- 1. An ability to apply knowledge of mathematics, science, and engineering.
- 2. An ability to design and conduct experiments, as well as to analyze and interpret data.
- 3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- 4. An ability to function on multidisciplinary teams.
- 5. An ability to identify, formulate, and solve engineering problems.
- 6. An understanding of professional and ethical responsibility.
- 7. An ability to communicate effectively.
- 8. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- 9. Recognition of the need for, and ability to engage in life-long learning.
- 10. Knowledge of contemporary issues.
- 11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Requirements for the BSCE Degree with a Major in Civil Engineering

For general university requirements, see Graduation Requirements. Students pursuing the BSCE degree must complete a minimum of 133 credit hours to complete the degree to include the following:

- A minimum of 35 courses (94 credit hours) in departmental coursework to complete the major:
 - 9 courses (24 credit hours) from core coursework.
 - 4 courses (12 credit hours) from one area of specialization.
 - 2 courses in each of the three remaining areas of specialization for a total of 6 courses (18 credit hours).
 - o 16 courses (40-41 credit hours) from General Math and Science courses.
- A total of 13 courses (39 credit hours) of general university requirements:
 - 8 courses (24 credit hours) of distribution courses including the FWIS requirement.
 - o 5 courses (15 credit hours) of open/free electives including the LPAP requirement.

The four areas of specialization and their key topics within the BSCE degree are listed below:

- Environmental Engineering: Air and water quality, transport theory, modeling, and energy.
- Hydrology and Water Resources: Watershed and aquifer management, flood prediction, data analysis, GIS, and hydrologic modeling
- Structural Engineering and Mechanics: Structural analysis, mechanics, design, dynamics, and matrix method
- Urban Infrastructure, Reliability, and Management: Transportation systems, complex urban systems, system reliability, soil mechanics, decision theory, engineering economics, and project management.

Civil and Environmental Engineering's innovative and challenging BSCE degree's engineering curriculum is designed to provide

significant flexibility to the student. Specific details and typical course layouts by semester can be found on the departmental website 🗗. The program leading to the Bachelor of Science in Civil Engineering degree is accredited by the Engineering Accreditation Commission of ABET 🗗.

Additional features include:

- Courses that introduce fundamentals of civil and environmental engineering primarily targeted at students with diverse science, engineering, and humanities backgrounds (CEVE 101, 211, 310, 311, 312)
- Special-topics courses to help attract the best students to perform undergraduate research in the department.
- Engineers Without Borders (EWB) is an important component of the program. This exciting student organization allows undergraduates to design and build a project to help society in a developing country. Students have been attracted to the program in large numbers. (See the department website d for details.)

GENERAL MATH AND SCIENCE REQUIREMENTS (* or an equivalent approved course)

Students must complete a minimum of 16 courses (40-41 credit hours depending on course selection) as listed below to satisfy the General Math and Science requirements:

- CAAM 210 Introduction to Engineering Computation [3 credit hours]
- CAAM 335 Matrix Analysis* [<u>3 credit hours</u>]
 or MATH 354 Honors Linear Algebra [<u>3 credit hours</u>]
 or MATH 355 Linear Algebra [<u>3 credit hours</u>]
- CHEM 121 General Chemistry I [3 credit hours] and CHEM 123 General Chemistry Lab 1 [1 credit hour]
- CHEM 122 General Chemistry // [3 credit hours] and CHEM 124 General Chemistry Lab // [1 credit hour]
- BIOC 201 Introductory Biology [<u>3 credit hours</u>] or EBIO 325 Ecology [<u>3 credit hours</u>]
 - or ESCI 301 Introductory to the Earth [4 credit hours]
- MATH 101 Single Variable Calculus I [<u>3 credit hours</u>]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours]
- MATH 212 Multivariable Calculus [3 credit hours]
- PHYS 101 Mechanics (with Lab) [4 credit hours] and PHYS 103 Mechanics Discussion [0 credit]
- PHYS 102 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>] and PHYS 104 E & M Discussion [<u>0 credit</u>]
- STAT 312 Probability and Statistics for Engineers [3 credit hours]

CORE REQUIREMENTS

Students must complete a total of 9 courses (24 credit hours) as listed below to satisfy the BSCE degree's Core Requirements. *Please note: For students pursuing an area of specialization in Environmental Engineering (Area I) or Hydrology and Water Resources (Area II), CEVE 401 is required, and CEVE 470 is an Urban Infrastructure, Reliability, and Management (Area IV) elective. For students pursuing an area of specialization in Structural Engineering and Mechanics (Area III) or Urban Infrastructure, Reliability, and Management (Area IV), CEVE 470 is required and CEVE 401 is an Environmental Engineering (Area I) elective.*

- CEVE 101 Fundamentals of Civil and Environmental Engineering [3 credit hours]
- CEVE 211/MECH 211 Engineering Mechanics [3 credit hours]
- CEVE 310 Principles of Environmental Engineering [3 credit hours]
- CEVE 311/MECH 311 Mechanics of Solids and Structures [3 credit hours]
- CEVE 312 Strength of Materials Lab [<u>1 credit hour</u>]
- CEVE 363 Applied Fluid Mechanics [3 credit hours]
- CEVE 401 Chemistry for Environmental Engineering and Science Lab [<u>4 credit hours</u>] or CEVE 470 Principles of Soil Mechanics (for Focus Areas III and IV) [<u>4 credit hours</u>]
- CEVE 480 Senior Design Project [3 credit hours]
- CEVE 481 Introduction to Senior Design [<u>1 credit hour</u>]

AREAS OF SPECIALIZATION

To fulfill the remaining BSCE requirements, students must complete a total of 10 courses (30 credit hours) as listed below in the four areas of specialization:

- 4 courses (12 credit hours) from one area of specialization.
- 6 courses (18 credit hours), consisting of a minimum of 2 courses (6 credit hours) from each of the remaining 3 areas of specialization found below.

Area I Environmental Engineering

CEVE 302/ENGI 302 Sustainable Design [3 credit hours]

- CEVE 308 Introduction to Air Pollution Control* [3 credit hours]
- CEVE 401 Chemistry for Environmental Engineering and Science Lab** [4 credit hours]
- CEVE 404 Atmospheric Particulate Matter* [<u>3 credit hours</u>]
- CEVE 406/ENST 406 Introduction to Environmental Law* [3 credit hours]
- CEVE 411 Atmospheric Processes [<u>3 credit hours</u>]
- CEVE 434 Fate and Transport of Contaminants in the Environment [3 credit hours]
- CEVE 444 Environmental Microbiology & Ecology [3 credit hours]
- Or any approved environmental course from Civil and Environmental Engineering (CEVE) course offerings [<u>3 credit hours</u>]

Area II Hydrology and Water Resources

- CEVE 412 Hydrology and Water Resources Engineering [3 credit hours]
- CEVE 418/ESCI 418 Quantitative Hydrogeology [3 credit hours]
- CEVE 420 Environmental Remediation Restoration [3 credit hours]
- CEVE 512 Advanced Hydrology and Hydraulics [<u>3 credit hours</u>]
- CEVE 518 Contaminant Hydrogeology [<u>3 credit hours</u>]
- Or any approved hydrology or water resources course from CEVE course offerings [<u>3 credit hours</u>]

Area III Structural Engineering and Mechanics

- CEVE 304 Structural Analysis I [3 credit hours]
- CEVE 400/MECH 400 Advanced Mechanics of Materials [3 credit hours]
- CEVE 405 Steel Design [3 credit hours]
- CEVE 407 Reinforced Concrete Design [3 credit hours]
- CEVE 408 Concrete and Steel Structures Lab [1 credit hour]
- CEVE 427/MECH 427 Computational Structural Mechanics and FEM [3 credit hours]
- CEVE 476 Structural Dynamic Systems* [3 credit hours]
- Or any approved structures/mechanics course from CEVE/MECH course offerings [3 credit hours]

Area IV Urban Infrastructure, Reliability and Management

- CEVE 313/STAT 313 Uncertainty and Risk in Urban Infrastructures [3 credit hours]
- CEVE 424 Time Dependent System Reliability Methods and Applications* [3 credit hours]
- CEVE 452 Urban Transportation Systems [3 credit hours]
- CEVE 460 Bridge Engineering and Extreme Events* [3 credit hours]
- CEVE 470 Principles of Soil Mechanics** [4 credit hours]
- CEVE 479 Engineering Project Management and Economics [3 credit hours]
- CEVE 492 Modeling and Analysis of Networked Systems* [3 credit hours]
- Or any approved urban infrastructure, reliability and management course from CEVE/MGMT/ECON/CAAM/STAT course
 offerings [<u>3 credit hours</u>]

*Offered alternative years

**If not used for core requirement

ELECTIVES

To fulfill the remaining credit requirements for the BSCE degree, a list of CEVE Suggested Elective Courses (in addition to 500-Level and above CEVE course offerings, and select courses from MECH, CAAM, CHEM, ECON, STAT course offerings) and further details are posted on the department website and can also be found below:

- CEVE 314/BIOE 365/GLHT 314 Sustainable Water Purification [3 credit hours]
- CEVE 320/ENGI 320 Ethics Engineering Leadership [3 credit hours]
- CEVE 417/MECH 417 Finite Element Analysis [3 credit hours]
- CEVE 424 Time-dependent Reliability of Engineering Systems [<u>3 credit hours</u>]
- CEVE 454/BIOE 454/MECH 454 Computational Fluid Mechanics [3 credit hours]
- CEVE 499 Special Topics [<u>1-12 credit hours</u>]
- ARCH 317 Landscape and Site Strat. Houston [<u>3 credit hours</u>]
- CHEM 211 Organic Chemistry I [3 credit hours] and CHEM 213 Organic Chemistry Discussion [0 credit]
- ECON 100 Principles of Economics [<u>3 credit hours</u>]
- ECON 445 Managerial Economics [3 credit hours]
- STAT 385 Methods for Data Analysis [4 credit hours]
- CAAM 336 Differential Equations in Science and Engineering [3 credit hours]
- CAAM 378 Introduction to O.R. and Optimization [<u>3 credit hours</u>] Numerical Analysis I

[3 credit hours]

- CAAM 471 Linear and Integer Programming [<u>3 credit hours</u>]
- MECH 343 Modeling of Dynamic Systems [<u>3 credit hours</u>]
- MECH 412 Vibrations [3 credit hours]

BSCE Program Objectives

CAAM 453

(See department website d for additional information.)

- 1. Develop/demonstrate strong problem-solving and communication skills
- 2. Achieve leadership position in technical or managerial areas
- 3. Demonstrate initiative and innovative thinking in project work
- 4. Maintain a keen awareness of ethical, social, environmental, and global risk concerns
- 5. Remain engaged in continuing learning, including advanced degrees
- 6. Prepare for a Professional Engineering License

back to menu

Requirements for the Bachelor of Arts Degree (BA) with a Major in Civil and Environmental Engineering

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Civil and Environmental Engineering (CEEG) must complete:

- A minimum of 122 credit hours to satisfy degree requirements.
 - 5-6 courses (16 credit hours) as Major Concentration Core courses.
 - 7 courses (21 credit hours) from Specialty Focus Area courses.
 - 9-11 courses (25 credit hours) of General Math and Science courses.
- The requirements of a major concentration. When students declare the major in Civil and Environmental Engineering, students must additionally identify and declare one of the major concentrations, either in a.) Civil Engineering or b.) Environmental Engineering.

Each major concentration is to be tailored to the specific needs of each student by discussions with, and approval by, the Civil and Environmental Engineering departmental major concentration advisor. <u>Although not required, students are encouraged to double major when pursuing the BA degree.</u>

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 upon 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 (see your advisor or department chair for details). Those students who want to obtain an engineering degree from a program accredited by the Engineering Accreditation Commission (EAC) of ABET must follow one of the Bachelor of Science programs the EAC has accredited at Rice, like the Bachelor of Science in Civil Engineering (BSCE).

GENERAL MATH AND SCIENCE COURSES

Students must complete a total of 9-11 courses (25 credit hours) from the following before they complete the major concentration in Civil Engineering or the major concentration in Environmental Engineering requirements.

- CAAM 210 Introduction to Engineering Comp [3 credit hours]
 or CAAM 335 Matrix Analysis [3 credit hours]
 - or COMP 110/NSCI 230 Computation in Science and Engineering [3 credit hours]
- CHEM 121 General Chemistry I [3 credit hours] and CHEM 123 General Chemistry Lab 1 [1 credit hour]
- CHEM 122 General Chemistry II [<u>3 credit hours</u>] and CHEM 124 General Chemistry Lab II [<u>1 credit hour</u>]
- MATH 101 Single Variable Calculus I [<u>3 credit hours</u>]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>] or PHYS 111 Mechanics (with Lab) [<u>4 credit hours</u>]
- PHYS 102 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>] and PHYS 104 E & M Discussion [<u>0 credit</u>] or PHYS 112 Electricity & Magnetism w/Lab [<u>4 credit hours</u>]

MAJOR CONCENTRATION: CIVIL ENGINEERING (CIEG)

Students must complete the following 6 courses (16 credit hours) to satisfy the requirements for the major concentration in Civil Engineering.

- CEVE 101 Fundamentals of Civil and Environmental Engineering [3 credit hours]
 - CEVE 211/MECH 211 Engineering Mechanics [3 credit hours]
- CEVE 310 Principles of Environmental Engineering [3 credit hours]
- CEVE 311/MECH 311 Mechanics of Solids and Structures [3 credit hours]
- CEVE 312 Strength of Materials Lab [<u>1 credit hour</u>]
- CEVE 304 Structural Analysis I [<u>3 credit hours</u>]

MAJOR CONCENTRATION: ENVIRONMENTAL ENGINEERING (ENEG)

Students must complete the following 5 courses (16 credit hours) to satisfy the requirements for the major concentration in Environmental Engineering.

- CEVE 101 Fundamentals of Civil and Environmental Engineering [3 credit hours]
- CEVE 307/ENST 307/ESCI 307 Energy and the Environment [3 credit hours]
- CEVE 310 Principles of Environmental Engineering [3 credit hours]
- CEVE 401 Chemistry for Environmental Engineering and Sciences [4 credit hours]
- CEVE 412 Hydrology and Water Resources Engineering [3 credit hours]

SPECIALTY FOCUS AREA

To satisfy the remaining Specialty Focus Area of the BA degree in Civil and Environmental Engineering, students must complete a total of 7 courses (21 credit hours) from approved electives selected with the Civil and Environmental Engineering advisor. Course selection must meet the following requirements:

- 4 courses (12 credit hours) must be within one Specialty Focus Area (See below).
- 4 courses (12 credit hours) from the 300-level or above; 2 of these 4 courses (6 credit hours) must also be selected from departmental (CEVE) course offerings.

Example Specialty Focus areas are suggested below; however students are encouraged to prepare their own specialty related to their career objectives in consultation with, and approval by, their Civil and Environmental Engineering advisor.

- 1. Environmental Science and Engineering
- 2. Civil Engineering
- 3. Biology
- 4. Chemical Engineering
- 5. Chemistry
- 6. Economics
- 7. Management

Engineers Without Borders (EWB) is an important component of the Civil and Environmental Engineering programs, and BA students with their flexible curriculum are also encouraged to participate. This exciting endeavor allows undergraduates to have an experience in a developing country, where they are able to design and build a project to help society. Students have been attracted to the EWB program in large numbers and our local chapter is one of the most successful in the United States. Some CEVE courses are EWB-related, providing the opportunity to also obtain credit hours.

Requirements for the Minor in Energy, Water, and Sustainability

For more information regarding the minor in Energy, Water, and Sustainability, please visit the Energy, Water, and Sustainability page.

Description and Code Legend

*NOTE: Internally, the university uses the following abbreviations (4-digit codes) to identify the Civil & Environmental Engineering undergraduate degrees, majors, and major concentrations. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: CEVE
- Department Description and Code:
- Civil and Environmental Engineering: CEEG
- Degree Description and Codes
 - Bachelor of Science in Civil Engineering degree: BSCE
- Bachelor of Arts degree: BA
- Major Description and Codes
 - Major in Civil Engineering (offered to students pursuing the BSCE degree): CIVI
- Major in Civil and Environmental Engineering (offered to students pursuing the BA degree): CEEG

Major Concentration Description and Codes

- Major Concentration in Civil Engineering (attached to the BA degree): CIEG

- Major Concentration in Environmental Engineering (attached to the BA degree): ENEG

back to menu

Last Revised : August 29, 2016

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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Civil and Environmental Engineering >

```
Undergraduate Students
```

Civil and Environmental Engineering

Graduate Students

RICE

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

The George R. Brown School of Engineering

	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings	
MS D	E Degree in Civil and Enviro	or Environmental Engineering	1		
-	ee (MCEE)	omes for the Maste	er of Civil and Enviro	nmental Engineer	ing

- 1. Demonstrate a solid foundation in civil and environmental engineering at the graduate level.
- 2. Demonstrate professional written and oral communication skills.

Requirements for the Master of Civil and Environmental Engineering Degree (MCEE)

For general university requirements, see Graduate Degrees. Students pursuing the Master of Civil and Environmental Engineering (MCEE) degree must complete:

- A minimum of 30 credit hours of graduate-level courses in one area of specialization: Civil Engineering or Sustainable Environmental Engineering and Design, including one semester of graduate seminar (CEVE 601/602) and a final project (CEVE 590). All courses must be in the relevant field.
- A minimum of 24 credit hours at Rice.
- The minimum residency, which is one fall or spring semester in full-time or part-time graduate study.

The Master of Civil and Environmental Engineering (MCEE) is a professional non-thesis degree requiring 30 credit hours of approved courses at the 500-level or above, including a final project of 2 credit hours. Students who have a BS or BA degree in any field of engineering or related study may apply. Depending on their background, some students may need to fulfill prerequisites or take remedial engineering courses to earn the MCEE degree. For more information, see the department website de la

AREAS OF SPECIALIZATION IN THE MCEE DEGREE

Students pursuing the MCEE Degree program must complete the requirements for one area of specialization as listed below. The two areas of specialization offered are 1) Civil Engineering and 2) Sustainable Environmental Engineering and Design.

CIVIL ENGINEERING

Students must complete 10 courses (30 credit hours) as listed below to satisfy the area of specialization in Civil Engineering.

Core Requirements

Students must complete 6 advanced courses, and 1 seminar course (19 credit hours) from the following:

- CEVE 500/MECH 500 Advanced Mechanics of Materials [3 credit hours]
- CEVE 503/MECH 520 Nonlinear Finite Element Analysis [3 credit hours]
- CEVE 505/ENGI 505 Engineering Project Management and Economics [3 credit hours]
- CEVE 519/MECH 519 Elasticity, Plasticity, and Damage Mechanics [3 credit hours]
- CEVE 524 Time-Dependent System Reliability Methods and Applications [3 credit hours]
- CEVE 527/MECH 527 Computational Structural Mechanics and FEM [3 credit hours] Concrete Building Design

- CEVE 538/MSNE 538 Computational Nanoscience for Green Infrastructure [3 credit hours]
- CEVE 540 Steel Building Design [3 credit hours]
- CEVE 560 Bridge Engineering and Extreme Events [3 credit hours]
- CEVE 570 Foundation Engineering [3 credit hours]
- CEVE 576/MECH 576 Structural Dynamic Systems [3 credit hours]
- CEVE 578 Earthquake Engineering [3 credit hours]
- CEVE 592 Modeling and Analysis of Networked Systems [3 credit hours]
- CEVE 596 Offshore and Marine Systems [3 credit hours]
- CEVE 601 Seminar [<u>1 credit hour</u>]
- or CEVE 602 Seminar [1 credit hour]
- CEVE 678/MECH 678 Advanced Stochastic Mechanics [3 credit hours]
- CEVE 679/MECH 679 Applied Monte Carlo Analysis [3 credit hours]

Electives

CEVE 530

To fulfill the remaining requirements for the area of specialization in Civil Engineering, students must complete a total of 3 additional courses (9 credit hours) as listed below.

Directed Civil Engineering Electives

Students must complete a total of 2 courses (6 credit hours) from the Core Requirements or from the following:

- CAAM 453 Numerical Analysis I [3 credit hours]
- CEVE 555/CAAM 536 Numerical Methods for Partial Differential Equations [3 credit hours]
- MECH 502 Vibrations [<u>3 credit hours</u>]
- MECH 517 Finite Element Analysis [3 credit hours]
- MECH 665 Analysis of Vibrations in Nonlinear Systems [3 credit hours]

Professional Development Electives

Students must complete 1 course (3 credit hours) from the following:

- ANTH 532 The Social Life of Clean Energy [3 credit hours]
- CEVE 406/ENST 406 Introduction to Environmental Law [3 credit hours]
- CEVE 507 Energy and the Environment [3 credit hours]
- CEVE 528/ENGI 528 Engineering Economics [3 credit hours]
- ECON 437/ENST 437 Energy Economics [3 credit hours]
- ENGI 529/CEVE 529 Ethics and Engineering Leadership [3 credit hours]
- NSCI 511 Science Policy, and Ethics [3 credit hours]
- NSCI 610/ENGI 610 Management for Science and Engineering [3 credit hours]

SUSTAINABLE ENVIRONMENTAL ENGINEERING AND DESIGN

Students must complete a total of 10 courses (30 credit hours) as listed below to satisfy the area of specialization in Sustainable and Environmental Engineering and Design.

Core Requirements

Students must complete a total of 7 courses (19 credit hours) from the following:

- CEVE 501 Environmental Chemistry [3 credit hours]
- CEVE 502 Sustainable Design [3 credit hours]
- CEVE 509 Hydrology and Water Resources Engineering [3 credit hours]
- CEVE 511 Atmospheric Processes [3 credit hours]
- CEVE 534 Fate and Transport of Contaminants in the Environment [3 credit hours]
- CEVE 536 Environmental Biotechnology and Bioremediation [<u>3 credit hours</u>]
- CEVE 601 Seminar [<u>1 credit hour</u>]

or CEVE 602 Seminar [1 credit hour]

Electives

To fulfill the remaining Sustainable and Environmental Engineering and Design specialization requirements, students must complete a total of 3 additional courses (9 credit hours) as listed between the two elective groups below.

Engineering Science and Technology

Students must complete a total of 2 courses (6 credit hours) from the following:

- CEVE 450/ESCI 450 Remote Sensing [3 credit hours]
- CEVE 504 Atmospheric Particulate Matter [3 credit hours]

- CEVE 508 Introduction to Air Pollution Control [3 credit hours]
- CEVE 510 Principles of Environmental Engineering [3 credit hours]
- CEVE 518 Contaminant Hydrogeology [3 credit hours]
- CEVE 520 Environmental Remediation Restoration [<u>3 credit hours</u>]
- CEVE 533/CHEM 533 NanoScience and NanoTechnology [3 credit hours]
- CEVE 535 Physical Chemical Processes for Water Quality Control [3 credit hours]
- CEVE 544 Environmental Microbiology and Microbial Ecology [3 credit hours]
- CEVE 550 Environmental Organic Chemistry [3 credit hours]
- CEVE 592 Modeling and Analysis of Networked Systems [3 credit hours]
- STAT 485 Environmental Statistics and Decision Making [3 credit hours]

Sustainable Resource Management

Students must complete 1 course (3 credit hours) from the following:

- ANTH 532 The Social Life of Clean Energy [3 credit hours]
- CEVE 406/ENST 406 Introduction to Environmental Law [3 credit hours]
- CEVE 507 Energy and the Environment [3 credit hours]
- CEVE 528/ENGI 528 Engineering Economics [3 credit hours]
- CEVE 529/ENGI 529 Ethics, & Engineering Leadership [3 credit hours]
- ECON 437/ENST 437 Energy Economics [3 credit hours]
- NSCI 511 Science Policy, and Ethics [3 credit hours]
- NSCI 610/ENGI 610 Management for Science and Engineering [3 credit hours]

MCEE FINAL PROJECT

All students pursuing the MCEE degree must complete CEVE 590 *MCEE Special Study* (2 credit hours), which is the Professional master final project with a Civil and Environmental department faculty member.

Professional Engineering Master's 5th Year Degree Option for Rice Undergraduates

Rice students have an option to achieve the MCEE degree by adding an additional fifth year to the four undergraduate years of science studies. Advanced Rice students in good standing may apply during their junior year to the graduate program. Upon acceptance, depending on course load, financial aid status, and other variables they may then start taking required core courses of the civil and environmental engineering program during their senior year. A plan of study based on their particular focus area will need to be approved by the chair of the department graduate studies committee. With careful planning, students can potentially finish their MCEE in the 9th semester. Students should be aware there could be financial aid implications, if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time (12 hours) status.

back to menu

Requirements for the MS Degree in Civil Engineering or Environmental Engineering

For general university requirements, see Graduate Degrees. Students pursuing the MS degree program in Civil or Environmental Engineering must:

- Complete a minimum of 30 credit hours to satisfy degree requirements.
- Complete a minimum of 24 credit hours from approved graduate level courses and 6 credit hours of thesis research. For students studying environmental engineering, this must include one course each in environmental chemistry, water treatment, hydrology, and air quality. For students studying civil, structural engineering, and mechanics, this must include one course each in structural engineering, mechanics, applied mathematics, structural dynamic systems, systems reliability and earthquake engineering.
- 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 two 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.

back to menu

Program Learning Outcomes for the PhD Degree in Civil Engineering or Environmental Engineering

Upon completing the PhD degree program in Civil and Environmental Engineering, students will be able to:

- 1. Demonstrate a solid foundation in civil and environmental engineering at the graduate level.
- 2. Acquire advanced knowledge of the principles of civil and environmental engineering and apply them to advanced technical problems.
- 3. Conduct an independent research program.
- 4. Demonstrate professional written and oral communication skills.

Requirements for the PhD Degree in Civil Engineering or Environmental Engineering

For general university requirements, see Graduate Degrees. Students pursuing the PhD degree program in Civil and Environmental Engineering must:

- Complete 90 credit hours of approved courses past BS degree (60 credit hours past MS degree) with high standing (see guidelines on the department website ^[2])
- Spend at least four semesters in full time study at Rice and successfully accomplish the following.
- Pass a preliminary examination in civil and environmental engineering (see guidelines on the department website 🗗)
- Pass a qualifying examination on course work, proposed research, and related topics
- Complete a dissertation indicating an ability to conduct original and scholarly research
- Pass a formal public oral examination on the thesis and related topics.

PhD students in the EES track take the preliminary exam, administered by department faculty, after two semesters of course work. Civil engineering graduate students will be required to take their written preliminary exam on Friday before the start of the spring semester, 1.5 years from the fall semester they enter into the program, and take the oral exam on Friday of the first week of classes. If a student enters in the spring semester, he/she needs to take the exam in the following spring semester along with other students. Students who pass this exam then from a doctoral committee according to department requirements.

The qualifying examination is administered by the doctoral committee after students develop a research proposal to demonstrate their preparation for the proposed research and identify any areas requiring additional course work or study. As part of the advanced degree training, we also may require students to assist the faculty in undergraduate courses and laboratory instructions.

Admission

Applicants pursuing graduate education in environmental engineering or hydrology should have a BS or BA in related areas of science and engineering and preparation in mathematics, science, and engineering or related courses. A BS degree in Engineering or a degree in natural science is preferred. Applicants pursuing graduate education in structural engineering, structural mechanics, and geotechnical engineering should have a BS in Civil Engineering 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. 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.

back to menu

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Civil and Environmental graduate degree programs. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: CEVE

- Department Description and Code
 - Civil and Environmental Engineering: CEEG

Degree Descriptions and Codes

- Master of Civil and Environmental Engineering degree: MCEE
- Master of Science degree: MS
- Doctor of Philosophy degree: PhD
- Degree Program Description and Code
 - Degree Program in Civil Engineering: CIVI

	- Degree Program in Environm	ental Engineering: ENVI				
	Last Revised : September 09, 2016					
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RICE

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Civil and Environmental Engineering >

Undergraduate Students	Civil and Environmental Engineering					
▶ Graduate Students	The George R. Brown School of Engineering					
Non-Traditional Students	Department Undergraduate Graduate Course					
▶ Faculty	Info Requirements Requirements Listings Course Listings Image: Course Listing State					
Programs of Study	The official course offerings, including course descriptions, for Civil and Environmental Engineering can be found in Rice's					
Administration and Faculty	Course Catalog.					
Important Notices	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.					
	For additional information regarding Civil and Environmental Engineering, see the department's website: http://ceve.rice.edu/.					
	Last Revised : August 24, 2016					

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Classical and European Studies >

Classical and European Studies

The School of Humanities

Graduate \$	Students
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Non-Traditional Students

Undergraduate Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

	Info	Requirements	Dequiremente	
			Requirements	Listings
	Chair		Professors Emeriti	
	Scott McGill		Margaret Eifler (German)	
			Jean Joseph Goux (French)	
	Professors		Michael Winkler (German)	
	Bernard Aresu (French)			
	Christian Emden (Germa	an)	Research Professor	
	Scott McGill (Classics)		Ewa M. Thompson (German)	
	Deborah Nelson-Campb	ell (French)		
	Uwe Steiner (German)		Lecturers	
	Klaus Weissenberger (G	German)	David R. Riesbeck (Classics)	
	Harvey Yunis (Classics)		Ted Somerville (Classics)	
	Associate Professors			
	Martin Blumenthal-Barby	y (German)		
	Julie Fette (French)			
	Deborah A. Harter (Fren			
	Hilary Mackie (Classics)			
	Astrid Oesmann (Germa	·		
	Philip R. Wood (French)			
Program	n (Undergraduate): E	3A		
Program	n (Graduate): N/A			
and Socia	10	nore info.) The programs the	ch Studies, and German Studies nat comprise the department offer m offers its own major.	,

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Web Services

University Calendar Rice A-Z

Maps-Directions

Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Classical and European Studies >

۶l	Und	dergr	aduat	te Stu	udents
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Non-Traditional Students

Administration and Faculty

Graduate Students

Programs of Study

Important Notices

Faculty

Classical and European Studies

The School of Humanities

	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
ump to: BA De	: egree with a Major in Class	ical Studies		
BA De	egree with a Major in Frenc	h Studies		

Program Learning Outcomes for the BA Degree with a Major in Classical Studies

Upon completing the BA degree, students majoring in Classical Studies will:

- 1. Be proficient at reading Greek and Latin if they pursue the Classical Languages area of specialization, and have articulate knowledge of the grammar and style of both languages.
- 2. Be familiar with texts, artifacts, institutions, events, personalities, and places that are integral to ancient Greek and Roman culture from the Greek Bronze Age to the seventh century C. E.
- Be able to analyze and interpret those texts (in the original languages, in the case of students who pursue the Classical Languages area of specialization), artifacts, institutions, events, personalities, and places in their historical and cultural context.
- 4. Be able to relate classical civilization to the world around them, and to appreciate the profound influence classical civilization had on later Western civilization.

Requirements for the BA Degree with a Major in Classical Studies

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Classical Studies (CLST) must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 2 courses (6 credit hours) at the 300-level or above.
- The requirements for one area of specialization.

The CLST major offers two areas of specialization:

- Classical Languages
- Classical Civilizations

The program in Classical Studies 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 their influence through subsequent ages. The program 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. For more information, please see the Classical and European Studies website

CORE REQUIREMENTS

Students must complete a total of 2 courses (6 credit hours) from the following to satisfy the Classical Studies major's Core Requirements.

CLAS 107/HUMA 107 Greek Civilization and Its Legacy [3 credit hours]

CLAS 235 Classical Mythology: Interpretation, Origins, and Influence [3 credit hours]

AREAS OF SPECIALIZATION

To fulfill the remaining Classical Studies major requirements, students must complete the requirements for one area of specialization as listed below. Some courses in ancient philosophy, history, art history, and religion offered by the departments of Philosophy, History, Art History, and Religion also satisfy requirements for either specialization of the Classical Studies major. For advice about which courses do this, consult the program director.

Classical Languages Specialization

Students must complete a total of 8 courses (30 credit hours) as listed below to satisfy the requirements for the Classical Languages specialization.

- 1 course (3 credit hours) from Greek (GREE) course offerings at the 200-level or higher.
- 1 course (3 credit hours) from Latin (LATI) course offerings at the 200-level or higher.
- 1 course from Greek (GREE) or Latin (LATI) course offerings at the 300-level or higher.
- 5 courses (18 credit hours) from Classical Studies (CLAS), GREE, or LATI course offerings. A minimum of 2 courses (6 credit hours) must be taken at the 300-level or above.

Classical Civilizations Specialization

Students must complete a total of 8 courses (24 credit hours) from CLAS, GREE, or LATI course offerings. A minimum of 2 courses (6 credit hours) must be taken at the 300-level or above.

Back to top

Program Learning Outcomes for the BA Degree with a Major in French Studies

Upon completing the BA degree, students majoring in French Studies will be able to:

- 1. Communicate fluently in spoken and written French at an advanced level, as indicated by the ability to: understand spoken French, converse in French, critically read and translate French texts, and write in multiple genres in French.
- Achieve the cultural literacy necessary for studying abroad or practicing internationally-based professions by demonstrating an understanding of the major social, cultural, and political stakes of the French and Francophone world, past and present.
- 3. Demonstrate an interdisciplinary understanding of French studies through critical investigations of French literature, art, film, and other cultural forms.
- 4. Understand French language and culture not as isolated geographic phenomena, but in the wider context of multicultural exchange and globalization.
- 5. Learn and apply various research skills, including critical thinking and reading skills, theory, and criticism, to French texts (broadly construed) in order to produce new critical insights verbally or in writing.

Requirements for the BA Degree with a Major in French Studies

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in French Studies (FREN) must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- All courses at the 300-level or above.

Students pursuing two majors (i.e., are double majors) who have declared the French major must complete a minimum of 8 courses (24 credit hours) to satisfy major requirements. Double majors who drop their second major are required to meet the requirements listed for single majors.

The program in French Studies offers a wide range of courses in literatures and cultures from France, Africa north and south of the Sahara, the Caribbean, and Québec. It covers major chronological periods while simultaneously anchoring the study of French cultures in a broad spectrum of disciplines that include literary, film, art, and historical studies. The program also offers advanced French language instruction focusing on writing, translation, and literary analysis. We strongly encourage students to spend time studying in a francophone country, and to that end the faculty and the Rice Study Abroad Office will help them select an appropriate program. An Honors Program in French Studies provides seniors with the opportunity to develop individual research projects culminating in the Honors thesis. For more information, please see the French Studies website 🗗.

As many as two French courses taught in English may count toward a major in French Studies. Students who have taken French courses at the 300-level and 400-level (except those taught in English) cannot enroll simultaneously or afterward in 200level French courses for credit. 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 advisor. All students who arrive at Rice with AP credit in French of '4' or '5,' or who have passed the International Baccalaureate with a '6' or '7' in this language, can immediately enroll in all courses at the 300 or 400-level without taking a placement exam. Otherwise, all students are required to take the placement exam administered by CLIC and will be assigned to courses in accordance with their level.

CORE REQUIREMENTS

Students must complete a total of 3 courses (9 credit hours) as listed below to satisfy the French Studies major's Core Requirements. The courses taken to satisfy the Core Requirements must be taken at Rice University. It is strongly suggested that these courses be taken as early as possible.

Major Literary Works and Artifacts

Students must complete 2 courses (6 credit hours) from the following:

- FREN 311 Major Literary Works and Artifacts of Pre-Revolutionary France [3 credit hours]
- FREN 312 Major Literary Works and Artifacts of Post-Revolutionary France [3 credit hours]
- FREN 313 Major Literary Works and Artifacts of the Francophone World [3 credit hours]

Writing Workshop

Students must complete the following course:

FREN 302 Writing Workshop [3 credit hours]

ELECTIVES

To fulfill the remaining French Studies major requirements, single majors must complete a total of 7 additional courses (21 credit hours) from departmental (FREN) course offerings at the 300-level or above, including at least 3 courses (9 credit hours) at the 400-level. Double majors must complete a total of 5 additional courses (15 credit hours) from FREN course offerings, including at least 2 courses (6 credit hours) at the 400-level. Students are required, with rare exceptions, to take 2 of their 400-level courses in the department.

Honors Program

The Honors Program in French Studies is meant to recognize outstanding French majors and to offer an opportunity to complete a senior thesis in close collaboration with a French Studies faculty member.

Back to top

Program Learning Outcomes for the BA Degree with a Major in German Studies

Upon completing the BA degree, students majoring in German Studies will be able to:

- 1. Develop an understanding of the main lines of cultural, political, and social thought in German history from early modern times to the present in the European context based on original sources.
- Acquire skills in analyzing and evaluating key texts and documents of German cultural and political history such as literature, philosophy, art, and electronic media by way of close reading, critical interpretation and an awareness of the document's rhetorical and media–specific features.
- 3. Be able to identify and compare different authors and texts within the different traditions they form a part of as well as their impact and legacy within both the national and international context.
- 4. Be able to conduct research in the field of German Studies on topics chosen independently and to represent and communicate their findings clearly and coherently both in writing and oral presentation.

Requirements for the BA Degree with a Major in German Studies

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in German Studies (GERM) must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- All courses at the 300-level or above.
- No more than four 4 courses (12 credit hours) from transfer work.

Students who are pursuing two majors (i.e., are double majors) who have declared the German Studies major must complete:

A minimum of 8 courses (24 credit hours) to satisfy major requirements.

- All courses at the 300-level or above.
- No more than 3 courses (9 credit hours) from transfer work.

Requests for exceptions to these rules will be considered by the Program Director. Double majors who drop their second major are required to meet the requirements listed for single majors.

German Studies at Rice is a research-centered and undergraduate-focused program with internationally renowned faculty. Courses are offered in both German and English. The program covers German history, literature, and culture, from the seventeenth century to the present, with a strong emphasis on Germany's role in a wider European and transatlantic context. Particular departmental strengths are in the areas of modern intellectual history, 18th- to 20th-century literature and philosophy, film and media studies, as well as political theory. The close connection between research and teaching lies at the core of the curriculum. For more information please see the German Studies website 🖗.

CORE REQUIREMENTS

Students must complete the following 4 courses (12 credit hours) to satisfy the German Studies major's Core Requirements.

- GERM 301 Third Year German I* [<u>3 credit hours</u>]
- GERM 302 Third Year German II* [3 credit hours]
- GERM 305 Enlightenment and Romanticism, 1750-1850** [3 credit hours]
- GERM 306 Realism to Modernity, 1850-Present** [3 credit hours]

*Both GERM 301 and 302 may be replaced by an eight-week intensive summer language course at the University of Leipzig, Germany.

**Can be substituted by another course from GERM offerings at the 300 or 400-level.

ELECTIVES

To fulfill the remaining German Studies major requirements, single majors must complete a total of 6 additional courses (18 credit hours) from departmental (GERM) course offerings at the 300-level or above, including at least 3 courses (9 credit hours) at the 400-level. Up to 2 courses (6 credit hours) may be completed from the program's offerings in English. Double majors must complete a total of 4 additional courses (12 credit hours) from GERM course offerings, including at least 2 courses (6 credit hours) at the 400-level. A maximum of 1 course (3 credit hours) may be completed from the program's offerings in English.

Courses Offered in English

- GERM 321/HART 385/HUMA 321/SWGS 358 European Women Filmmakers [3 credit hours]
- GERM 322/HUMA 322 Marx, Freud, Einstein: Forebearers of Modernity [3 credit hours]
- GERM 324/HUMA 324 Berlin: Residence, Metropolis, Capital [3 credit hours]
- GERM 325/HUMA 325 Modern German Writers: Kafka [3 credit hours]
- GERM 326/HUMA 372 The German Fairy Tale: Old and New [3 credit hours]
- GERM 328/HUMA 328 German Adaptations: Text to Film [3 credit hours]
- GERM 329/HUMA 329 Literature of the Holocaust and Exile [3 credit hours]
- GERM 330 Literature and Film in East Germany: Behind the Iron Curtain [3 credit hours]
- GERM 333 Nietzsche: Philosophy, Politics, History [<u>3 credit hours</u>]
- GERM 334 Nationalism and Citizenship [3 credit hours]
- GERM 338/HUMA 373/SWGS 361 New German Film: Hitler's Cinematic Children [3 credit hours]
- GERM 339/HART 398 From Expressionism to Fascism: Art and Film in Germany [3 credit hours]
- GERM 340/HUMA 340 Walter Benjamin: Aesthetics, History and Politics [3 credit hours]
- GERM 344/HIST 354 German History, 1648-1890 [3 credit hours]
- GERM 345 From Democracy to Dictatorship: German History, 1890-1945 [3 credit hours]
- GERM 349 German Political Thought [<u>3 credit hours</u>]
- GERM 351/HART 387 Holocaust Memory in Modern Germany [3-4 credit hours]
- GERM 352 The Politics of the Flesh [3 credit hours]

Honors Program

German Studies offers an honors program for majors excelling in their studies. Honors work consists of two semesters of independent research under faculty supervision on a topic proposed by the student leading to a substantial essay (GERM 493 in fall, GERM 494 in spring). Outstanding students are presented annually with the Max Freund Prize.

Back to top

Requirements for the Minor in Politics, Law and Social Thought

For more information regarding the minor in Politics, Law, and Social Thought, please see the Politics, Law and Social Thought page.

Description and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify Classical Studies, French Studies, and German Studies. The following is a quick reference:

Course Catalog/Schedule:

- Course offerings/subject code for Classical Studies: CLST
- Course offerings/subject code for French Studies: FREN
- Course offerings/subject code for German Studies: GERM
- Department Code and Description

- Classical and European Studies: CLEU

Degree Code and Description

- Bachelor of Arts degree: BA

Major Codes and Descriptions

- Major in Classical Studies: CLST
- Major in French Studies: FREN
- Major in German Studies: GERM

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Classical and European Studies >

Undergraduate Students	Classical and European Studies The School of Humanities					
► Graduate Students						
▶ Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate	Course Listings	
▶ Faculty	Info Requirements Requirements Listings Graduate Requirements Graduate Requirements					
Programs of Study	Classical and European Studies does not offer an academic program at the graduate level.					
Administration and Faculty						
Important Notices	Last Revise	ed : August 12, 2016				

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Classical and European Studies >

Undergraduate Students	Classical and European Studies						
Graduate Students	The School of Humanities						
Non-Traditional Students	Department Undergraduate Graduate Course						
▶ Faculty	Info Requirements Requirements Listings Course Listings						
Programs of Study	The official course offerings, including course descriptions, for Classical and European Studies can be found in Rice's Course						
Administration and Faculty	Catalog: Classical Studies 🗗, French Studies 🗗, or German Studies 🗗. To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule. 🗗						
Important Notices							
	For additional information regarding Classical and European Studies, see the department's website: http://ces.rice.edu/.						
	Last Revised : August 24, 2016						

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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Cognitive Sciences >

۲	Undergraduate	Students
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RICE

Cognitive Sciences

The School of Social Sciences

Graduate Students	
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- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
Director		Assistant Professors	
Mike Byrne		Simon Fischer-Baum	
		Caleb Kemere	
Professors		Philip T. Kortum	
Michel Achard		Jessica Logan	
Michael Byrne		Tatiana Schnur	
John W. Clark, Jr.			
Steven J. Cox		Professors Emeriti	
James L. Dannemiller		Don Johnson	
Richard Grandy		Sydney M. Lamb	
Suzanne E. Kemmer		David J. Schneider	
Mark Kulstad		Stephen A. Tyler	
Randi C. Martin		James F. Young	
Frederick L. Oswald			
James Pomerantz		Lecturers	
Devika Subramanian		David Caprette	
		John Greiner	
Associate Professors		Ozge Gurcanli	
Robert Englebretson			
David M. Lane		Adjunct Assistant Professors	6
Nancy Niedzielski		David Eagleman	
		Amy Franklin	

Program (Undergraduate): BA degree

Program (Graduate): N/A

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, some use experimental methodology, and others work at more abstract theoretical levels. See http://cogsci.rice.edu/ 2.

Rice A-Z

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Web Services

University Calendar

Maps-Directions Feedback

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Cognitive Sciences >

Indergraduate Students	Cogr	nitive Science	S				
Graduate Students	The Se	chool of Social Sc	iences				
Non-Traditional Students		Department	Undergraduate	Graduate	Course		
Faculty	Prog	Info	Requirements comes for the BA De	Requirements	Listings	ces	
Programs of Study		-					
Administration and Faculty			student majoring in Cognitive				
Important Notices	th	 Understand cognitive science as an interdisciplinary field and demonstrate the ability to synthesize key knowledge, theories, methods, research, and other elements from many related disciplines and bring these interdisciplinary elements to bear on problems or questions in the cognitive sciences. 					
	- ap 4. Du re ac pr 5. Du wr Requ For gen Science • A • A • Th The Co	and develop a knowledge b pproaches in that discipline. emonstrate the advanced of elated disciplines and choos dvanced critical thinking abi roblem or question, but with emonstrate the ability to co- ritten and oral formats. Lirements for the E neral university requirement es (CSCI) must complete: minimum of 14 courses (42 minimum of 120 credit hou he requirements for one are	ritical thinking skills necessary se which to apply to a particular lity necessary to evaluate the v o different results. mmunicate original research or BA Degree with a Maj s, see Graduation Requirement 2 credit hours) to satisfy major r rs to satisfy degree requirement	s an understanding of the the to evaluate multiple theories problem or question in the or alidity of research results that research by other scholars e jor in Cognitive Sci ts. Students pursuing the BA equirements. ts.	eories, methods, and resea or methods from a variety o ognitive sciences, as well a at purport to address the sal effectively and at a college I ences	urch of as the me level in	

- Neuroscience
- Philosophy
- Psychology

CORE REQUIREMENTS

Students must complete 8 courses (minimum 24 credit hours) as listed below to complete the Cognitive Sciences major's Core Requirements. No more than 4 courses may be fulfilled via transfer credit.

Computer Science Core Course

Students must complete 1 course (3-4 credit hours) from the following.

- CAAM 210 Introduction to Engineering Computation [3 credit hours]
- COMP 130 Elements of Algorithms and Computation [4 credit hours]
- COMP 140 Computational Thinking: Computation and Problem Solving [4 credit hours]
- COMP 160 Introduction to Game Programming in Python [4 credit hours]

PSYC 342 Computer Applications in Psychology [3 credit hours]

Advanced Computing Core Course

Students must complete 1 course (3-4 credit hours) from the following:

- COMP 180 Principles of Computing [4 credit hours]
- COMP 182 Alogrithmic Thinking [4 credit hours]
- PSYC 430 Computational Modeling of Cognitive Processes [3 credit hours]
- PHIL 357 Incompleteness, Undecideability, and Computability [3 credit hours]

Linguistics Core Course

Students must complete 1 course (3 credit hours) from the following:

- LING 200/ANTH 200 Introduction to the Scientific Study of Language [3 credit hours]
- LING 306 Language, Thought, and Mind [3 credit hours]
- LING 315/PSYC 315 Introduction to Semantics [3 credit hours]

Neuroscience Core Course

Students must complete 1 course (3 credit hours) from the following:

- NEUR 380/PSYC 380/BIOC 380 Neurosystems [3 credit hours]
- NEUR 385/BIOC 385 Fundamentals of Cellular and Molecular Neuroscience [3 credit hours]
- PSYC 362/NEUR 362 Cognitive Neuroscience: Exploring the Living Brain [3 credit hours]
- PSYC 375 Neuropsychology of Language and Memory [<u>3 credit hours</u>]
- PSYC 432 Brain and Behavior [3 credit hours]

Philosophy Core Course

Students must complete 1 course (3 credit hours) from the following:

- PHIL 103 Philosophical Aspects of Cognitive Science [3 credit hours]
- PHIL 305 Mathematical Logic [<u>3 credit hours</u>]
- PHIL 312 Philosophy of Mind [<u>3 credit hours</u>]

Psychology Core Course

Students must complete 1 course (3 credit hours) from the following:

PSYC 203 Introduction to Cognitive Psychology [3 credit hours]

Advanced Psychology Core Course

Students must complete 1 course (3 credit hours) from the following:

- PSYC 308 Memory [<u>3 credit hours</u>]
- PSYC 309/LING 309 Psychology of Language [3 credit hours]
- PSYC 351 Psychology of Perception [3 credit hours]
- PSYC 461 Reasoning, Decision Making, and Problem Solving [3 credit hours]

Statistics Core Course

Students must complete 1 course (3-4 credit hours) from the following:

- STAT 280 Elementary Applied Statistics [4 credit hours]
- STAT 305 Introduction to Statistics for Biosciences [4 credit hours]
- STAT 310/ECON 307 Probability and Statistics [3 credit hours]
- PSYC 339 Statistical Methods in Psychology [4 credit hours]

AREAS OF SPECIALIZATION

Students must complete at least 3 courses (9-11 credit hours), and no more than 4 courses (12-14 credit hours) in one of the following groups to satisfy the Area of Specialization requirement. Students may not use the same course to fulfill both a Core Course requirement and an Area of Specialization requirement.

Linguistics

- LING 200/ANTH 200 Introduction to the Scientific Study of Language [3 credit hours]
- LING 300/ANTH 300 Linguistic Analysis [3 credit hours]
- LING 301/ANTH 301 Phonetics [3 credit hours]

- LING 304 Introduction to Syntax [3 credit hours]
- LING 306 Language, Thought, and the Mind [3 credit hours]
- LING 309/PSYC 309 Psychology of Language [3 credit hours]
- LING 311/ANTH 323 Introduction to Phonology [3 credit hours]
- LING 315/PSYC 315 Introduction to Semantics [3 credit hours]
- LING 320 The Origins and Evolution of Human Language [3 credit hours]
- LING 325/PSYC 325 Language Acquisition [3 credit hours]
- LING 397 Speech and Hearing Science [3 credit hours]
- LING 404 Research Methodologies and Linguistic Theories [3 credit hours]
- LING 405 Discourse Analysis [3 credit hours]
- LING 409 Special Topics [3 credit hours]
- LING 411/ANTH 411 Neurolinguistics [3 credit hours]
- LING 419 Multilingualism [3 credit hours]
- LING 427 Advanced Phonology [<u>3 credit hours</u>]

Note: LING 409 *Special Topics* only counts toward the Cognitive Sciences major when the topic is related to Cognitive Science. For example, "Computational Linguistics" and "Gesture, Cognition, and Communication" count but "Variation in U.S. Hip Hop" does not. For questions regarding a specific instance of LING 409, consult a CSCI major advisor.

Neuroscience

Many of the neuroscience courses are taught by Baylor College of Medicine faculty. For more information, see http://neuroscience.rice.edu/.

- CAAM 415/NEUR 415/ELEC 488 Theoretical Neuroscience: From Cells to Learning Systems [3 credit hours]
- ELEC 481/BIOE 481/NEUR 481 Computational Neuroscience and Neural Engineering [3 credit hours]
- LING 411/ANTH 411 Neurolinguistics [3 credit hours]
- NEUR 380/BIOC 380/PSYC 380 Fundamental Neuroscience Systems [3 credit hours]
- NEUR 385/BIOC 385 Fundamentals of Neuroscience [3 credit hours]
- NEUR 525 Neuroscience and Law [3 credit hours]
- PSYC 362/NEUR 362 Cognitive Neuroscience [<u>3 credit hours</u>]
- PSYC 375 Neuropsychology of Language and Memory [<u>3 credit hours</u>]
- PSYC 432 Brain and Behavior [3 credit hours]

Note: Most 500-level NEUR courses will also count toward this requirement, but the actual list of such courses varies considerably from year to year.

Philosophy

- PHIL 103 Philosophical Aspects of Cognitive Science [3 credit hours]
- PHIL 303 Theory of Knowledge [3 credit hours]
- PHIL 305 Mathematical Logic [3 credit hours]
- PHIL 312 Philosophy of Mind [3 credit hours]
- PHIL 352 Philosophy of Psychology [3 credit hours]
- PHIL 353 Philosophy of Language [3 credit hours]
- PHIL 357 Incompleteness, Undecideability, and Computability [3 credit hours]
- PHIL 358 Philosophy of Neuroscience [<u>3 credit hours</u>]
- PHIL 359 Animal Minds [<u>3 credit hours</u>]

Psychology

- PSYC 308 Memory [<u>3 credit hours</u>]
- PSYC 309/LING 309 Psychology of Language [3 credit hours]
- PSYC 321 Developmental Psychology [<u>3 credit hours</u>]
- PSYC 325/LING 325 Language Acquisition [3 credit hours]
- PSYC 340 Research Methods [3 credit hours]
- PSYC 351 Psychology of Perception [3 credit hours]
- PSYC 362/NEUR 362 Cognitive Neuroscience [3 credit hours]
- PSYC 370 Introduction to Human Factors and Ergonomics [3 credit hours]
- PSYC 375 Neuropsychology of Language and Memory [<u>3 credit hours</u>]
- PSYC 380/NEUR 380/BIOC 380 Systems of Neuroscience [3 credit hours]
- PSYC 409 Methods in Human-Computer Interaction [<u>3 credit hours</u>]
- PSYC 411 History of Psychology [<u>3 credit hours</u>]
- PSYC 430 Computational Modeling of Cognitive Processes [3 credit hours]
- PSYC 432 Brain and Behavior [<u>3 credit hours</u>] Human-Computer Interaction

- PSYC 461 Reasoning, Decision Making and Problem Solving [3 credit hours]
- PSYC 465 Olfactory Perception [<u>3 credit hours</u>]
- PSYC 480 Advanced Topics [<u>3 credit hours</u>]

Note: PSYC 480 *Advanced Topics* only counts toward CSCI when the topic is related to Cognitive Science. For example, "Genes and Cognition" and "Medical Human Factors" count, but "Topics in Clinical Psychology" does not. For questions regarding a specific instance of PSYC 480, consult a CSCI major advisor.

ELECTIVES

PSYC 441

To fulfill the remaining Cognitive Sciences major requirements, students must complete a total of 2 to 3 additional courses (6-12 credit hours) from the list below. If the Cognitive Sciences major chooses 3 courses (9 credit hours minimum) to satisfy the Area of Specialization requirement, they must complete a total of 3 courses (9 credit hours minimum) to fulfill the Elective requirement. If the Cognitive Sciences major chooses 4 courses (12 credit hours minimum) to satisfy the Area of Specialization requirement, they must complete a total of 2 courses (6 credit hours minimum) to fulfill the Elective requirement, they must complete a total of 2 courses (6 credit hours minimum) to fulfill the Elective requirement.

The courses that are eligible to fulfill the Electives requirement are the same as the courses required to fulfill the Area of Specialization requirement (with the additions listed below). However, courses used to fulfill the Elective requirement must come from outside the Area of Specialization. For example, if the student's Area of Specialization is Psychology, all Elective courses must come from areas other than Psychology.

Additional Elective Courses

- ANTH 406/LING 406 Cognitive Studies in Anthropology and Linguistics [3 credit hours]
- COMP 180 Principles of Computing [4 credit hours]
- COMP 182 Algorithmic Thinking [4 credit hours]
- COMP 330 Tools and Models for Data Science [3 credit hours]
- COMP 440/ELEC 440 Artificial Intelligence [4 credit hours]
- COMP 450/ELEC 450/MECH 450 Algorithmic Robotics [4 credit hours]
- COMP 540 Statistical Machine Learning [4 credit hours]
- CSCI 390 Supervised Research in Cognitive Science [1-3 credit hours]
- CSCI 481/482 Honors Project [<u>1-3 credit hours</u>]
- ELEC 498/COMP 498/MECH 498 Introduction to Robotics [3 credit hours]
- ENGI 120 An Introduction to Engineering Design [3 credit hours]

Up to six credit hours of research courses (CSCI 390, NEUR 485, CSCI 481) may be applied to the major.

Notes:

- 1. Only one of COMP 180 and COMP 182 may be counted toward the CSCI major. For example, if COMP 180 was used to satisfy the Advanced Computing Core requirement, COMP 182 cannot be used as an Elective course.
- Rice Baylor College of Medicine neuroscience offerings change frequently. Baylor courses not on the above list may be counted at the discretion of the steering committee. The most up-to-date listing of courses counting as additional courses is found at cogsci.rice.edu.

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 one or two 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 preceding 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 two-semester project will be allowed to continue into the second 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 to faculty and students. For more details, contact the program director.

Independent Research

Majors may undertake supervised independent research by enrolling in CSCI 390 or the honors program. Students who wish to take CSCI 390 must complete a CSCI 390 contract and have it approved by their supervisor and the program director prior to the end of the first week of classes. All students taking CSCI 390 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, and presented in the Rice Undergraduate Research Symposium as a poster. (Copies of the contract form and instructions are available on the "forms" section of the cognitive sciences website.)

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Cognitive Sciences undergraduate degree and major. The following is a quick reference:

Rice A-Z

Course Catalog/Schedule

- Course offerings/subject code: CSCI

<u>Department Description and Code</u> - Cognitive Sciences: CSCI

Degree Description and Code

- Bachelor of Arts degree: BA

Major Description and Code

- Major in Cognitive Sciences: CSCI

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University Calendar

Maps-Directions

Feedback

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Cognitive Sciences >

Undergraduate Students	Cognitive Sciences The School of Social Sciences					
Graduate Students						
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course	
▶ Faculty	Gradu	late Requirement		Requirements	Listings	
Programs of Study	Cognitive Sciences does not offer an academic program at the graduate level.					
Administration and Faculty						
Important Notices	Last Revise	Last Revised : August 12, 2016				

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374 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Cognitive Sciences >

Undergraduate Students	Cognitive Science	Cognitive Sciences The School of Social Sciences					
Graduate Students	The School of Social Sc						
Non-Traditional Students	Department	Undergraduate	Graduate	Course			
Faculty	Info Course Listings	Requirements	Requirements	Listings			
Programs of Study		The official course offerings, including course descriptions, listed in the Cognitive Sciences Undergraduate Requirements section can be found in Rice's Course Catalog.					
Administration and Faculty	section can be found in Rice's Cou						
Important Notices	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.						
	Last Revised : August 24, 2016						

General Announce	ements 6100 N	lain MS-10, Houston,	Texas 77005-1827	Vailing Address: P.C). Box 1892, Houston, Tex	kas 77251-1892
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375 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > College Courses >

Undergraduate Students	College Courses						
Graduate StudentsNon-Traditional Students	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings			
 Faculty Programs of Study 			ean of Undergraduates ohn Hutchinson				
Administration and Faculty Important Notices	Program (Undergraduate): N/A, no degree program Program (Graduate): N/A						
	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 we introducing students to interdisciplinary topics of particular interest. Students who wish to teach a student-taught course must first take COLL 300, a course on pedagogy that is taught by facu masters in consultation with the Center for Teaching Excellence. As a part of their participation in COLL 300, students ther propose College Courses during the semester before they are offered. Once approved by the Dean of Undergraduates, the credit student-taught College Courses can be found here $\frac{1}{2}$. No more than three hours of credit for student-taught College Courses (COLL) may be counted toward graduation. This include courses COLL 100-199 as well as COLL 200 Teaching Practicum.						

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University Calendar

Rice A-Z

Maps-Directions

Feedback

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Rice Home

Web Services

376 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > College Courses >

Undergraduate Students	College Courses			
Graduate Students	Department	Undergraduate	Graduate	Course
Non-Traditional Students	Info	Requirements	Requirements	Listings
Faculty	Undergraduate Requi	rements		
Programs of Study	courses can be found at the 100-	overseen by Residential Colleges 199 level in Rice's Course Catalo undergraduates a chance to teach	og. Student-taught courses bec	came part of the Rice curriculu
Administration and Faculty	themselves to be an expert. Sinc	e then, hundreds of undergradua dergraduates to teach and to take	tes have instructed their peers	on a diverse set of topics.
Important Notices	supplement the Rice curriculum.	These courses are labled COLL A student may only count three h	(College Courses) and are offe	red for 1 credit hour on a
	are listed below:1. The courses must be grade count against a student's qu2. All student-taught courses a	AUGHT COURSES student-taught courses to the Dea ed on a satisfactory/unsatisfactory uota for pass/fail courses. are offered for one credit hour.	v scalethis is functionally equi	valent to pass/fail, but does no
	 in a teaching practicum that be responsible for the cours attend at least one class an 4. A student may have a GPA course. Students must be e 5. A student may take as man three resulting credit hours 6. Student-taught courses mu 	be paid a salary, but is awarded t is overseen by their master. The se including involvement in its pla ad meet with the student instructo of 2.5 or higher and be enrolled enrolled at Rice for at least one fu by student-taught courses as they can be applied towards the satisf st have an enrollment cap of 19 of lagogy for Student Instructors is re-	e faculty sponsor of the student inning, operations, and grading r. at Rice for at least two semest II semester before proposing a like. Courses are listed on the faction of his/her graduation re- or fewer.	t taught courses would g. The sponsor is expected to ers before teaching a class. transcript, but no more than quirements.
	already taught an STC. For more information regarding S please see the Center for Teachi	Student Taught Courses, including ng Excellence.	g the procedures for STC prop	osals, and evaluation criteria,
	Last Revised : August 12, 2016			

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Rice Home

Web Services

University Calendar Rice A-Z

Maps-Directions

Feedback

377 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > College Courses >

Undergraduate Students	Colle	ge Courses					
Graduate Students		Department	Undergraduate	Graduate	Course		
Non-Traditional Students		Info	Requirements	Requirements	Listings		
▶ Faculty		Graduate Requirements					
Programs of Study	There ar	e no College Courses (COL	L) offered at the graduate-lev	vel (500-level or above).			
Administration and Faculty	Last Revise	ed : August 12, 2016					
Important Notices							

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378 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > College Courses >

Undergraduate Students	Colle	ge Courses					
Graduate Students		Department	Undergraduate	Graduate	Course		
Non-Traditional Students		Info	Requirements	Requirements	Listings		
► Faculty	Cours	se Listings					
Programs of Study			ng course descriptions, for the	C C	_	j. 🗗	
Administration and Faculty	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.						
Important Notices	For addi	tional information regarding	g College Courses, see the pr	ogram's website: http://cte.ric	ce.edu/stc/. 🗠		
	Last Revise	ed : August 24, 2016					

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Web Services

University Calendar Rice A-Z

Maps-Directions Feedback

379 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Computational and Applied Mathematics >

Undergraduate Students Cor	Computational and Applied Mathematics					
Graduate Students	George R. Brown Sch	ool of Engineering				
Non-Traditional Students	Department Info	Undergraduate Requirements	Graduate	Course Listings		
aculty	ino	Requirements	Requirements	Listings		
rograms of Study	Chair Beatrice Riviere		rofessors, Joint Appointme	ents		
dministration and Faculty	Professors	P	rofessors Emeriti, Joint Ap	nointments		
nportant Notices	Steven J. Cox Sam H. Davis					
	Matthias Heinkenschloss Illya V. Hicks	s C	hao-Cheng Wang			
	Maarten V. de Hoop	A	djunct Professors			
	Andrew J. Schaefer	J.	. Bee Bednar			
	William W. Symes		lichard Carter			
	Richard A. Tapia		mr El-Bakry			
	Yin Zhang		abrizio Gabbiani			
			oland Glowinski			
	Assistant Professors		etlef Hohl			
	Jesse Chan		onald W. Peaceman			
	Adrianna Gillman Paul Hand	I	im Warburton			
		٨	djunct Associate Professo			
	Matthew G. Knepley		. Omer Alpak	5		
	Professors Emeriti		lauricio Araya Polo			
	Robert E. Bixby		oakim O. Blanch			
	John E. Dennis		cott A. Morton			
	Henry Rachford		larel Z. Shouval			
	Danny C. Sorenson		mik St-Cyr			
	Lecturer		djunct Assistant Professor	s		
	Sanja Pantic		dward Castillo			
			'uri Dabaghian			
	Instructors	C	craig Rusin			
	Wen Huang					
	Tianyu Qiu					
	Travis Thompson					
Pro	gram (Undergraduate): B	A degree, Minor				

Programs (Graduate): MCAAM degree, MA degree, PhD degree

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 (MCAAM), for persons interested in practicing within this field, emphasizes general applied mathematics, operations research optimization, and numerical analysis, while the MA and PhD programs concentrate on research. Faculty research interests fall in the four general areas of numerical analysis and computation; partial differential equations; operations research and optimization; and mathematical modeling in physical, biological, or behavioral sciences.

A further advanced interdisciplinary degree program in computational science and engineering (CSE) addresses the current need for sophisticated computation in both engineering and the sciences. For more information, see Computational Science and Engineering.

A coordinated MBA/Master of Engineering degree also is available in conjunction with the Jesse H. Jones Graduate School of Management.

Rice A-Z

Last Revised : August 17, 2016

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Rice Home Web Services

University Calendar

Maps-Directions

Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Computational and Applied Mathematics >

۱.	Under	graduate	Students
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Computational and Applied Mathematics

Graduate Students

RICE

- Non-Traditional Students
- Faculty

Programs of Study

- Administration and Faculty
- Important Notices

The George R. Brown School of Engineering

	Department	Undergraduate	Graduate	Course
	Info	Requirements	Requirements	Listings
np to: <i>BA</i>		nputational and Applied Mathe	matics	

Jum

Minor in Computational and Applied Mathematics

Program Learning Outcomes for the Bachelor of Arts Degree (BA) with a Major in **Computational and Applied Mathematics**

Upon completing the BA degree, a student majoring in Computational and Applied Mathematics will be able to:

- 1. Use modern numerical methods to analyze and solve typical problems in linear systems.
- 2. Design and test a mathematical model, following a multi-stage process.

Requirements for the BA Degree with a Major in Computational and Applied **Mathematics**

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Computational and Applied Mathematics (CAAM) must complete:

- A minimum of 17-18 courses (49-54 credit hours) depending on course selection to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 13 courses (37-39 credit hours) depending on course selection at the 300-level or above.

CORE REQUIREMENTS

Students must complete a total of 13-14 courses (37-42 credit hours) depending on course selection as listed below to satisfy the Computational and Applied Mathematics major's Core Requirements.

Introductory Courses

Students must complete the following 5-6 courses (15-18 credit hours) depending on course selection as listed below. The Introductory Courses requirement is typically fulfilled during the student's first two years.

- CAAM 210 Introduction to Engineering Computation [3 credit hours]
- CAAM 335 Matrix Analysis [3 credit hours]
- MATH 101 Single Variable Calculus I* [3 credit hours]
- MATH 102 Single Variable Calculus II [3 credit hours]
- MATH 212 Multivariable Calculus [3 credit hours]

or MATH 221 Honors Calculus III [3 credit hours] and MATH 222 Honors Calculus IV [3 credit hours]

*Students with prior experience with calculus may replace MATH 101 with a 3-credit quantitative elective at the 200-level or above, as approved by a CAAM undergraduate advisor (this quantitative elective is in addition to the four electives required below). 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

Students must complete 4 courses (12 credit hours) as listed below. The Intermediate Courses requirement is typically fulfilled by the end of the student's third year.

- CAAM 378 Introduction to Operations Research and Optimization [3 credit hours]
- MATH 302 Elements of Analysis [<u>3 credit hours</u>]
- or MATH 321 Introduction to Analysis I* [3 credit hours]
- STAT 310/ECON 307 Probability and Statistics [3 credit hours]

*Students who plan to pursue graduate studies in Computational and Applied Mathematics should take MATH 321 and MATH 322

Advanced Courses

Students must complete 2 courses (6 credit hours) as listed below. The Advanced Courses requirement is typically completed by the end of the student's fourth year:

- CAAM 453 Numerical Analysis I [3 credit hours]
- CAAM 454 Numerical Analysis II [<u>3 credit hours</u>]
 or CAAM 471 Linear and Integer Programming [<u>3 credit hours</u>]

Design Project

Students must complete the following 2 courses (4-6 credit hours). The Design Project requirement is typically fulfilled during the student's fourth year.

- CAAM 495 Senior Design Project I [2-3 credit hours]
- CAAM 496 Senior Design Project II [2-3 credit hours]

ELECTIVES

To fulfill the remaining Computational and Applied Mathematics major requirements, students must complete 4 additional courses (12 credit hours) at the 300-level or above from the following departmental course offerings: Computational and Applied Mathematics (CAAM), Mathematics (MATH) or Statistics (STAT). At least 2 elective courses (6 credit hours) from the CAAM, MATH, or STAT courses selected must be at the 400-level or above (chosen in consultation with a Computational and Applied Mathematics undergraduate advisor). The elective courses completed must be taken for a minimum of 3 credit hours. Highly recommended electives may be found in the list below.

- CAAM 415/NEUR 415/ELEC 488 Theoretical Neuroscience [3 credit hours]
- CAAM 423/MATH 423 Partial Differential Equations / [<u>3 credit hours</u>]
- CAAM 519 Computational Science I [3 credit hours]
- CAAM 536/CEVE 555 Numerical Methods for Partial Differential Equations [3 credit hours]
- CAAM 560 Optimization Theory [3 credit hours]
- CAAM 570 Graph Theory [<u>3 credit hours</u>]
- MATH 322 Introduction to Analysis II [3 credit hours]
- MATH 425 Integration Theory [3 credit hours]
- MATH 427 Complex Analysis [3 credit hours]

back to menu

Requirements for the Minor in Computational and Applied Mathematics

Students pursuing a minor in Computational and Applied Mathematics (CAMT) must complete:

A minimum of 6 courses (18 credit hours) to satisfy the minor requirements.

CORE REQUIREMENTS

Students must complete a total of 3 courses (9 credit hours) as listed below to satisfy the Computational and Applied Mathematics minor's Core Requirements.

- CAAM 210 Introduction to Engineering Computation [<u>3 credit hours</u>]
- CAAM 335 Matrix Analysis [3 credit hours]
- CAAM 336 Differential Equations in Science and Engineering [<u>3 credit hours</u>]
 or CAAM 378 Introduction to Operations Research and Optimization [<u>3 credit hours</u>]

ELECTIVES

To fulfill the remaining Computational and Applied Mathematics minor requirements, students must complete a total of 3 additional courses (9 credit hours) at the 300-level or above from Computational and Applied Mathematics (CAAM) departmental course offerings. The elective courses completed must be taken for a minimum of 3 credit hours. At least 2 elective courses (6 credit hours) must be completed at the 400-level or above.

back to menu

Descriptions and Codes Legends

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Computational and Applied Mathematics undergraduate degree, major, and minor. The following is a quick reference:

 Course Catalog/Schedule

 - Course offerings/subject code: CAAM

 Department Description and Code:

 - Computational and Applied Mathematics: CAAM

 Degree Description and Code:

 - Bachelor of Arts degree: BA

 Major Description and Code

 - Major in Computational and Applied Mathematics: CAAM

 Minor Description and Code

 - Minor in Computational and Applied Mathematics: CAMT

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-----------------------	-----------	--------------	---------------------	----------	-----------------	----------

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Computational and Applied Mathematics >

Computational and Applied Mathematics

Graduate Students

RICE

- Non-Traditional Students
- Faculty

Programs of Study

- Administration and Faculty
- Important Notices

The George R. Brown School of Engineering

	Department	Undergraduate	Graduate	Course				
	Info	Requirements	Requirements	Listings				
p to: ICAAM Degree in Computational and Applied Mathematics								

Jum

N MA/PhD Degrees in Computational and Applied Mathematics

Program Learning Outcomes for the Master of Computational and Applied Mathematics Degree (MCAAM)

Upon completing the MCAAM degree in Computational and Applied Mathematics, students will be able to:

- 1. Acquire broad, advanced knowledge in Computational and Applied Mathematics that is also deep within a major subdiscipline.
- 2. Demonstrate an ability to gain employment or advancement in a technical field related to Computational and Applied Mathematics

Requirements for the Master of Computational and Applied Mathematics Degree (MCAAM)

For general information and university requirements, see Graduate Degrees. Students pursuing the MCAAM degree program in Computational and Applied Mathematics (CAAM) must complete:

A minimum of 10 courses (30 credit hours) to satisfy degree requirements.

The MCAAM degree requires satisfactory completion of at least 30 credit hours of graduate level course work approved by the department. This professional degree program emphasizes the applied aspects of mathematics.

CORE REQUIREMENTS

Students must complete a total of 2 courses (6 credit hours) from the following:

- CAAM 519 Computational Science I [3 credit hours]
- CAAM 550 Numerical Analysis I [3 credit hours]
- CAAM 554 Advanced Numerical Analysis II [3 credit hours]
- CAAM 571 Linear and Integer Programming [3 credit hours]

ELECTIVES

To fulfill the remaining MCAAM degree program requirements, students must complete a total of 8 additional courses (24 credit hours) from departmental (CAAM) course offerings at the 500-level or above. Thesis, seminar, or independent study courses cannot be applied towards the Electives requirement. Students may take up to 3 courses (9 credit hours) from course offerings outside of CAAM, with the approval of the student's mentor.

Professional Master's 5th Year Degree Option for Rice Undergraduates

Rice students have an option to achieve the Master of Computational and Applied Mathematics degree by adding an additional fifth year to the four undergraduate years of science studies. Advanced Rice students in good standing may apply during their junior year to the graduate program. Upon acceptance, depending on course load, financial aid status, and other variables they may then start taking required core courses of the computational and applied mathematics program during their senior year. A plan of study based on their particular focus area will need to be approved by the program director and the PSM director.

Students should be aware there could be financial aid implications, if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time (12 credit hours) status.

back to menu

Program Learning Outcomes for the MA and PhD Degrees in Computational and Applied Mathematics

Upon completing the MA and PhD degree programs in Computational and Applied Mathematics, students will be able to:

- 1. Solve problems using advanced foundational knowledge.
- 2. Conduct an independent research program.
- 3. Communicate professionally and effectively in writing and when speaking.

Requirements for the MA and PhD Degrees in Computational and Applied Mathematics

For general information and university requirements, see Graduate Degrees. Students pursuing the MA and PhD degree programs in Computational and Applied Mathematics (CAAM) must:

- Complete a course of study approved by the department to establish a broad foundation in applied mathematics.
- Perform satisfactorily on qualifying examinations and reviews.
- Produce an original thesis acceptable to the department.
- Perform satisfactorily on a final public oral examination on the thesis.

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 and university requirements, see Graduate Degrees and Admission to Graduate Study.

Applicants should be aware that it normally takes two years to obtain a master's degree and an additional two to four years for the doctoral degree.

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.

back to menu

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Computational and Applied Mathematics graduate degree programs. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: CAAM
- Department Description and Code
 - Computational and Applied Mathematics: CAAM
- Degree Descriptions and Codes
 - Master of Computational and Applied Mathematics degree: MCAAM
 - Master of Arts degree: MA
- Doctor of Philosophy degree: PhD
- Degree Program Description and Code
 - Degree Program in Computational and Applied Mathematics: CAAM

Last Revised : August 18, 2016

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Computational and Applied Mathematics >

Undergraduate Students	Computational and Applied Mathematics							
Graduate Students	The George R. Brown School of Engineering							
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate	Course			
▶ Faculty	Cours	e Listings	Requirements	Requirements	Listings			
Programs of Study	The official course offerings, including course descriptions, for Computational and Applied Mathematics can be found in Rice's							
Administration and Faculty	Course C	Catalog. 🗗						
Important Notices	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.							
		ional information regardin http://www.caam.rice.edu	g Computational and Applied /. 🚰	Mathematics, see the depart	ment's			
	Last Revise	d : August 24, 2016						

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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Computational Science and Engineering >

Undergraduate Students	Computational Science and Engineering								
► Graduate Students	The George R. Brown School of Engineering								
▶ Non-Traditional Students	DepartmentUndergraduateGraduateCourseInfoRequirementsRequirementsListings								
► Faculty		into	Requirements	Requirements	Listings				
▶ Programs of Study		Director Jan Odegard		dvisory Committee hn Dobelman					
Administration and Faculty	Matthias Heinkenschloss Eugene Ng								
Important Notices	Linda Torczon								
	Program (Undergraduate): N/A Programs (Graduate): MCSE degree, MA degree*, PhD degree The advanced degree program in computational science and engineering (CSE) addresses the current new computation in both engineering and the sciences. Such computation requires an understanding of paralle capabilities and a range of subjects including visualization, networking, and programming environments. A variety of new algorithms and analytic techniques also is essential to maximizing the power of the new com The professional master's degree (MCSE) is for persons interested in practicing within this field, while the f concentrates more specifically on research. For additional information, please go to the MCSE website of *Students are generally not admitted to this (the MA) as a terminal program.								

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me Web Services

University Calendar

Maps-Directions

Rice A-Z

Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Computational Science and Engineering >

Undergraduate Students	Computational Science and Engineering							
► Graduate Students	The Ge	The George R. Brown School of Engineering						
► Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings			
▶ Faculty	Undergraduate Requirements							
Programs of Study	Computa	Computational Science and Engineering does not offer an academic program at the undergraduate level.						
Administration and Faculty								
Important Notices	Last Revise	ed : August 12, 2016						

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Computational Science and Engineering >

۲	Un	de	rgr	ad	uate	Stu	der	nts
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Computational Science and Engineering

Graduate Students

RICE

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

The George R. Brown School of Engineering

Department
Info

Undergraduate	
Requirements	Re

Graduate equirements

Course

Listings

Program Learning Outcomes for the Master of Computational Science and Engineering Degree (MCSE)

Upon completing the MCSE degree in Computational Science and Engineering, students will be able to:

- 1. Acquire broad, advanced knowledge in modern computational techniques.
- 2. Possess skills to identify, formulate and solve advance technical problems related to one of the three focus areas.
- 3. Communicate technical ideas effectively.

Requirements for the Master of Computational Science and Engineering (MCSE)

For general university requirements, see Graduate Degrees. Students pursuing the MCSE degree must complete:

A minimum of 30 credit hours to satisfy degree requirements.

The Master in Computational Science and Engineering (MCSE), is a non-thesis degree program offered jointly by the departments of Computational and Applied Mathematics, Computer Science and Statistics in the School of Engineering. The program is designed to provide training and expertise in modern and computational techniques with real-world applications in a wide range of industries. The MCSE graduate degree prepares students interested in technical and managerial positions such as computational scientist, computational engineer and big data analyst, as well as those looking to specialize in highperformance computing and software development techniques and scientific data analysis and visualization.

MCSE students choose one of the departments of Computational and Applied Mathematics (CAAM), Computer Science (COMP) and Statistics (STAT) as their home department. The program of study includes courses from all departments and typically focuses on courses from the students' home department. Courses taken within the home department have to be at the 500-level or above. A limited number of courses taken from outside the students' home department can be at the 300 or 400level. Students should consult with their faculty mentor for approval.

CORE REQUIREMENTS

Students must complete a total of 3 courses (9-10 credit hours) as listed below in groups 1, 2 and 3 to satisfy the Computational Science and Engineering degree program's Core Requirements.

Group 1

Students must complete 1 course (3 credit hours) from the following:

- CAAM 519 Computational Science I [3 credit hours]
- CAAM 520 Computational Science II [3 credit hours]
- CAAM 536/CEVE 555 Numerical Methods for Partial Differential Equations [3 credit hours]
- CAAM 550 Numerical Analysis 1 [3 credit hours]
- CAAM 553 Advanced Numerical Analysis I [3 credit hours]
- CAAM 571 Linear and Integer Programming [3 credit hours]
- CAAM 564 Numerical Optimization [3 credit hours]

Group 1 for COMP or STAT Students

In addition to the students with a home department of COMP or STAT may also choose 1 course (3 credit hours) from the following:

- CAAM 436 Partial Differential Equations of Mathematical Physics [3 credit hours]
- CAAM 453 Numerical Analysis 1 [3 credit hours]
- CAAM 454 Numerical Analysis 2 [3 credit hours]
- CAAM 471 Linear and Integer Programming [3 credit hours]

Group 2

Students must complete 1 course (3-4 credit hours) from the following:

- COMP 511 Principles of Programming Languages [4 credit hours]
- COMP 521/ELEC 552 Operating Systems and Concurrent Programming [4 credit hours]
- COMP 522 Multi-Core Computing [3 credit hours]
- COMP 530 Database System Implementation [3-4 credit hours]
- COMP 539 Software Engineering Methodology [<u>4 credit hours</u>]
- COMP 541 Introduction to Computer Security [<u>3 credit hours</u>]
- COMP 554/ELEC 554 Computer Systems Architecture [4 credit hours]
- COMP 557/ELEC 557 Artificial Intelligence [4 credit hours]
- COMP 582/ELEC 512 Graduate Design and Analysis of Algorithms [3 credit hours]

Group 2 for CAAM or STAT Students

In addition to the courses listed above in Group 2, students with a home department of CAAM or STAT may also choose 1 course (3-4 credit hours) from the following:

- COMP 382 Reasoning About Algorithms [<u>3 credit hours</u>]
- COMP 410 Software Engineering Methodology [4 credit hours]
- COMP 430 Introduction to Database Systems [<u>4 credit hours</u>]

Group 3

Students must complete 1 course (3-4 credit hours) from the following:

- STAT 502/COMP 502/ELEC 502 Neural Machine Learning I [3 credit hours]
- STAT 518 Probability [<u>3 credit hours</u>]
- STAT 519 Statistical Inferences [3 credit hours]
- STAT 541 Multivariate Analysis [3 credit hours]
- STAT 605 R for Data Science [3 credit hours]
- STAT 615 Regression and Linear Models [3 credit hours]
- STAT 616 Advanced Statistical Methods [3 credit hours]
- STAT 648 Graphical Models and Networks [3 credit hours]

Group 3 for CAAM or COMP Students

In addition to the courses listed above in Group 3, students with a home department of CAAM or COMP may also choose 1 course (3-4 credit hours) from the following:

- STAT 310/ECON 307 Probability and Statistics [3 credit hours]
- STAT 312 Probability and Statistics for Engineers [3 credit hours]
- STAT 405 R for Data Science [3 credit hours]
- STAT 410 Regression Analysis [4 credit hours]

ELECTIVES

To fulfill the remaining Computational Science and Engineering requirements, students must complete 7 additional courses (20-21 credit hours for a total of at least 30 approved credit hours when adding this to the core), from departmental CAAM, COMP, or STAT courses offered at the 500-level or above, including at least at least 1 course, but no more than 2 courses, from the Communication, Leadership, Management and Ethics Group (see below for the course list).

Communication, Leadership, Management and Ethics

Students must complete at least 1 course (3 credit hours) from the following:

- ENGI 505/CEVE 505 Engineering Project Development and Management [3 credit hours]
- ENGI 510 Technical and Managerial Communication [3 credit hours]
- ENGI 528/CEVE 528 Engineering Economics [3 credit hours]
- ENGI 529/CEVE 529 Ethics and Engineering Leadership [<u>3 credit hours</u>]
- ENGI 545/LEAD 545 Strategic Thinking for Complex Problem Solving [3 credit hours]
- ENGI 610/NSCI 610 Management for Science and Engineering [3 credit hours]
- ENGI 614 Learning How to Innovate [2 credit hours]
- ENGI 615 Leadership Coaching for Engineers [3 credit hours]

- NSCI 521 Writing and Publishing Science [2 credit hours]
- UNIV 594 Responsible Conduct of Research [<u>1 credit hour</u>]

NOTE: Other courses may satisfy the Communication, Management, and Ethics group requirement. See advisor for more details.

Application Information

Students must have completed a BA or BS degree in an engineering or science discipline, with training in engineering mathematics, statistical foundations, and programming methodology to be admitted to the program.

- Fall admission deadline —February 15
- To apply to the program go to MSCE application I apply to the program go to MSCE application
- For additional information about the program contact mcse@rice.edu
- Enrollments and degrees awarded for degree programs in the Engineering School are available at: http://engineering.rice.edu/Enrollments_GraduationData/.

Program Learning Outcomes for the PhD Degree in Computational Science and Engineering

Upon completing the PhD degree program in Computational Science and Engineering, students will be able to:

- 1. Acquire broad, advanced knowledge in Computational and Applied Mathematics, Computer Science, or Statistics that is also deep in one major area within one of the three disciplines.
- 2. Conduct independent research that demonstrates advanced mastery of a sub-discipline within one of the three disciplines.
- 3. Communicate advanced technical ideas effectively.

Requirements for the PhD Degree in Computational Science and Engineering

For general university requirements, see Graduate Degrees. Students pursuing the PhD in computational science and engineering, students must:

- Complete a course of study approved by the Computational Science Committee, 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 Computational Science Committee.
- Perform satisfactorily on a final public oral examination on the thesis.

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, Civil and Environmental 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. The Computational Science Committee (CSC) helps students design an appropriate course of study and sets the examination requirements.

Students may enter the Computational Science and Engineering 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 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 Computational Science Committee.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify various system categories and components of the Computational Science and Engineering graduate degree programs. The following is a quick reference:

Course Catalog/Schedule:

- Course offerings/subject code: Courses from other departments are applied towards the graduate degree Computational Science and Engineering.

Feedback

Department Description and Code
- Computational Science and Engineering: CSCE
Degree Descriptions and Codes:
- Master of Computational Science and Engineering degree: MCSE
- Master of Arts degree: MA
- Doctor of Philosophy degree: PhD
Degree Program Description and Code:
- Degree Program in Computational Science and Engineering: CSCE
Last Revised : August 18, 2016

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-----------------------	-----------	--------------	---------------------	----------	-----------------	--

393 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Computational Science and Engineering >

Undergraduate Students	Computational Science and Engineering						
Graduate Students	The George R. Brown School of Engineering						
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings		
▶ Faculty	Cours	e Listings	Requirements	Requirements	Listings		
Programs of Study		0	ing course descriptions, listed	•	and Engineering's Graduate		
Administration and Faculty	Requiren	nents section can be found	d in Rice's Course Catalog. 🗗	1			
Important Notices	To view t	the most recent course sch	nedule for the 2016-2017 acad	demic year, see Rice's Cour	se Schedule. 🗗		
		ional information regarding	g Computational Science and du/. &	Engineering, see the depar	tment's website:		
	Last Revise	d : August 24, 2016					

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394 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Computer Science >

ergraduate Students	Computer Science				
The George R. Brown School of Engineering					
-Traditional Students	Department	Undergraduate	Graduate	Course	
ılty	Info	Requirements	Requirements	Listings	
grams of Study	Chair		ssistant Professors, Joint A	ppointments	
inistration and Faculty	Vivek Sarkar		shok Veeraraghavan /ei Wei Zhong		
	Associate Chair				
ortant Notices	Luay Nakhleh		djunct Professors		
	.		ric Allen		
	Professors		aye Briggs		
	Robert S. Cartwright, Jr.		/ah Chiu		
	Keith Cooper		ack Dongarra		
	Alan L. Cox		teve Wallach		
	Ronald N. Goldman	S	cott Warren		
	Chris M. Jermaine				
	Dave Johnson		djunct Associate Professor		
	Lydia Kavraki	C	hris Bronk		
	John Mellor-Crummey				
	Luay Nakhleh		djunct Assistant Professors	5	
	T. S. Eugene Ng		en Chen		
	Krishna Palem	E	rez Lieberman Aiden		
	Scott Rixner				
	Vivek Sarkar	Р	ostdoctoral Research Assoc	ciates	
	Devika Subramanian	Н	assan Abdellatif		
	Moshe Y. Vardi	D	inler Antunes		
	Dan Wallach	F	eri Bartha		
	Joe D. Warren	Т	iago Cogumbreiro		
		N	eil Dantam		
	Associate Professors	D	idier Devaurs		
	Swarat Chaudhuri	D	ror Fried		
		N	lartin Kong		
	Assistant Professors	Ji	ianwen Li		
	Anshumali Shrivastava	N	latt Moran		
		V	ijay Murali		
	Professors in the Pract	ice K	ia Teymourian		
	Scott E. Cutler	Y	un Yu		
	Lecturers	R	esearch Scientists and Proc	grammers	
	John Greiner	L	aksono Adhianto		
	Stephen Wong	R	. Matt Barnett		
		Z	oran Budimlic		
	Professors, Joint Appo	intments N	lichael Burke		
	Michael Byrne	V	incent Cave		
	Joseph Cavallaro	Р	hilippe Charles		

Edward Knightly Marcia K. O'Malley James Tour Peter Varman Lin Zhong Michael Fagan Akihiro Hayashi Mark Krentel Vivek Kumar Mark Moll Carlos Monroy Dung "Zung" Nguyen Jun Shirako Jisheng Zhao Jin Zou

Programs (Undergraduate): BA degree, BSCS degree

Programs (Graduate): MCS degree, MS degree, PhD degree

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 two undergraduate degrees: the Bachelor of Arts degree (BA) and the Bachelor of Science in Computer Science degree (BSCS). The department offers two master's degrees: the professional Master of Computer Science degree (MCS) and the research-oriented Master of Science degree (MS). The MS degree is a research degree requiring a thesis in addition to course work. The MS degree is mainly for students pursuing their Ph.D. Typically students are not admitted directly into the MS program. Students wishing to pursue a terminal Masters Degree should apply to the MCS program. Students wishing to pursue a terminal Masters Degree should apply to the MCS program. Students wishing to pursue a Ph.D. should apply directly to the Ph.D. program, which the department offers.

A coordinated MBA/Master of Engineering degree is available in conjunction with the Jesse H. Jones Graduate School of Business.

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Web Services

University Calendar

Maps-Directions

Feedback

SEARCH GA

```
RICE
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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Computer Science >

Undergraduate S	tudents
-----------------	---------

Computer Science

Jump to: BSCS

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

The George R. Brown School of Engineering

Department	Undergraduate	Graduate	Course
Info	Requirements	Requirements	Listings

BA Degree with a Major in Computer Science

Program Learning Outcomes for the Bachelor of Science in Computer Science Degree (BSCS)

Upon completion of the BSCS degree, a student majoring in Computer Science will be able to:

- 1. Be knowledgeable about algorithms and their use. Students will analyze new problems, choose appropriate algorithms for their solutions, and develop analytical skills in the manipulation of algorithms.
- 2. Demonstrate the ability to design and implement complex software systems. Students will demonstrate skill in their design and implementation and function effectively in teams.
- 3. Be knowledgeable about programming languages and their use. Students will demonstrate an understanding of distinguishing and mapping two different programming languages.
- 4. Demonstrate a deep knowledge in a subarea of Computer Science. Students will be able to explain issues in the selected subarea and demonstrate a depth of knowledge.
- 5. Effectively communicate to a client and user.

Requirements for the BSCS Degree with a Major in Computer Science

For general university requirements, see Graduation Requirements. Students pursuing the BSCS degree with a major in Computer Science (COMP) must complete:

- A minimum of 23-25 courses (84 credit hours) depending on course selection to satisfy the major requirements.
- A minimum of 128 credit hours to satisfy degree requirements.
- A minimum of 14 courses (51 credit hours) at the 300-level and above.
- All requirements for the BA degree with a major in COMP.

The BSCS 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.

CORE REQUIREMENTS

Students must complete a total of 17-19 courses (63 credit hours) depending on course selection as listed below to satisfy the Computer Science major's Core Requirements.

Math and Science Courses

Students must complete a total of 7-9 courses (23 credit hours depending on course selection) as listed below. Typically, the Math and Science courses are taken during the freshman and sophomore years.

- MATH 101 Single Variable Calculus I [<u>3 credit hours</u>]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- MATH 211 Ordinary Differential Equations and Linear Algebra [<u>3 credit hours</u>] or MATH 212 Multivariable Calculus [<u>3 credit hours</u>] or MATH 221 Honors Calculus III [<u>3 credit hours</u>] or MATH 222 Honors Calculus IV [<u>3 credit hours</u>]
- STAT 310/ECON 307 Probability and Statistics [3 credit hours]

- or STAT 312 Probability for CEVE [3 credit hours]
- CAAM 335 Matrix Analysis [<u>3 credit hours</u>] or MATH 355 Linear Algebra [<u>3 credit hours</u>]
- or MATH 354 Honors Linear Algebra [<u>3 credit hours</u>]
 PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>]
 or PHYS 111 Mechanics [<u>4 credit hours</u>]
 - or PHYS 125 General Physics [4 credit hours]
- PHYS 102 Electricity and Magnetism (with Lab) [4 credit hours] and PHYS 104 E & M Discussion [0 credit] or PHYS 112 Electricity and Magnetism [4 credit hours] or PHYS 126 General Physics II [4 credit hours]

Computer Science Courses

Students must complete a total of 10 courses (40 credit hours) as listed below.

- COMP 140 Computational Thinking [<u>4 credit hours</u>]
 or COMP 130 Elements of Algorithms and Computation [<u>4 credit hours</u>]
 or COMP 160 Introduction to Game Programming in Python [<u>4 credit hours</u>]
- COMP 182 Algorithmic Thinking [4 credit hours]
- COMP 215 Introduction to Program Design in Java [4 credit hours]
- ELEC 220 Fundamentals of Computer Engineering [4 credit hours]
- COMP 310 Advanced Object-Oriented Programming [4 credit hours]
- COMP 321 Introduction to Computer Systems [4 credit hours]
- COMP 322/ELEC 323 Principles of Parallel Programming [4 credit hours]
- COMP 382 *Reasoning about Algorithms* [<u>4 credit hours</u>]
- COMP 411 Programming Languages [<u>4 credit hours</u>]
 - or COMP 412 Compiler Construction [4 credit hours]
- COMP 421/ELEC 421 Operating Systems and Concurrent Programming [4 credit hours]

ELECTIVES

Students must complete a total of 2 additional departmental courses (6 credit hours, a minimum of 3 credit hours each) in Computer Science (COMP) at the 300-level or higher. At most 1 of these courses may be an independent study project (COMP 390, COMP 490, or COMP 491). Departmental approval is required to use a 600-level course as an elective.

CAPSTONE REQUIREMENT

To fulfill the remaining Computer Science major requirements for the BSCS degree, students must complete a total of 4 additional courses (15 credit hours) at the 300-level or above. The capstone sequence represents a coherent set of courses in a computer science specialization chosen by the student. Departmental approval is required for suggested specializations. Of the 4 courses selected, students must complete at least 1 course (4 credit hours) from Capstone Design courses found below.

- COMP 410 Software Engineering Methodology [4 credit hours]
- COMP 413 Distributed Program Construction [4 credit hours]
- COMP 460/ARTS 460 Advanced Computer Game Creation [4 credit hours]

back to menu

Program Learning Outcomes for the Bachelor of Arts Degree (BA) with a Major in Computer Science

Upon completing the BA degree, a student majoring in Computer Science will be able to:

- 1. Be knowledgeable about algorithms and their use. Students will analyze new problems, choose appropriate algorithms for their solutions, and develop analytical skills in the manipulation of algorithms.
- 2. Demonstrate the ability to design and implement complex software systems. Students will demonstrate skill in their design and implementation and function effectively in teams.
- 3. Be knowledgeable about programming languages and their use. Students will demonstrate an understanding of distinguishing and mapping two different programming languages.

Requirements for the BA Degree with a Major in Computer Science

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Computer Science (COMP) must complete:

- A minimum of 17 courses (61 credit hours) to satisfy the major requirements.
- A minimum of 121 credit hours to satisfy degree requirements.

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 math and science courses; computer science core courses, including introductory courses and upper-level courses ensuring knowledge in a broad range of areas; and computer science electives, which give students the freedom to explore specific interests.

CORE REQUIREMENTS

Students must complete a total of 15 courses (55 credit hours) as listed below to satisfy the Computer Science major's Core Requirements.

Math and Science Courses

Students must complete a total of 5 courses (15 credit hours) as listed below. Typically, the Math and Science courses are taken during the freshman and sophomore years.

- MATH 101 Single Variable Calculus I [<u>3 credit hours</u>]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours] or MATH 212 Multivariable Calculus [3 credit hours] or MATH 221 Honors Calculus III [3 credit hours] or MATH 222 Honors Calculus IV [3 credit hours]
 STAT 310/ECON 307 Probability and Statistics [3 credit hours]
- or STAT 312 Probability for CEVE [3 credit hours]
- CAAM 335 Matrix Analysis [<u>3 credit hours</u>]
 or MATH 355 Linear Algebra [<u>3 credit hours</u>]
 or MATH 354 Honors Linear Algebra [<u>3 credit hours</u>]

Computer Science Courses

Students must complete a total of 10 courses (40 credit hours) as listed below.

- COMP 140 Computational Thinking [<u>4 credit hours</u>]
 or COMP 130 Elements of Algorithms and Computation [<u>4 credit hours</u>]
 or COMP 160 Introduction to Game Programming in Python [<u>4 credit hours</u>]
- COMP 182 Algorithmic Thinking [4 credit hours]
- COMP 215 Introduction to Program Design in Java [4 credit hours]
- ELEC 220 Fundamentals of Computer Engineering [4 credit hours]
- COMP 310 Advanced Object-Oriented Programming [4 credit hours]
- COMP 321 Introduction to Computer Systems [4 credit hours]
- COMP 322/ELEC 323 Principles of Parallel Programming [4 credit hours]
- COMP 382 Reasoning about Algorithms [<u>4 credit hours</u>]
- COMP 411 Programming Languages [<u>4 credit hours</u>]
- or COMP 412 Compiler Construction [4 credit hours]
- COMP 421/ELEC 421 Operating Systems and Concurrent Programming [4 credit hours]

ELECTIVES

To fulfill the remaining Computer Science major requirements, students must complete a total of 2 additional departmental courses (6 credit hours, a minimum of 3 credit hours each) in Computer Science (COMP) at the 300-level or higher. At most 1 of these courses may be an independent study project (COMP 390, COMP 490, or COMP 491). Departmental approval is required to use a 600-level course as an elective.

back to menu

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Computer Science undergraduate degrees and major. The following is a quick reference:

<u>Course Catalog/Schedule</u> - Course offerings/subject code: COMP Department Description and Code

	Computer Science: COMP Degree Descriptions and Codes Bachelor of Arts degree: BA Bachelor of Science in Computer Science degree: BSCS Major Code and Description: Major in Computer Science (for both the BA and BSCS degrees): COMP
	Last Revised : August 18, 2016
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---------------------------------	--------------	---------------------	----------	-----------------	----------

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Computer Science >

```
Undergraduate Students
```

Computer Science

```
Graduate Students
```

RICE

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

The George R. Brown School of Engineering

	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings	
MCS I MS D	Jump to: MCS Degree in Computer Science MS Degree in Computer Science PhD Degree in Computer Science				
Progr	Program Learning Outcomes for the Master of Computer Science Degree (MCS)				
Upon co	mpleting the MCS degree,	students will be able to:			

- 1. Solve advanced Computer Science problems. Students will acquire and apply a graduate-level understanding of material in sub-areas of Computer Science.
- 2. Design and implement complex software systems. Students will demonstrate skill in their design and implementation and function effectively in teams.
- 3. Effectively communicate to a client and user.
- 4. Have improved professional opportunities relative to before entering the program.

Requirements for the Master of Computer Science Degree (MCS)

For general university requirements, see Graduate Degrees. For more information related to the MCS degree program, please refer to the Computer Science Department's graduate student handbook available at https://www.cs.rice.edu/academics/graduate-studies/mcs/. Students pursuing the MCS degree must complete:

- A minimum of 30 credit hours at the 500-level or above to satisfy degree requirements.
- A minimum of 24 credit hours completed at Rice. н.

The professional MCS degree is a terminal degree for students intending to pursue a technical career in the computer industry. Areas of specialization for the MCS include algorithms and complexity, artificial intelligence, robotics, 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 four semesters of study.

MCS students are expected to pay full tuition and all fees. No financial assistance will be given to MCS students.

CORE REQUIREMENTS

Students must complete 1 course from 3 of the following 4 categories for a total of 3 courses (9-12 credit hours) to satisfy the MCS degree program's Core Requirements. Students demonstrating that they have passed one or more courses of comparable depth from a group may petition to be exempted from the group's breadth requirement.

Languages and Compilers

Students may complete 1 course (3-4 credit hours) from the following:

COMP 506 Compiler Construction [4 credit hours]

- COMP 512 Advanced Compiler Construction [4 credit hours]
- COMP 515 Advanced Compilation Vector Parallel Processors [3 credit hours]
- COMP 535 Approximate Computing System for Big Data [<u>3 credit hours</u>]

Theory

Students may complete 1 course (3-4 credit hours) from the following:

- COMP 507 Computer-Aided Program Design [4 credit hours]
- COMP 509 Advanced Logic in Computer Science [4 credit hours]
- COMP 581 Automata, Formal Languages, and Computability [3 credit hours]
- COMP 582/ELEC 512 Graduate Design and Analysis of Algorithms [3 credit hours]

Systems

Students may complete 1 course (3-4 credit hours) from the following:

- COMP 508/ELEC 511 Secure Embedded Systems for IoT Era [3 credit hours]
- COMP 521/ELEC 552 Operating Systems and Concurrent Programming [4 credit hours]
- COMP 522 Multi-Core Computing [<u>3 credit hours</u>]
- COMP 524/ELEC 524 Mobile and Wireless Computing [4 credit hours]
- COMP 526/ELEC 526 High Performance Computer Architecture [3 credit hours]
- COMP 528 System-Level Virtualization [3 credit hours]
- COMP 529/ELEC 529 Computer Network Protocols and Systems [4 credit hours]
- COMP 538/ELEC 538 Security of HW Embedded Systems [3 credit hours]
- COMP 541 Introduction to Computer Security [<u>3 credit hours</u>]
- COMP 554/ELEC 554 Computer Systems Architecture [4 credit hours]
- COMP 556/ELEC 556 Introduction to Computer Networks [4 credit hours]
- ELEC 553/COMP 424 Mobile and Embedded System Design and Application [4 credit hours]

Applications

Students may complete 1 course (3-4 credit hours) from the following:

- COMP 530 Database System Implementation [<u>3-4 credit hours</u>]
- COMP 540 Statistical Machine Learning [4 credit hours]
- COMP 550 Algorithmic Robotics [<u>4 credit hours</u>]
- COMP 557/ELEC 557 Artificial Intelligence [4 credit hours]
- COMP 560 Computer Graphics [<u>4 credit hours</u>]
- COMP 571/BIOC 571 Bioinformatics: Sequence Analysis [4 credit hours]
- COMP 572/BIOC 572/BIOC 564 Bioinformatics: Network Analysis [3 credit hours]

AREA OF SPECIALIZATION (DEPTH)

Students must complete a tightly coupled 2-course focus (6-8 credit hours). A list of approved specializations is available (see below) but students may design their own with approval by the MCS advisor. They may include courses outside the Computer Science department (COMP), and they may include one independent study project. *The following list of depth specializations is representative, but not comprehensive.*

Parallel Computing

Students pursuing the Parallel Computing depth specialization must complete the following 2 courses (6 credit hours):

- COMP 515 Advanced Compilation for Vector Parallel Processors [3 credit hours]
- COMP 522 Multi-Core Computing [3 credit hours]

PL Theory and Logic

Students pursuing the PL Theory and Logic depth specialization must complete 2 courses (8 credit hours):

- COMP 507 Computer-Aided Program Design [4 credit hours]
- COMP 509 Advanced Logic in Computer Science [4 credit hours]
- COMP 511 Principles of Programming Languages [4 credit hours]

Compilers

Students pursuing the Compilers depth specialization must complete 2 courses (7-8 credit hours) from the following:

- COMP 506 Compiler Construction for Graduate Students [4 credit hours]
- COMP 512 Advanced Compiler Construction [4 credit hours]

COMP 515 Advanced Compilation for Vector Parallel Processors [3 credit hours]

Networking

Students pursuing the Networking depth specialization must complete 2 courses (8 credit hours) from the following:

- COMP 524/ELEC 524 Mobile and Wireless Networking [4 credit hours]
- COMP 529/ELEC 529 Computer Network Protocols and Systems [4 credit hours]
- COMP 556/ELEC 556 Introduction to Computer Networks [4 credit hours]

Systems and Security

Students pursuing the Systems and Security depth specialization must complete 2 courses (6-8 credit hours) from the following:

- COMP 508/ELEC 511 Secure Embedded Systems for IoT Era [3 credit hours]
- COMP 521/ELEC 522 Operating Systems and Concurrent Programming [4 credit hours]
- COMP 528 System-Level Virtualization [3 credit hours]
- COMP 538/ELEC 528 Security of HW Embedded Systems [3 credit hours]
- COMP 541 Introduction to Computer Security [3 credit hours]
- ELEC 553/COMP 424 Mobile and Embedded Systems [4 credit hours]

Al and Robotics

Students pursuing the AI and Robotics depth specialization must complete 2 courses (8 credit hours) from the following:

- COMP 540 Statistical Machine Learning [4 credit hours]
- COMP 550 Algorithmic Robotics [4 credit hours]
- COMP 557/ELEC 557 Artificial Intelligence [4 credit hours]

Bioinformatics

Students pursuing the Bioinformatics depth specialization must complete the following 2 courses (6 credit hours):

- COMP 571/BIOC 571 Bioinformatics: Sequence Analysis [3 credit hours]
- COMP 572/BIOC 572/BIOC 564 Bioinformatics: Network Analysis [3 credit hours]

Optimization

Students pursuing the Optimization depth specialization must complete 2 courses (6 credit hours) from the following:

- CAAM 560 Optimization Theory [3 credit hours]
- CAAM 564 Numerical Optimization [3 credit hours]
- CAAM 565 Convex Optimization [<u>3 credit hours</u>]

Architecture

Students pursuing the Architecture depth specialization must complete 2 courses (6-7 credit hours) from the following:

- COMP 526/ELEC 526 High Performance Computer Architecture [3 credit hours]
- COMP 535 Approximate Computing System for Big Data, Supercomputing and Embedded Systems [<u>3 credit hours</u>]
- COMP 554/ELEC 554 Computer Systems Architecture [4 credit hours]

Software Engineering

Students pursuing the Software Engineering depth specialization must complete 2 courses (6-8 credit hours) from the following:

- COMP 501 Production Programming [4 credit hours]
- COMP 504 Graduate Object-Oriented Programming and Design [4 credit hours]
- COMP 505 Advanced Topics in Object-Oriented Design [4 credit hours]
- COMP 539 Software Engineering Methodology [4 credit hours]

DESIGN PROJECT

Students must complete a design project and complete 1 course (4 credit hours) from the following:

- COMP 501 Production Programming [4 credit hours]
- COMP 504 Graduate Object-Oriented Programming and Design [4 credit hours]
- COMP 539 Software Engineering Methodology [<u>4 credit hours</u>]
- COMP 590 Computer Science Independent Study Project [1-4 credit hours]

ELECTIVES

To fulfill the remaining MCS degree program requirements, students must complete the remaining credit hours necessary for the

degree (30 credit hours total to satisfy degree requirements) from departmental (COMP) courses at the 500-level or above.

Professional Development (recommended)

Students may take up to 6 credit hours from the following, which is encouraged, but not required.

- COMP 694/ELEC 694 How to Be a Chief Technology Officer [3 credit hours]
- ENGI 505/CEVE 505 Engineering Project Management and Economics [3 credit hours]
- ENGI 510 Technical and Managerial Communications [3 credit hours]
- ENGI 528/CEVE 528 Engineering Economics [3 credit hours]
- ENGI 529/CEVE 529 Ethics and Engineering Leadership [3 credit hours]
- ENGI 545/LEAD 545 Strategic Thinking for Complex Problem Solving [3 credit hours]
- ENGI 610/NSCI 610 Management for Science and Engineering [3 credit hours]
- ENGI 614 Learning How to Innovate? [2 credit hours]
- ENGI 615 Leadership Coaching for Engineers [3 credit hours]

back to menu

Program Learning Outcomes for the MS Degree in Computer Science

Upon completing the MS degree program in Computer Science, students will be able to:

- 1. Acquire a solid foundation in Computer Science at the graduate level.
- 2. Conduct an independent research program.
- 3. Demonstrate professional skills in both oral and written communication.

Requirements for the MS Degree in Computer Science

For general university requirements, see Graduate Degrees. Students pursuing the MS degree program in Computer Science (COMP) must complete:

A minimum of 30 credit hours at the 500-level or above to satisfy degree requirements.

The MS degree is a research degree requiring a thesis in addition to course work. Students enrolled in the PhD program must meet additional requirements before they receive the MS degree. See the PhD program section for further information.

back to menu

Program Learning Outcomes for the PhD Degree in Computer Science

Upon completing the PhD degree program in Computer Science, students will be able to:

- Acquire a solid foundation in Computer Science at graduate level. Students will demonstrate a graduate-level understanding of material across a variety of sub-disciplines, be able to synthesize problem solutions by combining knowledge from different sources, and demonstrate a deep knowledge of sub-area in which they will pursue their dissertation.
- Conduct an independent research program. Students will identify and pose a research problem, place that problem in context within the field's established literature, and conduct an independent investigation that leads to credible scientific results.
- 3. Demonstrate professional skills in both oral and written communication. Students will write well-organized, coherent technical prose, deliver a professional presentation on par with a solid conference presentation, demonstrate the ability to describe scientific issues and techniques in writing and in presentation, and be able to answer unanticipated technical questions in a public setting.

Requirements for the PhD Degree in Computer Science

For general university requirements, see Graduate Degrees. Students pursuing the PhD degree program in Computer Science must:

- Meet departmental course requirements as described in the Computer Science Department's graduate student handbook available at: https://www.cs.rice.edu/academics/graduate-studies/phd/.
- Complete a COMP 590 project by the end of the third semester
- Complete a master's thesis by the end of the fifth 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 seven 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

The PhD degree is for students planning to pursue a career in computer science research and education. The doctoral program normally requires four to six years of study.

Students who successfully meet the first three 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

Refer to the CS Graduate studies web page at https://www.cs.rice.edu/academics/graduate-studies/ or contact the department at graddapps@rice.edu.

back to menu

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Computer Science graduate degree programs. The following is a quick reference:

Rice A-Z

Course Catalog/Schedule

- Course offerings/subject code: COMP
- Department Description and Code
 - Computer Science: COMP

Degree Descriptions and Codes

- Master of Computer Science degree: MCS
- Master of Science degree: MS
- Doctor of Philosophy degree: PhD
- Degree Program Description and Code
 - Degree Program in Computer Science: COMP

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Web Services

University Calendar

Maps-Directions Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Computer Science >

The George R. Brown Sc Department Info	hool of Engineering	-			
	Undergraduate				
	Requirements	Graduate Requirements	Course Listings		
	Nequilements	Requirements	Listings		
The official course offerings, including course descriptions, for Computer Science can be found in Rice's Course Catalog.					
To view the most recent course sche	edule for the 2016-2017 acad	demic year, see Rice's Course	Schedule. 🗗		
For additional information regarding	Computer Science, see the	department's website: http://w	ww.cs.rice.edu/. 🗗		
Last Revised : August 24, 2016					
	To view the most recent course sch	The official course offerings, including course descriptions, for Course the most recent course schedule for the 2016-2017 acade For additional information regarding Computer Science, see the	The official course offerings, including course descriptions, for Computer Science can be found To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course For additional information regarding Computer Science, see the department's website: http://w		

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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

RICE

Undergraduate Students

Graduate Students

406 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Critical and Cultural Theory >

Critical and Cultural Theory

The School of Humanities

Ion-Traditional Students	Department	Undergraduate	Graduate	Course	
Faculty	Info	Requirements	Requirements	Listings	
Programs of Study	Director Cary Wolfe, Bruce and E		Faculty Andrea Ballestero, Anthropolo	ogy	
Administration and Faculty	Professor of English		Elias Bongmba, Religion		
Important Notices	Steering Committee Judith Roof, William Shal	kespeare Chair,	Dominic Boyer, Anthropology Joseph Campana, English Scott Colman, Architecture		
	Department of English James Faubion, Radosla	T (COL)	Leo Costello, Art History April DeConick, Religion		
	Department of Anthropolo	ogy	Elaine Ecklund, Sociology		
	Timothy Morton, Rita She Department of English		Sarah Ellenzweig, English		
			James Faubion, Anthropology Rosemary Hennessy, English		
			Cymene Howe, Anthropology		
			Betty Joseph, English		
			Jeffrey Kripal, Religion		
			Lars Lerup, Architecture		
			Fabiola Lopez-Duran, Art His	tory	
			Susan Lurie, English		
			John J. May, Architecture		
			Timothy Morton, English		
			Kirsten Ostherr, English		
			Albert Pope, Architecture		
			Alexander Regier, English		
			Judith Roof, English		
			Nicole Waligora-Davis, Englis	h	
			Sarah Whiting, Architecture		
			Cary Wolfe, English		
			Zoë Wool, Anthropology		

Program (Undergraduate): N/A

Program (Graduate): Certificate

The Center for Critical and Cultural Theory (3CT) was founded to promote intellectual synergy and community among Rice faculty and graduate students whose work is informed by a deep and sustained engagement with critical and cultural theory and their ongoing development and permutations. Though housed in the School of Humanities, and drawing primarily on faculty and students from the Humanities, Social Sciences, and Architecture, 3CT welcomes and encourages faculty and students in any field whose work is framed by an intensive engagement with critical and cultural theory and its methodological innovations. The program's primary pedagogical aim is to help equip students to engage ambitious and synthetic research projects of social and cultural significance in a wide range of areas such as new media studies, race and ethnicity studies, science and technology studies, ecocriticism and environmental humanities, animal studies, medical humanities, transnationalism, art and architecture, psychoanalysis, and political and social theory - just to name a few of the more established pursuits in which a strong theoretical

background is indispensable. 3CT is therefore committed to the view that rigorous theoretical training enables empowering reflection upon the dominant forms of disciplinary norms, practices, and protocols and their historically and socially constituted nature. 3CT aims to strengthen and enrich how its participants understand and relate to their "home" disciplines.

Maps-Directions

Feedback

Last Revised : August 31, 2016

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Critical and Cultural Theory >

Undergraduate Students	Critical and Cultural Theory						
Graduate Students	The School of Humanities						
▶ Non-Traditional Students	Non-Traditional Students Department Undergraduate Graduate Course Listings						
▶ Faculty	Undergraduate Requirements						
Programs of Study	The Cer	nter for Critical and Cultural	Theory does not offer an acad	lemic program at the undergrad	duate level.		
Administration and Faculty	and Faculty						
Important Notices	Last Revise	ed : August 12, 2016					

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SEARCH GA



Previous Editions

theory into their own intellectual and academic practice

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Critical and Cultural Theory >

Undergraduate Students	Critic	cal and Cultur	al Theory		
▶ Graduate Students	The So	chool of Humanitie	es		
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
▶ Faculty	Brog			icate in Critical and	
Programs of Study		-	Critical and Cultural Theory, s		
Administration and Faculty	1. De	emonstrate knowledge of a	range of approaches in conte	mporary critical and cultural th	ieory.
Important Notices	st	ate of the specific discipline	(s) in which they work.	ogies drawn from critical and c	
	in		0	pers, academic publications, a	•
	Requ	irements for the C	Certificate in Critical	and Cultural Theory	v

For general university requirements, see Graduate Degrees. Students pursuing the Certificate in Critical and Cultural Theory (CCT) must complete:

- A minimum of 4 courses (12 credit hours) to satisfy certificate requirements. Required core courses for other graduate degree or certificate programs may not count toward the minimum of 4 courses requirement, however, elective courses used to fulfill requirements for other graduate degree or certificate programs at Rice may count toward this requirement.
- A minimum of 1 course (3 credit hours) outside of the student's home department.
- Each course with a grade of at least 'B-'.
- All required coursework associated with the student's corresponding degree program. Upon completion, the certificate is . awarded at the same time as the conferral of the student's Rice degree, along with a formal notation on their academic transcript.

In addition, no courses applied toward the certificate can be completed as transfer credit.

Students must also participate in an annual colloquium, which consists of a lecture and seminar given by visiting scholars, typically by a different scholar in the Spring and Fall semesters of each year.

REQUIRED COURSES

Students must complete 4 courses (12 credit hours) from the following to satisfy the certificate's coursework requirements. The Center recommends that students interested in applying for the certificate seek approval for courses as they are taken. Students may petition the Center for approval of courses not listed below.

- ANTH 507 Anthropological Directions from Second World War to Present [3 credit hours]
- ANTH 508 The Anthropology of the Historical Imagination [3 credit hours]
- ANTH 548 Anthropologies of Nature [3 credit hours]
- ANTH 549 The Anthropology of Ethics [3 credit hours]
- ANTH 554 Illness, Disability, and the Gendered Body [3 credit hours]
- ANTH 615 Theories of Modernity/Postmodernity [3 credit hours]
- ANTH 616 Classical Social Theory [3 credit hours]
- ANTH 617 Ontoloties, Vitalities, Things [3 credit hours]
- ANTH 648 Phenomenological Anthropology [3 credit hours]
- ARCH 612 Advanced Seminar in Architecture [3 credit hours]
- ARCH 631 Urbanism I: The City of Theoretically Considered [3 credit hours]
- ARCH 633 The Cullinan Seminar [3 credit hours]

- ARCH 651 Present Future Seminar [3 credit hours]
- ENGL 525 Literature and Visual Art [3 credit hours]
- ENGL 527 Studies in Renaissance Literature [3 credit hours]
- ENGL 537 19th Century Studies [<u>3 credit hours</u>]
- ENGL 570 African American Studies [3 credit hours]
- ENGL 577 Emergent Media: Technologies, Networks, Culture [3 credit hours]
- ENGL 581 Cultural Studies: Contemporary Literature, Culture and Politics [3 credit hours]
- ENGL 583 Reading Material [3 credit hours]
- ENGL 591 Studies in Literature and Other Disciplines [3 credit hours]
- ENGL 592 Studies in Modernism [<u>3 credit hours</u>]
- ENGL 594 Studies in Contemporary Literature and Culture [3 credit hours]
- ENGL 596 Studies in Major American Authors [3 credit hours]
- ENGL 599 Studies in Literary Theory: Reading Materials [3 credit hours]
- HART 504 Independent Study [<u>3 credit hours</u>]
- HART 566 Latin American Bodies: On Modernism [3 credit hours]
- HART 568 From the Sublime to the Sustainable: Art, Architecture and Nature [3 credit hours]
- HART 590 Methods of Art History [3 credit hours]
- HURC 502 HRC Mellon Research Seminar [3 credit hours]
- HURC 602 Rice Seminars [3 credit hours]
- RELI 574 The Bible and the Brain [3 credit hours]
- RELI 588 The History of Religions School [<u>3 credit hours</u>]
- SOCI 501 Graduate Religion Seminar [3 credit hours]

COLLOQUIUM

Students must participate in an annual colloquium. To accommodate a broad range of student interests, the colloquium will not be dedicated to a particular theme or approach each year, and the requirement need not be completed in one academic year. It must, however, be completed within three years from the date of acceptance into the program.

Application Procedures

- 1. Status: The (CCT) Certificate program is open only to students already enrolled and in good standing in a Rice graduate degree program.
- 2. Application: Students must apply for admission to the Certificate program by the end of the registration period for Fall semester each year. The application should consist of a vita, a 2-3 page single-spaced description of the student's research interests, of the primary theoretical commitments that frame those interests, and how the research intervenes in the current state of critical and cultural theory. A brief (one or two paragraph) letter of endorsement from the faculty member directing the student's research is also required. Only students in good academic standing in their home departments may apply. Students will be informed promptly early in the Fall semester each year of their acceptance, and students not accepted may reapply once to the Certificate program.

Description and Code Legend

*NOTE: Internally, the university uses the following abbreviations (4-digit codes) to identify the Certificate in Critical and Cultural Theory. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject: Courses from other departments apply towards the Certificate in Critical and Cultural Theory Department (or Center) Description and Code

Rice A-Z

- Center for Critical and Cultural Theory: CCCT

- Certificate Description and Code
 - Certificate in Critical and Cultural Theory: CCT

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University Calendar

Maps-Directions

Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Critical and Cultural Theory >

Undergraduate Students	Critical and Cultural Theory The School of Humanities						
Graduate Students							
Non-Traditional Students	Department	Undergraduate	Graduate	Course			
Faculty	Info	Requirements	Requirements	Listings			
Programs of Study	Course Listings The official course offerings, including course descriptions, that are listed in the Center for Critical and Cultural Theory's						
Administration and Faculty	Graduate Requirements section, can be found in Rice's Course Catalog.						
Important Notices	To view the most recent course sch	hedule for the 2016-2017 aca	demic year see Rice's Course	Schedule. 🗗			
••••••	For additional information regarding	g Department/Program, see th	he department's website: http:/	//3ct.rice.edu/. 🗗			
	Last Revised : August 24, 2016						

General Announce	ements 6100 M	ain MS-10, Houston,	Texas 77005-1827	Mailing Address: P.O	. Box 1892, Houston, Tex	kas 77251-1892
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RICE

412 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Earth Science >

Undergraduate Students							
Graduate Students	The Wiess School of Natural Sciences						
Non-Traditional Students	Department Info	Undergraduate	Graduate	Course			
▶ Faculty	IIIO	Requirements	Requirements	Listings			
Programs of Study	Chair Cin-Ty Lee		cturers or Abreu				
Administration and Faculty	Professors		Gary G. Gray Patrick J. McGovern				
Important Notices	John B. Anderson Rajdeep Dasgupta		Jeffrey Nunn Eric Scott				
	Gerald R. Dickens André W. Droxler	Ro	bert R. Stewart				
	Richard G. Gordon Cin-Ty Lee		ess Visiting Scholars ancis Albarede				
	Adrian Lenardic Alan Levander	Jar	nne Blichert-Toft				
	Caroline Masiello		Adjunct Faculty				
	Julia Morgan Fenglin Niu		Vitor Abreu Kevin Biddle				
	Dale S. Sawyer		K. K. Bissada Christian Davies				
	William W. Symes Colin Zelt		Jeffrey J. Dravis				
			Brandon Dugan				
	Associate Professors		Gary Gray				
	Helge Gonnermann		Paul M. Harris				
	And I for the second		N. Ross Hill				
	Assistant Professors Melodie French		Thomas A. Jones				
	Jeffrey Nittrouer		Stephen J. Mackwell				
	Mark Torres		Patrick J. McGovern				
	Laurence Yeung		Jeffrey Nunn David L. Olgaard				
			mes Pindell				
	Professors Emeriti		C. Rusty Riese				
	Hans Avé Lallemant	Ма	Icolm Ross				
	Albert Bally	Eri	c Scott				
	Dieter Heymann	Ste	ephanie S. Shipp				
	William Leeman	Ro	bert R. Stewart				
	Andreas Lüttge	Joh	nn Sumner				
	Manik Talwani	Ro	bert Wegner				
	Peter Vail						

Programs (Undergraduate): BA degree, BS degree Programs (Graduate): MS degree, PhD degree All undergraduate majors in earth science take a five-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 five 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.

Last Revised : August 17, 2016

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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Earth Science >

Undergraduate Students

Earth Science

Graduate Students

RICE

- Non-Traditional Students
- Faculty

Programs of Study

- Administration and Faculty
- Important Notices

The Wiess School of Natural Sciences

	Department	Undergraduate	Graduate	Course
	Info	Requirements	Requirements	Listings
to: Dec	gree with a Major in Earth	Science		

BS

Jump

BA Degree with a Major in Earth Science

Program Learning Outcomes for the BS Degree with a Major in Earth Science

Upon completing the BS degree, students majoring in Earth Science will be able to:

- 1. Understand the structure and composition of the Earth and Planets, their evolution, and changing the Earth today.
- 2. Learn basic field geological measurements and recording.
- 3. Learn Earth observations and recording outdoor scientific information.

Requirements for the BS Degree with a Major in Earth Science

For general university requirements, see Graduation Requirements. Students pursuing the BS degree with a major in Earth Science (ESCI) must complete:

- A minimum of 20-22 courses (69-73 credit hours) depending on course selection to satisfy major requirements.
- A minimum of 129-133 credit hours to satisfy degree requirements.
- The requirements for one area of specialization (listed below)

The ESCI areas of specialization are listed below:

- Geology Specialization
- Geochemistry Specialization
- **Geophysics Specialization** .
- **Environmental Earth Science Specialization**
- Self-Designed Specialization

CORE REQUIREMENTS

Students must complete a total of 14-16 courses (45 credit hours) as listed below to satisfy the Earth Science major's Core Requirements.

- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- CHEM 121 General Chemistry I 3 credit hours and CHEM 123 General Chemistry Lab I 1 credit hour 3 or CHEM 151 Honors Chemistry I [3 credit hours] and CHEM 153 Honors Chemistry Lab I [1 credit hour]
- CHEM 122 General Chemistry II [<u>3 credit hours</u>] and CHEM 124 General Chemistry Lab II [<u>1 credit hour</u>] or CHEM 152 Honors Chem. II [3 credit hours] and CHEM 154 Honors Chem. Lab II [1 credit hour]
- PHYS 101 Mechanics (with Lab) [4 credit hours] and PHYS 103 Mechanics Discussion [0 credit] or PHYS 111 Mechanics (with Lab) [4 credit hours]
- PHYS 102 Electricity & Magnetism (with Lab) [4 crdit hours] and PHYS 104 E & M Discussion [0 credit] or PHYS 112 Electricity and Magnetism (with Lab) [4 credit hours]
- ESCI 301 Introduction to the Earth [4 credit hours]
- ESCI 321 Earth System Evolution and Cycles [4 credit hours]
- ESCI 322 Earth Chemistry and Materials [4 credit hours]
- ESCI 323 Earth Structure and Deformation [4 credit hours]

ESCI 334 Geological Techniques [3 credit hours]

AREAS OF SPECIALIZATION

To fulfill the remaining ESCI major requirements, students must complete the requirements for one of the following areas of specialization.

GEOLOGY SPECIALIZATION

Students must complete a total of 8 courses (24 credit hours) as listed below to satisfy the requirements for the Geology specialization.

Required Courses

Students must complete a total of 4 courses (12 credit hours) as listed below.

- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours]
- ESCI 390 Geology Field Camp [at least 3 hours]
- COMP 110/NSCI 230 Computation in Natural Science [<u>3 credit hours</u>]
 or CAAM 210 Introduction to Engineering Computation [<u>3 credit hours</u>]
- ESCI 412 Advanced Petrology [<u>3 credit hours</u>]
 or ESCI 430 Principles of Trace-Element and Isotope Geochemistry [<u>3 credit hours</u>]

Electives

To fulfill the remaining Geology specialization requirements students must complete a total of 4 additional courses (12 credit hours) from the following two groups. 2 courses must be completed from Group A and Group B.

Group A

- ESCI 421 Paleoceanography [3 credit hours]
- ESCI 427 Sequence Stratigraphy [<u>3 credit hours</u>]
- ESCI 431 Geomorphology [<u>3 credit hours</u>]
- ESCI 435 Mechanics of Sediment Transport [3 credit hours]
- ESCI 504 Siliciclastic Depositional Systems [<u>3 credit hours</u>]
- ESCI 506 Carbonate Depositional Systems [<u>3 credit hours</u>]
- ESCI 552 Marine Geology Systems [3 credit hours]

Group B

- ESCI 410 Optical Mineralogy and Petrography [3 credit hours]
- ESCI 418/CEVE 418 Quantitative Hydrogeology [3 credit hours]
- ESCI 419 Materials Characterization [3 credit hours]
- ESCI 426 Interpretation of Regional 2D Seismic Data [3 credit hours]
- ESCI 429 Magmatic, Volcanic and Hydrothermal Processes [3 credit hours]
- ESCI 442 Exploration Geophysics [4 credit hours]
- ESCI 463 Structure and Evolution of Tectonic Systems [4 credit hours]
- ESCI 464 Global Tectonics [3 credit hours]
- ESCI 467 Geomechanics [<u>3 credit hours</u>]

GEOCHEMISTRY SPECIALIZATION

Students must complete a total of 9 courses (27 credit hours) as listed below to satisfy the requirements for the Geochemistry specialization.

Required Courses

Students must complete the following 3 courses (9 credit hours):

- BIOC 201 Introductory Biology [3 credit hours]
- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours]
- ESCI 391 Earth Science Field Experience [at least 3 credit hours]

Electives

To fulfill the remaining requirements for the Geochemistry specialization, students must complete a total of 6 additional courses (18 credit hours) as listed below.

Geochemistry Specialization Electives in Earth Science

Students must complete a total of 4 courses (12 credit hours) from the following:

- ESCI 340/EBIO 340/ENST 340 Global Biogeochemical Cycles [3 credit hours]
- ESCI 410 Optical Mineralogy and Petrography [<u>3 credit hours</u>]
- ESCI 412 Advanced Petrology [3 credit hours]
- ESCI 419 Materials Characterization [3 credit hours]
- ESCI 421 Paleoceanography [<u>3 credit hours</u>]
- ESCI 425/CHEM 425/ENST 425 Organic Geochemistry [<u>3 credit hours</u>]
- ESCI 426 Interpretation of Regional 2D Seismic Data [<u>3 credit hours</u>]
- ESCI 429 Magmatic, Volcanic and Hydrothermal Processes [<u>3 credit hours</u>]
- ESCI 430 Principles of Trace-Element and Isotope Geochemistry [3 credit hours]

Geochemistry Electives

Students must complete a total of 2 courses (6 credit hours) from the following or from any departmental (ESCI) course offerings at the 300-level or above.

- BIOC 211 Intermediate Experimental Biosciences [2 credit hours]
- CAAM 210 Introduction to Engineering Computation [3 credit hours]
- CEVE 401 Chemistry for Environmental Engineering and Science Lab [4 credit hours]
- CEVE 434/534 Fate and Transport of Contaminants of the Environment [3 credit hours]
- CEVE 550 Environmental Organic Chemistry [3 credit hours]
- CHEM 211 Organic Chemistry / [3 credit hours] and CHEM 213 Organic Chemistry Discussion [0 credit]
- CHEM 212 Organic Chemistry II [3 credit hours] and CHEM 214 Organic Chemistry Discussion II [0 credit]
- CHEM 310 Physical Chemistry [3 credit hours]
- CHEM 415 Chemical Kinetics and Dynamics [3 credit hours]
- CHEM 495 Transition Metal Chemistry [3 credit hours]
- COMP 110/NSCI 230 Computation Science and Engineering [3 credit hours]
- EBIO 202 Introductory Biology II [3 credit hours]
- MATH 212 Multivariable Calculus [3 credit hours]

GEOPHYSICS SPECIALIZATION

Students must complete a total of 10 courses (28 credit hours) to satisfy the requirements for the Geophysics specialization. Courses chosen from ESCI course offerings must be 3 credit hours or more.

Required Courses

Students must complete a total of 6 courses (16 credit hours) as listed below.

- COMP 110/NSCI 230 Computation in Natural Science [<u>3 credit hours</u>] or CAAM 210 Introduction to Engineering Computation [<u>3 credit hours</u>]
- ESCI 391 Earth Science Field Experience [at least 3 credit hours]
- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours]
- MATH 212 Multivariable Calculus [3 credit hours]
- PHYS 201 Waves and Optics [3 credit hours]
- PHYS 231 Elementary Physics Lab II [1 credit hour]

Electives

To fulfill the remaining requirements for the Geophysics specialization, students must complete a total of 4 courses (12 credit hours) as listed below.

ESCI Upper-Level Electives

Students must complete a total of 2 courses (6 credit hours) from the following:

- ESCI 418/CEVE 418 Quantitative Hydrogeology [3 credit hours]
- ESCI 426 Interpretation of Regional 2D Seismic Data [3 credit hours]
- ESCI 440 Geophysical Data Analysis: Digital Signal Processing [3 credit hours]
- ESCI 441 Geophysical Data Analysis: Inverse Methods [3 credit hours]
- ESCI 442 Exploration Geophysics [4 credit hours]
- ESCI 450/CEVE 450 Remote Sensing [3 credit hours]
- ESCI 452 GIS for Scientists [3 credit hours]
- ESCI 461 Seismology I [3 credit hours]
- ESCI 462 Tectonophysics [3 credit hours
- ESCI 463 Tectonic Systems [4 credit hours]
- ESCI 464 Global Tectonics [<u>3 credit hours</u>]
- ESCI 467 Geomechanics [3 credit hours]
- ESCI 542 Seismology II [3 credit hours]
- ESCI 564 Seismic Reflection Data Processing [3 credit hours]

Geophysics Specialization Electives

Students must complete a total 2 courses (6 credit hours) from the following:

- Any course from ESCI course offerings between ESCI 410 and ESCI 475, except for research and special studies
- Any course from MATH, CAAM, or PHYS course offerings at the 300-level or above
- CHEM 311 Physical Chemistry [3 credit hours]

ENVIRONMENTAL EARTH SCIENCE SPECIALIZATION

Students must complete a total of 8-9 courses (27 credit hours) depending on course selection as listed below to satisfy the requirements for the Earth Science specialization.

Required Courses

Students must complete a total of 5 courses (16 credit hours) as listed below.

- BIOC 201 Introductory Biology [3 credit hours]
- COMP 110/NSCI 230 Computation in Natural Science [<u>3 credit hours</u>]
 or CAAM 210 Introduction to Engineering Computation [<u>3 credit hours</u>]
- ESCI 391 Earth Science Field Experience [at least 3 credit hours]
- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours]
- STAT 280 Elementary Applied Statistics [<u>4 credit hours</u>]

Electives

Students must complete a total of 3-4 courses (11 credit hours) depending on course selection from the following. At least 2 courses (6 credit hours) must be taken from ESCI course offerings.

- CEVE 401 Chemistry for Environmental Engineering and Science Lab [4 credit hours]
- CEVE 406/ENST 406 Introduction to Environmental Law [3 credit hours]
- CEVE 412 Hydrology and Water Resources Engineering [3 credit hours]
- CEVE 434 Fate and Transport of Contaminants in the Environment [3 credit hours]
- CHEM 211 Organic Chemistry / [3 credit hours] and CHEM 213 Organic Chemistry Discussion [0 credit]
- CHEM 310 Physical Chemistry [3 credit hours]
- EBIO 202 Introductory Biology [<u>3 credit hours</u>]
- ESCI 340/EBIO 340/ENST 340 Global Biogeochemical Cycles [3 credit hours]
- ESCI 410 Optical Mineralogy and Petrography [3 credit hours]
- ESCI 418 Quantitative Hydrogeology [<u>3 credit hours</u>]
- ESCI 419 Materials Characterization [3 credit hours]
- ESCI 421 Paleoceanography [<u>3 credit hours</u>]
- ESCI 425/CHEM 425/ENST 425 Organic Geochemistry [3 credit hours]
- ESCI 426 Interpretation of Regional 2d Seismic Data [3 credit hours]
- ESCI 429 Magmatic, Volcanic and Hydrothermal Processes [3 credit hours]
- ESCI 431 Geomorphology [<u>3 credit hours</u>]
- ESCI 435 Mechanics of Sediment Transport [3 credit hours]
- ESCI 442 Exploration Geophysics [4 credit hours]
- ESCI 452 GIS for Scientists [3 credit hours]
- ESCI 463 Structure and Evolution of Tectonic Systems [4 credit hours]
- ESCI 467 Geomechanics [<u>3 credit hours</u>]
- ESCI 504 Siliciclastic Depositional Systems [<u>3 credit hours</u>]
- ESCI 506 Carbonate Depositional Systems [3 credit hours]
- ESCI 540 Earth's Atmosphere [3 credit hours]
- ESCI 552 Marine Geology Systems [3 credit hours]
- PHYS 201 Waves and Optics [<u>3 credit hours</u>]
- PHYS 231 Elementary Physics Lab II [1 credit hour]

SELF-DESIGNED SPECIALIZATION

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 one 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 18 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 third year.

Electives

To fulfill the Electives requirement for the Self-Designed Specialization, students must complete 9 courses (27 credit hours) as

listed below.

Earth Science Field Experience

Students must complete the following course:

ESCI 391 Earth Science Field Experience [at least 3 credit hours]

Self-Designed Electives

Students must complete 2 courses (6 credit hours) from the following:

- BIOC 201 Introductory Biology [3 credit hours]
- CAAM 210 Introduction to Engineering Computation [<u>3 credit hours</u>]
- CHEM 311 Physical Chemistry I [3 credit hours]
- CHEM 312 Physical Chemistry II [3 credit hours]
- COMP 110/NSCI 230 Computation in Natural Science [3 credit hours]
- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours]
- MATH 212 Multivariable Calculus [<u>3 credit hours</u>]
- PHYS 201 Waves and Optics [3 credit hours]

Directed Electives in Self-Designed Specialization

Students must complete a total of 6 courses (18 credit hours) at the 300-level or higher targeting a coherent theme selected with the approval of the department's undergraduate advisor.

back to menu

Program Learning Outcomes for the BA Degree with a Major in Earth Science

Upon completing the BA degree, students majoring in Earth Science will be able to:

- 1. Understand the structure and composition of the Earth and Planets, their evolution, and changing the Earth today.
- 2. Learn basic field geological measurements and recording.

Requirements for the BA Degree with a Major in Earth Science

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Earth Science (ESCI) must complete:

- A minimum of 24 courses (61 credit hours) to satisfy major requirements.
- A minimum of 121 credit hours to satisfy degree requirements.

CORE REQUIREMENTS

Students must complete a total of 12 courses (37 credit hours) as listed below to satisfy the Earth Science major requirements.

- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [3 credit hours]
- CHEM 121 General Chemistry / [<u>3 credit hours</u>] and CHEM 123 General Chemistry Lab / [<u>1 credit hour</u>]
 or CHEM 151 Honors Chem. / [<u>3 credit hours</u>] and CHEM 153 Honors Chem. Lab / [<u>1 credit hour</u>]
- CHEM 122 General Chemistry II [<u>3 credit hours</u>] and CHEM 124 General Chemistry Lab II [<u>1 credit hour</u>] or CHEM 152 Honors Chem. II [<u>3 credit hours</u>] and CHEM 154 Honors Chem. Lab II [<u>1 credit hour</u>]
- ESCI 301 Introduction to the Earth [4 credit hours]
- ESCI 321 Earth System Evolution and Cycles [4 credit hours]
- ESCI 322 Earth Chemistry and Materials [<u>4 credit hours</u>]
- ESCI 323 Earth Structure and Deformation [4 credit hours]
- ESCI 324 Earth's Interior [4 credit hours]
- ESCI 334 Geological Techniques [<u>3 credit hours</u>]

ELECTIVES

To fulfill the remaining Earth Science major requirements, students must complete a total of 8 courses (24 credit hours) as listed below.

Directed Electives in Fields Outside Earth Science

Students must complete a total of 2-4 courses (minimum of 6 credit hours) depending on course selection from either Group A or Group B:

Group A

Students must complete 2-4 courses (6-8 credit hours) from one course combination (represented in each bullet point) listed below:

- BIOC 201 Introductory Biology / [3 credit hours] and EBIO 202 Introductory Biology II [3 credit hours]
- PHYS 101 Mechanics (with Lab) [4 credit hours] and PHYS 103 Mechanics with Lab Discussion [0 credit] and PHYS 102 Electricity and Magnetism (with Lab) [4 credit hours] and PHYS 104 E & M Discussion [0 credit]
- PHYS 125 General Physics I (with Lab) [4 credit hours] and PHYS 126 General Physics II (with Lab) [4 credit hours]

Group B

Students must complete 2-4 courses (6-8 credit hours) from two course combinations (represented in each bullet point) listed below:

- PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics with Lab Discussion or PHYS 125 General Physics I (with Lab) [<u>4 credit hours</u>]
 - or PHYS 102 *Electricity and Magnetism (with Lab)* [<u>4 credit hours</u>] and PHYS 104 *E* & *M Discussion* [<u>0 credit</u>] or PHYS 126 *General Physics II (with Lab)* [<u>4 credit hours</u>]
- BIOC 211 Experimental Biosciences [2 credit hours] and EBIO 213 Biology Lab Modules [2 credit hours]
- MATH 211 Differential Equations [<u>3 credit hours</u>]
- COMP 110/NSCI 230 Computation in Natural Science [<u>3 credit hours</u>]
 or CAAM 210 Introduction to Engineering Computation [<u>3 credit hours</u>]

Directed Electives in Earth Science

Students must complete a total of 4 additional courses (12 credit hours) from departmental (ESCI) course offerings at the 300-level or above.

Directed Electives in Natural Science and Engineering

Students must complete a total of 2 courses (6 credit hours) from Natural Science or Engineering course offerings at the 200level or above. Courses must be 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. This can also be carried out as part of the Earth Science Honors Thesis Program.

Honors Research

Undergraduates are encouraged to embark on an undergraduate honors thesis. The purpose of the honors thesis is for students to develop and demonstrate their creative and independent research potential. Students are recommended to begin in the fall of their junior year to provide ample time for research projects to be developed, executed and written. Students are expected to enroll in at least two semesters of the course ESCI 481 Undergraduate Research in Earth Science, spanning their senior year. Juniors who have identified a research project and mentor can also enroll in ESCI 481. Students should sign up for ESCI 481 for 3 credits.

Criteria for participating in undergraduate honors thesis research

- Strong performance in ESCI courses, in particular, ESCI 321, 322, 323, 324, and 334
- A grade of A- or better in ESCI 481 Undergraduate Research in Earth Science
- Letter of recommendation of a faculty research mentor
- Research proposal

Requirements for completing an undergraduate honors thesis

Spring semester of junior year:

Each honors thesis candidate should choose a research topic, identify a faculty research adviser, and initiate independent research. The student should select a thesis committee, consisting of a faculty advisor, one member of the honors thesis committee, and one other faculty member of their choosing. Candidates are expected to turn in a preliminary written proposal (2 pages) at the end of their spring semester, accompanied by a formal application, both of which will be evaluated by the honors thesis committee for consideration of acceptance into the honors thesis program in their senior year. Required courses:

- ESCI 401 Seminar: Undergraduate Honors Thesis (1 credit hour)
- ESCI 593 Seminar: Department Research (1 credit hour)

And if they have research project and mentor identified, they can also take:

- ESCI 481 Undergraduate Research in Earth Science (3 credit hours)

Fall semester of senior year:

Students accepted into the honors thesis program continue to develop and refine their proposed research in concert with their research adviser and thesis committee. Students participate in meetings with other honors thesis candidates to discuss basic research protocols and philosophies, and meet independently with their chosen scientific adviser, and generate data, experiments or models. Students will give oral presentations of their research proposals in public by mid-semester, in the presence of their examining committee. At the end of the semester, students must submit final versions of their proposals, describing motivation, hypothesis, methodology, and preliminary results. The honors thesis committee will evaluate the proposals, and if approved, students can continue in the honors thesis program. Required courses:

- ESCI 401 Seminar: Undergraduate Honors Thesis (1 credit hour)
- ESCI 481 Undergraduate Research in Earth Science (3 credit hours)
- ESCI 594 Seminar: Department Research (1 credit hour)

Spring semester of senior year:

Students continue and complete their research. A mid-semester progress report must be submitted to the thesis committee for feedback. At the end of the spring semester, students submit their final theses, and give public oral exit talks. To complete the honors thesis program, student theses must be approved by the honors thesis committee. Required courses:

- ESCI 401 Seminar: Undergraduate Honors Thesis (1 credit hour)
- ESCI 481 Undergraduate Research in Earth Science (3 credit hours)
- ESCI 593 Seminar: Department Research (1 credit hour)

Further details about the program, and expectations and criteria for the thesis proposal and final thesis can be found on the Department of Earth Science website (earthscience.rice.edu).

Application Process

Students must apply and be accepted to participate in the senior honors research program. The application form can be downloaded from Department of Earth Science website (earthscience.rice.edu), and should be submitted along with a ~two page thesis proposal at the end of the spring semester of the junior year. Students will be informed of their acceptance into the honors thesis program before the start of the following fall semester.

Other points of consideration

Students who are accepted into the 'RUSP: Rice Undergraduate Scholars Program' can substitute ESCI 481 courses for semesters 2 and 3 with HONS 470 and HONS 471. However, the students will have to meet all other requirements of the honors thesis set by the department of the honors thesis set by the department.

Other expectations, conditions, and opportunities related to carrying out an Earth Science Honors Thesis can be found on the Department of Earth Science website.

back to menu

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Earth Science undergraduate degrees and major. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: ESCI
- Department Description and Code
 - Earth Science: ESCI

Degree Description and Code

- Bachelor of Arts degree: BA
- Bachelor of Science degree: BS

Major Description and Code

- Major in Earth Science (for both the BA and BS degrees): ESCI

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SEARCH GA

Previous Editions

Course

Listings

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Earth Science >

Undergraduate Stud	lents
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The Wiess School of	Notural Salanaaa	
The wiess achool of	Natural Sciences	

Graduate Students

RICE

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Program Learning Outcomes for the MS and PhD Degrees in Earth Science

MS in Earth Science

Students graduating from this program will:

- 1. Understand the structure and composition of the Earth and Planets, their evolution, and changing the Earth today.
- 2. Use appropriate computational or analytical techniques in the conduct of research investigations.
 - 3. Demonstrate significant skills in scientific communication, written and oral.
 - 4. Develop the ability to contribute to the peer-reviewed literature.

PhD in Earth Science

Students graduating from this program will:

- 1. Understand the structure and composition of the Earth and Planets, their evolution, and changing the Earth today.
- 2. Use appropriate computational or analytical techniques in the conduct of research investigations.
- 3. Demonstrate significant skills in scientific communication, written and oral.
- 4. Demonstrate peer-reviewed literature, and to write and publish a substantial contribution.

Requirements for the MS and PhD Degrees 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, mathematics, or engineering. For general university requirements, see Graduate Degrees. 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 two years beyond the bachelor's degree to complete the MS or four to complete 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 500-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 comprised of peer-reviewed publication(s) that represent an original contribution to science .
- Defend the research and conclusions of the thesis in an oral examination

Students 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.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Earth Science graduate degree program. The following is a quick reference:

Earth Science Department Undergraduate Graduate Info **Requirements** Requirements

Department Description and Code	
- Earth Science: ESCI	
Degree Descriptions and Codes	
- Master of Science degree: MA	
 Doctor of Philosophy degree: PhD 	
Degree Program Description and Code	
- Degree Program in Earth Science: ESCI	

Rice A-Z

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Rice Home

Web Services

University Calendar

Maps-Directions Feedback

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Earth Science >

Undergraduate Students	Earth Science						
Graduate Students	The Wiess School of Natural Sciences						
Non-Traditional Students	Department	Undergraduate	Graduate	Course			
▶ Faculty	Info Course Listings	Requirements	Requirements	Listings			
Programs of Study The official course offerings, including course descriptions, for Earth Science can be found in Rice's Course Catalog.							
Administration and Faculty	To view the most recent course sch	nedule for the 2016-2017 aca	demic year, see Rice's Course	Schedule. 🗗			
Important Notices	For additional information regarding	g Earth Science, see the depa	artment's website: http://earthsc	ience.rice.edu/. 🗗			
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	Last Revised : August 24, 2016						

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Economics >

RICE

Chair Hulya Eraslan Professors Kerry Back Richard Boylan Dagobert L. Brito Bryan W. Brown James N. Brown Mahmoud El-Gamal Peter Hartley Vivian Ho Antonio Merlo Ted Loch-Temzelides Isabelle Perrigne	Undergraduate Requirements	Graduate Requirements Professors Emeriti John B. Bryant Donald L. Huddle Peter Mieszkowski Ronald Soligo Lecturers Maria Bejan Michele Biavati Amelie Carlton James DeNicco Adjunct Professors Bruce M. Lairson	Course Listings
Info Chair Hulya Eraslan Professors Kerry Back Richard Boylan Dagobert L. Brito Bryan W. Brown James N. Brown Mahmoud El-Gamal Peter Hartley Vivian Ho Antonio Merlo Ted Loch-Temzelides	Requirements	Requirements Professors Emeriti John B. Bryant Donald L. Huddle Peter Mieszkowski Ronald Soligo Lecturers Maria Bejan Michele Biavati Amelie Carlton James DeNicco Adjunct Professors	
Chair Hulya Eraslan Professors Kerry Back Richard Boylan Dagobert L. Brito Bryan W. Brown James N. Brown Mahmoud El-Gamal Peter Hartley Vivian Ho Antonio Merlo Ted Loch-Temzelides		Professors Emeriti John B. Bryant Donald L. Huddle Peter Mieszkowski Ronald Soligo Lecturers Maria Bejan Michele Biavati Amelie Carlton James DeNicco	Listings
Hulya Eraslan Professors Kerry Back Richard Boylan Dagobert L. Brito Bryan W. Brown James N. Brown Mahmoud El-Gamal Peter Hartley Vivian Ho Antonio Merlo Ted Loch-Temzelides		John B. Bryant Donald L. Huddle Peter Mieszkowski Ronald Soligo Lecturers Maria Bejan Michele Biavati Amelie Carlton James DeNicco	
Professors Kerry Back Richard Boylan Dagobert L. Brito Bryan W. Brown James N. Brown Mahmoud El-Gamal Peter Hartley Vivian Ho Antonio Merlo Ted Loch-Temzelides		Donald L. Huddle Peter Mieszkowski Ronald Soligo Lecturers Maria Bejan Michele Biavati Amelie Carlton James DeNicco	
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Ted Loch-Temzelides			
		Bruce M. Lairson	
Isabelle Perrigne			
•		John Michael Swint	
Robin C. Sickles			
Kenneth Wolpin		Adjunct Associate Professors	6
George R. Zodrow		Charles E. Begley	
		Russell Green	
Associate Professors			
Flavio Cunha		Adjunct Assistant Professors	;
Marc Peter Dudey		John Diamond	
Jeremy Fox		Kenneth Medlock	
Xun Tang			
Assistant Professors			
Rosella Calvi			
Yinghua He			
Yunmi Kong			
Mallesh Pai			
Natalia Sizova			
	Associate Professors Flavio Cunha Marc Peter Dudey Jeremy Fox Xun Tang Assistant Professors Rosella Calvi Yinghua He Yunmi Kong Mallesh Pai	Associate Professors Flavio Cunha Marc Peter Dudey Jeremy Fox Xun Tang Assistant Professors Rosella Calvi Yinghua He Yunmi Kong Mallesh Pai	Associate Professors Adjunct Assistant Professors Flavio Cunha Adjunct Assistant Professors Marc Peter Dudey John Diamond Jeremy Fox Kenneth Medlock Xun Tang Kenseth Medlock Kosella Calvi Yinghua He Yunmi Kong Mallesh Pai

Program (Undergraduate): BA degree

Programs (Graduate): MEECON degree, MA degree, PhD degree

Undergraduates may major in economics or mathematical economic analysis (but not both). The major in mathematical economic analysis is recommended for students who intend to pursue graduate work in economics or a business or governmental job in which extensive analytical and quantitative skills are required.

Please note that students are responsible for making certain that their plan of study meets all degree requirements, including the

university credit requirements and university distribution requirements specified elsewhere in the General Announcements. Major requirements are not reduced for students with multiple majors, although some courses can satisfy the requirements for more than one major.

Master of Energy Economics (MEECON) participants will be able to produce insightful analyses of energy markets to inform such things as capital asset decisions, firm strategic direction, and future market orientation.

The PhD program in economics equips students with the theoretical and empirical skills essential to entering research careers in academia, business and government.

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Economics >

Undergraduate Students

Non-Traditional Students

Administration and Faculty

Economics

Department	Undergraduate	Graduate	Course
Info	Requirements	Requirements	Listings

Jump to: BA Degree with a Major in Economics

BA Degree with a Major in Mathematical Economic Analysis

Program Learning Outcomes for the BA Degree with a Major in Economics or Mathematical Economic Analysis

Upon completing the BA degree, students majoring in Economics or Mathematical Economic Analysis will:

- 1. Develop numerous mathematical, statistical and econometric skills, including a thorough knowledge of calculus, probability and statistics, and applied econometrics (including mastering the use of statistical software packages to analyze economic data and learning how to interpret statistical results). MTEC majors will also learn the elements of multiple variable calculus, linear algebra and optimization techniques, and other mathematical techniques utilized in more technical economic analyses.
- 2. Learn the core principles of economics, including the basic concepts of microeconomics and macroeconomics such as supply and demand, utility maximization by consumers and profit maximization by firms, competitive and other market structures, market equilibrium, and analysis of the performance of the national economy.
- 3. Learn how the basic economic principles they have absorbed in our core courses are utilized in economic analyses of critical policy issues in a wide variety of applied subject areas.
- 4. Students in the capstone courses and the two-semester honors program will learn and integrate all of the steps required to conduct economic research, beginning with the framing of a research idea and progressing to a critical review and evaluation of the relevant literature, the construction of an economic model to analyze the issue under consideration, the identification of testable hypotheses, the collection of data and econometric testing of their hypotheses, the collection of data and econometric testing of their hypotheses, the presentation of preliminary and final results, and the preparation of a clear, concise, and cogent research paper that presents those results.

Requirements for the BA Degree with a Major in Economics

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Economics (ECON) must complete:

- A minimum of 14 courses (43 credit hours) to satisfy major requirements.
- A minimum of 120 hours to satisfy the degree requirements.

When students repeat courses or complete more than the minimum required number of courses, the departmental GPA will be based on the set of courses that (1) satisfies all requirements for the degree, and (2) results in the highest GPA for the student. However, when a course is taken at both Rice and another institution, the grade in the Rice course will be used for departmental GPA calculations.

CORE REQUIREMENTS

Students must complete a total of 8 courses (25 credit hours) as listed below to complete the Economics major's Core Requirements.

Mathematics and Statistics

Students must complete the following 3 courses (9 credit hours):

MATH 101 Single Variable Calculus I [3 credit hours]

The School of Social Sciences

RICE

Graduate Students

Programs of Study

Important Notices

Faculty

- or MATH 111 The Fundamental Theorem of Calculus [<u>3 credit hours</u>] and MATH 112 Calculus and Its Applications [<u>3 credit hours</u>]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- ECON 307/STAT 310 Probability and Statistics [<u>3 credit hours</u>]

Economics and Econometrics

Students must complete the following 5 courses (16 credit hours):

- ECON 100 Principles of Economics [3 credit hours]
- ECON 200 Microeconomics [<u>3 credit hours</u>]
- ECON 203 Macroeconomics [<u>3 credit hours</u>]
- ECON 209 Applied Econometrics [4 credit hours]
- ECON 300 Game Theory, and Other Micro Topics for ECON Majors [3 credit hours]

ELECTIVE REQUIREMENTS

To fulfill the remaining requirements for the Economics major, students must complete a total of 6 additional courses (18 credit hours) as electives from departmental (ECON) course offerings, including at least 3 courses (9 credit hours) at the 400-level and above.

back to menu

Requirements for the BA Degree with a Major in Mathematical Economic Analysis

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Mathematical Economic Analysis (MTEC) must complete:

- A minimum of 16 courses (49 credit hours) to satisfy the major requirements;
- A minimum of 120 credit hours to satisfy degree requirements.

When students repeat courses or complete more than the minimum required number of courses, the departmental GPA will be based on the set of courses that (1) satisfies all requirements for the degree, and (2) results in the highest GPA for the student. However, when a course is taken at both Rice and another institution, the grade in the Rice course will be used for departmental GPA calculations.

CORE REQUIREMENTS

Students must complete a total of 12 courses (37 credit hours) as listed below to satisfy the Mathematical Economic Analysis major's Core Requirements.

Mathematics and Statistics

Students must complete a total of 4 courses (12 credit hours) as listed below.

- MATH 101 Single Variable Calculus I [<u>3 credit hours</u>]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- MATH 212 Multivariable Calculus [<u>3 credit hours</u>]
 - or MATH 221 Honors Calculus III [3 credit hours] and MATH 222 Honors Calculus IV [3 credit hours]
- ECON 307/STAT 310 Probability and Statistics [3 credit hours] or STAT 410 Linear Regression [4 credit hours]

Economics

Students must complete the following 8 courses (25 credit hours):

- ECON 100 Principles of Economics [3 credit hours]
- ECON 200 Microeconomics [<u>3 credit hours</u>]
- ECON 203 Macroeconomics [3 credit hours]
- ECON 209 Applied Econometrics [4 credit hours]
- ECON 305 Game Theory, and Other Micro Topics for MTEC Majors [3 credit hours]
- ECON 308 Mathematical Economics [3 credit hours]
- ECON 310/STAT 376 Econometrics [3 credit hours]
- ECON 496 Research in Economic Theory [<u>3 credit hours</u>] or ECON 497 Research in Econometrics [<u>3 credit hours</u>]

ELECTIVE REQUIREMENTS

To fulfill the remaining Mathematical Economic Analysis major requirements, students must complete total of 4 additional courses (12 credit hours) as electives from departmental (ECON) course offerings, including at least 3 courses (9 credit

Transfer Credit

In some cases, transfer credit may be awarded for courses completed at other schools after the student has matriculated at Rice. Students may present a maximum of two such transfer courses in fulfilling the mathematics and statistics core requirements and a maximum of three such transfer courses in fulfilling the economics core requirements and elective requirements combined. (Additional transfer courses may count toward meeting university graduation requirements, but not toward fulfillment of requirements for the major.) Credits awarded to transfer students for courses taken prior to matriculation at Rice are not counted against the limit on transfer courses, but all students must complete more than half of their upper-level major work (300-level and 400-level courses) at Rice. For additional information on transfer credits, consult the economics department website.

Requirements for Departmental Honors

- 1. To earn departmental honors in economics, students must earn a grade of B+ or better in the department's two-semester honors program, ECON 498/499.
- 2. The honors program is available to both ECON and MTEC majors.
- 3. To be admitted to the honors program, students (a) must have a GPA of 3.67 or better in all courses taken toward fulfilling their departmental major requirements at the beginning of the academic year in which they enter the honors program; (b) must have completed all of the core requirements for their major; (c) must have completed the 400-level course or courses most closely related to their area of research, and (d) must be accepted to the honors program by the professor supervising the program.
- 4. For additional information on the honors program, consult the economics department website.

back to menu

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Economics degree and majors. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: ECON
- Department Description and Code
 - Economics: ECON
- Degree Description and Code
- Bachelor of Arts degree: BA
- Major Descriptions and Codes
- Major in Economics: ECON
- Major in Mathematical Economic Analysis: MTEC

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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Economics >

Undergraduate Students

RICE

Economics

The School of Social Sciences

Department Undergraduate Graduate Course Info **Requirements** Requirements Listings Jump to: MA and PhD Degrees in Economics Master of Energy Economics Degree

Program Learning Outcomes for the MA and PhD Degrees in Economics

Students graduating from this program will:

- 1. Learn mathematical, statistical, econometric and computational tools to carry out independent research in economics.
- 2. Write an independent and original dissertation that is of sufficient quality to merit publication in a top economics journal.
- 3. Conduct a focused review of the literature and develop a research design to carry out independent research.
- 4. Learn to defend their research design and modeling choices by presenting their paper in a seminar environment.
- 5. Communicate their research effectively by writing clearly, concisely and cogently.
- 6. Read critically and assess research manuscripts related to their field of study and in other fields.

Requirements for the MA and PhD Degrees in Economics

Preparation for PhD Program. Applicants to the PhD program should have a strong background in mathematics and statistics. All applicants are required to take the Graduate Record Exam (GRE).

Requirements. For general university requirements, see Graduate Degrees. Candidates for the PhD usually spend from two to two and a half years in full-time course work and at least one year writing the dissertation; five years is a reasonable goal for completing the program. For the PhD, students must:

- 1. Attend the statistics and mathematics camp before starting their first year courses.
- 2. Complete an approved program of at least eighteen courses (including approved courses in other departments) no more than four of which are research workshops. At least two years of full-time study must be in residence at Rice.
- 3. Perform satisfactorily on the written general exams in economic theory and econometrics.
- 4. Write a research paper proposal before the start of their third year.
- 5. Write and present a research paper before the end of their third year.
- 6. Choose a dissertation advisor by the end of their seventh semester.
- 7. Attend a research workshop every semester after their first year and present own research in a workshop once every year after their second year.
- 8. Submit a written progress report in every semester they register for ECON 800 Graduate Research.
- 9. Submit a dissertation progress report every year starting with their fourth year.

Although students are not normally admitted to study for an MA, graduate students may earn the MA along the way to the PhD. In order to obtain a Master's Degree in Economics, a student must pass the first year core courses with an average of 2.67 or better, and complete six field courses with any passing grade.

Program Learning Outcomes for the Major Concentration: Economics and Finance

Students completing the Economics and Finance major concentration as part of the PhD degree program in Economics will be able to:

1. Learn mathematical, statistical, econometric, and computational tools to carry out independent research in economics and finance.

01/03/2017

Graduate Students

Non-Traditional Students

Administration and Faculty

Faculty

Programs of Study

Important Notices

- Write an independent and original dissertation that is of sufficient quality to merit publication in a top economics or finance iournal.
- 3. Conduct a focused review of the literature and develop a research design to carry out independent research.
- 4. Learn to defend their research design and modeling choices by presenting their paper in a seminar environment.
 - 5. Communicate their research effectively by writing clearly, concisely, and cogently.
 - 6. Read critically and assess research manuscripts related to their field of study and in other fields.

Requirements for the Major Concentration: Economics and Finance

Students pursuing the PhD degree program in Economics, with the major concentration in Economics and Finance must:

- 1. Achieve a 3.0 in required courses, including Microeconomics, Macroeconomics, Econometrics, Real Analysis, Computational Economics, and Financial Economics.
- 2. Successfully pass comprehensive exams in Economic Theory and Econometrics administered by the Economics faculty at the end of the first year.
- 3. Successfully complete Corporate Finance and Empirical Methods in Finance.
- Successfully complete 6 credit hours from the following courses: BUSI 524, BUSI 525, BUSI 526, BUSI 527, and ECON 575.
- 5. Successfully pass a comprehensive exam on Corporate Finance and Empirical Methods administered by the Finance faculty at the end of the Fall semester of the second year.
- 6. Write and present a paper in the third year of the program. The paper and its presentation must be approved by two faculty advisors, one of whom must be in the Economics department and one of whom must be a member of the Finance group in the Business school.
- 7. Write and defend a dissertation. The dissertation committee must include at least one member from the Economics department and at least one member from the Finance group in the Business School.

COURSEWORK REQUIREMENTS FOR THE MAJOR CONCENTRATION: ECONOMICS AND FINANCE

To complete the requirements listed above for the major concentration in Economics and Finance, students must complete 12 courses (33-34.5 credit hours) as listed below.

REQUIRED COURSES

Students must successfully the following 10 courses (30 credit hours) from the following with at least a 3.0 GPA:

- ECON 501 Microeconomics I [3 credit hours]
- ECON 502 Macroeconomics [<u>3 credit hours</u>]
- ECON 504/STAT 604 Computational Economics [<u>3 credit hours</u>]
- ECON 505/BUSI 521 Financial Economics I [<u>3 credit hours</u>]
- ECON 508 Microeconomics II [<u>5 credit hours</u>]
- ECON 510/STAT 610 Econometrics I [<u>3 credit hours</u>]
- ECON 511/STAT 611 Econometrics II [<u>3 credit hours</u>]
- MATH 321 Introduction to Analysis I [<u>3 credit hours</u>]
- BUSI 522 Corporate Finance [<u>3 credit hours</u>]
- BUSI 523 Empirical Methods in Finance [<u>3 credit hours</u>]

ELECTIVES

Students must successfully complete 3-4 courses (minimum of 6 credit hours) from the following:

- BUSI 524 Finance: Special Topics I [1.5 credit hours]
- BUSI 525 Finance: Special Topics II [<u>1.5 credit hours</u>]
- BUSI 526 Finance: Special Topics III [1.5 credit hours]
- BUSI 527 Finance: Special Topics IV[<u>1.5 credit hours</u>]
- ECON 575 Topics in Financial Economics [<u>3 credit hours</u>]

Requirements for the PhD Degree in Economics with an MA Degree in Statistics

Students pursuing the PhD Degree in Economics and the MA Degree with coordinated work in Statistics work must complete:

- 5 courses from departmental (ECON or BUSI) course offerings that have a strong statistics content.
- 5 courses from departmental (STAT) course offerings that are significantly different in content to courses in economics.
 Must include Advanced Statistical Methods and Multivariate Statistics
- Qualifier in Econometrics at the comparable level of an MA degree in Statistics.
- A major project this may directed by economics faculty, but must have strong statistical content. The doctoral proposal in

economics can count toward this requirement.

Courses that are joint listed (cross-listed) between the two departments are counted towards the number of courses in the "home" department for the particular course.

Requirements for the PhD Degree in Statistics with an MA in Economics

Students pursuing the PhD Degree in Statistics and the MA Degree with coordinated work in Economics must complete:

- 5 courses from departmental (ECON) course offerings comprising:
 - ECON 501 Microeconomics I [3 credit hours]
 - ECON 502 Macroeconomics [<u>3 credit hours</u>]
 - ECON 505/BUSI 521 Financial Economics I [<u>3 credit hours</u>] or ECON 504/STAT 604 Computational Economics [<u>3 credit hours</u>]
 - ECON 508 Microeconomics II [5 credit hours]
 - ECON 511/STAT 611 Econometrics II [3 credit hours]
- 5 courses from departmental (STAT) course offerings.
- Qualifier in Statistics at the comparable level of a field examination form the MA degree in Economics.
- A major project this may be directed by statistics faculty, but must have strong econometrics content. The doctoral proposal in statistics can count toward this requirement.

Courses that are joint listed (cross-listed) between the two departments are counted towards the number of courses in the "home" department for the particular course.

back to menu

Program Learning Outcomes for the Master of Energy Economics Degree (MEECON)

Upon completing the MEECON degree, students will:

- 1. Understand basic economic and statistical principles useful for analyzing and understanding commercial and other influences on energy markets.
- 2. Know important details about the energy industry including relevant basic scientific, economic, and political factors that shape the sector.
- 3. Appreciate how to combine the basic principles with specific knowledge to gain valuable insights into issues affecting the energy sector.
- 4. Develop quantitative skills to better utilize data to inform strategic decisions.
- 5. Be better able to communicate insights arising from the economics perspective on issues affecting the energy sector.
- Make more informed decisions on such things as the capital budgeting or strategic decisions of energy firms, or future energy market developments.
- Be better able to critically assess suggestions from others about how best to handle challenges affecting the energy sector.
- 8. Obtain insights into commercially-oriented analysis through internships.

Requirements for the Master of Energy Economics Degree (MEECON)

For general university requirements for graduate study, see Graduate Degrees. The professional masters degree Master of Energy program requires students to complete 40 credit hours in 12 months, organized in four sessions. Sessions I and II correspond to the Fall and Spring semester, respectively, and follow the standard Rice academic calendar. Sessions III and IV are two consecutive 7-week long sessions that take place during the summer.

SESSION I (FALL SEMESTER)

Students must complete the following 3 courses (12 credit hours):

- ECON 601 Energy Economics / [4 credit hours]
- ECON 602 Microeconomics of the Energy Sector [4 credit hours]
- ECON 603 Applied Econometrics for Energy Markets [4 credit hours]

SESSION II (SPRING SEMESTER)

Students must complete 3 courses (12 credit hours) as listed below.

- ECON 604 Energy Economics II [4 credit hours]
- Elective*
- Elective*

SESSION III (SUMMER I)

Students must complete 3 courses (12 credit hours) as listed below.

- Elective*
- Elective*
- Elective*

SESSION IV (SUMMER II)

Students must complete 4 credit hours from the following:

ECON 699 Internship – Energy Economics [4 credit hours]

*ELECTIVES

Students must complete a total of 5 courses as electives from department (ECON) course offerings between ECON 605 and ECON 622.

All courses (including required courses and electives) are graduate-level. An internship is required in the Summer II session for completion of the MEECON professional masters. The internship will provide students with practical experience relative to the degree. In addition, the internships provide prospective employers with an opportunity to effectively evaluate new talent. The internship is meant to last 7 weeks and should be directly related to the student's core area of study in the MEECON degree program. It is recognized that some students may have previous professional experience in their area of study, and that their employer may be able to fulfill the internship requirement by working on a special project with their current employer.

Information on admission to the MEECON program is available on the Economics website A. For general university requirements, see Graduate Degrees and Admission to Graduate Study.

back to menu

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Economics graduate degree programs. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: ECON
- Department Description and Code
- Economics: ECON
- Degree Descriptions and Codes
 - Master of Energy Economics degree: MEECON
 - Master of Arts degree: MA
 - Doctor of Philosophy degree: PhD
- Degree Program Description and Code
 - Degree Program in Energy Economics: ENEC
 - Degree Program in Economics: ECON

Last Revised : August 18, 2016

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Web Services

University Calendar Rice A-Z

Maps-Directions Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Economics >

Undergraduate Students	Economics						
Graduate Students	The School of Social Sc	iences					
Non-Traditional Students	Department	Undergraduate	Graduate	Course			
▶ Faculty	Info Course Listings	Requirements	Requirements	Listings			
Programs of Study		The official course offerings, including course descriptions, for Economics can be found in Rice's Course Catalog.					
Administration and Faculty	To view the most recent course sch	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.					
Important Notices	For additional information regarding	For additional information regarding Economics, see the department's website: http://economics.rice.edu/.					
	-						
	Last Revised : August 24, 2016						

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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

SEARCH GA

Previous Editions

Course

Graduate

GENERAL ANNOUNCEMENTS 2016-2017

Department

2016-2017 > Programs of Study > Electrical and Computer Engineering >

Undergraduate Students

RICE

Electrical and Computer Engineering

Undergraduate

The George R. Brown School of Engineering

۶.	Grad	uate	Stude	ents	

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department	Undergraduate	Graduate	Course
Info	Requirements	Requirements	Listings
Chair	I	_ecturers	
Edward W. Knightly		Osama Mawlawi	
		Gary Tim Noe	
Professors		Deepa Ramachandran	
Behnaam Aazhang		James B. Sinclair	
Athanasios C. Antoul	as		
Richard G. Baraniuk		Faculty Fellows	
Joseph R. Cavallaro	,	/olkan Cevher	
John W. Clark Jr.	I	Rajind Mendis	
Naomi J. Halas			
Junichiro Kono		Adjunct Faculty	
Michael Orchard		Dora Angelaki	
Ashutosh Sabharwal		Vichael Brogioli	
Frank K. Tittel		John Byrne	
Peter J. Varman		Anand Dabak	
Lin Zhong	(Clifford Dacso	
0	(Christopher Dick	
Associate Professo	rs	David Eagleman	
Kevin Kelly		Henry Everitt	
-		- Fabrizio Gabbiani	
Assistant Professor	'S	Omer Gurewitz	
Aydin Babakhani		Amit Joshi	
Palash Bharadwaj		Markku Juntti	
Caleb Kemere	(Giridhar Kalamangalam	
Gururaj Naik		Arvind Rao Uppore Kukkillaya	
Ankit Patel		Daniel Kim	
Xaq Pitkow	•	Yehia Massoud	
Jacob Robinson		Daniel Mittleman	
François St-Pierre		Theodora Dorina Papageorgio	u
Isabell Thomann		Shivkumar Sabesan	
Ashok Veeraraghava	n ,	Aswin Sankaranarayanan	
Ũ		Stephan Schwanauer	
Professors Emeriti		Steve Sheafor	
C. Sidney Burrus		Harel Z. Shouval	
Don H. Johnson		Christoph Studer	
James F. Young		Nitin Tandon	
2		Andreas Tolias	
Professors in the Pr	ractice	/enu Vasudevan	
Gene Frantz			
Ray Simar, Jr.			
Gary Woods			
-			

Programs (Undergraduate): BA degree, BSEE degree

Programs (Graduate): MEE degree, MS degree, PhD degree

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 the areas of Computer Engineering; Data Science; Neuroengineering; Photonics, Electronics, and Nano-devices; and Systems. Computer Engineering topics include: computer architecture, high performance application specific systems, mobile and embedded systems, integrated circuits and antennas for medical imaging and bio-sensing, and parallel I/O for large-scale network storage systems. Data Science topics include: data acquisition, data analytics, data storage, and computing infrastructure. Neuroengineering topics and Nano-devices topics include: nanophotonics/nanospectroscopy, molecular electronics, biophotonics, ultrafast optics and optoelectronics, materials for energy, semiconductor optics and devices, multispectral imaging and terahertz imaging, and condensed matter physics/materials science. Systems topics include: communications systems, dynamical systems and computation, networks, signal and image processing, wireless networking, pattern recognition, scalable personal healthcare, and computational neuroscience and neuroengineering. The latest information on the department's faculty, research areas, and degree programs and requirements can be found on the ECE website 🚱.

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Web Services

University Calendar

Maps-Directions

Rice A-Z

Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Electrical and Computer Engineering >

Undergraduate Stude	nts
---------------------	-----

Electrical and Computer Engineering

- Graduate Students
- Non-Traditional Students
- Faculty

Programs of Study

- Administration and Faculty
- Important Notices

The George R. Brown School of Engineering

	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings		
Jump to:						
BSEE Degree with a Major in Electrical Engineering						
BA De	egree with a Major in Electri	cal Engineering				

Program Learning Outcomes for the Bachelor of Science in Electrical Engineering Degree (BSEE)

Upon completing the BSEE degree, students majoring in Electrical Engineering will demonstrate:

- 1. An ability to apply knowledge of mathematics, science, and engineering.
- 2. An ability to design and conduct experiments, as well as to analyze and interpret data.
- 3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- 4. An ability to function on multi-disciplinary teams.
- 5. An ability to identify, formulate, and solve engineering problems.
- 6. An understanding of professional and ethical responsibility.
- 7. An ability to communicate effectively.
- 8. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- 9. A recognition of the need for, and an ability to engage in life-long learning.
- 10. A knowledge of contemporary issues.
- 11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Program Educational Objectives

The faculty of the Electrical and Computer Engineering Department strives to provide high quality degree programs that emphasize fundamental principles, that respond to the changing demands and opportunities of technology, that challenge the exceptional abilities of Rice students, and that prepare these students for roles of leadership in their chosen careers. In support of this goal, the Electrical and Computer Engineering Department's objectives are to graduate students who:

- 1. Practice Electrical and Computer Engineering, and related fields, and/or obtain an advanced degree in Electrical and Computer Engineering, and related fields.
- 2. Use mathematical modeling and problem solving skills in Electrical and Computer Engineering and other technical applications.
- 3. Analyze, incorporate, and adapt to new technical and scientific developments.
- 4. Assume increasing professional responsibility and enhance communication and teamwork abilities.

Requirements for the BSEE Degree with a Major in Electrical Engineering

For general university requirements, see Graduation Requirements. Students pursuing the BSEE degree with a major in Electrical Engineering (ELEG) must complete:

- A minimum of 29-31 courses (85 credit hours) to satisfy major requirements.
- A minimum of 134 credit hours to satisfy degree requirements.
- The requirements for one area of specialization.

Planning sheets and degree plan forms can be found on the Electrical and Computer Engineering and



Electrical and Computer Engineering undergraduate degrees are organized around a core of required courses and a selection of elective courses from five areas of specialization:

- Computer Engineering: provides a broad background in computer systems engineering, including computer architecture, digital hardware engineering, software engineering, and computer systems performance analysis.
- Data Science: integrates the foundations, tools and techniques involving data acquisition, data analytics, data storage and computing infrastructure in order to enable meaningful extraction of actionable information from diverse and potentially massive data sources.
- Neuroengineering: exploits engineering techniques to understand, repair, manipulate, or treat the diseases of human neural systems and networks.
- Photonics, Electronics, and Nano-devices: encompasses studies of electronic materials, including nanomaterials, semiconductor and optoelectronic devices, lasers and their applications.
- Systems: Control, Communication, and Signal Processing: focuses on wireless communication systems, digital signal
 processing, image processing, and networking.

The specialization electives provide the flexibility to create a focus that crosses traditional areas.

The program leading to the BSEE degree is accredited by the EAC of ABET, (ABET, Inc, 415 North Charles Street, Baltimore, MD 21202-4012, Phone: 410-347-7700, Email: eac@abet.org, Website: www.abet.org). The BSEE degree is the usual degree taken by those students planning a career in engineering practice. The program for the BSEE requires more hours and greater depth than the BA degree; however, it still provides considerable flexibility and can reduce the time required to become a licensed professional engineer. In the final year, BSEE students undertake a capstone design project. Both degrees are organized around a core of required courses and a selection of elective courses from five areas of specialization: Computer Engineering; Data Science; Neuroengineering; Photonics Electronics, and Nano-devices; and Systems: Control, Communication and Signal Processing. Each student's program must contain a course sequence that provides depth in one area and courses from at least two areas to provide breadth. The specialization electives provide the flexibility to create a focus that crosses traditional areas. Because of the number of options, students should consult early with departmental advisors to plan a program that meets their needs.

Students considering a major offered by Electrical and Computer Engineering should take physics (PHYS 101, 102) and calculus (MATH 101, 102) in their freshman year, along with CHEM 121 and COMP 140. The first core courses in the department, ELEC 220, ELEC 241 (lecture) with ELEC 240 (lab), and ELEC 261 are usually taken during the sophomore year, along with more math and science. A course can satisfy only one program requirement. Students entering with advanced placement have more scheduling options and may take some of these core courses in freshman year. Students who place out of required courses without transcript credit must substitute other approved courses in the same area. Students should consult with one of the department's undergraduate advisors in these situations.

CORE REQUIREMENTS

Students must complete 18-20 courses (58 credit hours) as listed below to satisfy the Electrical and Computer Engineering major's Core Requirements for the BSEE degree.

Mathematics and Science Courses

Students must complete a total of 10-12 courses (30 credit hours) depending on course selection as listed below.

- CHEM 121 General Chemistry / [3 credit hours] and CHEM 123 General Chemistry Lab / [1 credit hour]
- ELEC 261 Electronic Materials and Quantum Devices [3 credit hours]
- ELEC 303 Random Signals [<u>3 credit hours</u>]
- MATH 101 Single Variable Calculus I [<u>3 credit hours</u>]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- MATH 212 Multivariable Calculus [<u>3 credit hours</u>]
 - or MATH 221 Honors Calculus III [3 credit hours]
- MATH 355 Linear Algebra [3 credit hours]
 - or CAAM 335 Matrix Analysis [3 credit hours]
- PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>]
 or PHYS 111 Mechanics (with Lab) [<u>4 credit hours</u>]
- PHYS 102 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>] and PHYS 104 E & M Discussion [<u>0 credit</u>] or PHYS 112 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>]

Approved Electives in Mathematics and Science

Students must complete 1 additional math or science course (3 credit hours). The following are typically approved courses:

- BIOC 201 Introductory Biology [<u>3 credit hours</u>]
- CAAM 336 Differentiated Equations in Science and Engineering [3 credit hours]

CAAM 378 Introduction to O.R. and Optimization [3 credit hours]

- CHEM 122 Gen. Chemistry II [3 credit hours] and CHEM 124 Gen. Chemistry Lab. II [1 credit hour]
- MATH 211 Ordinary Differential Equations [<u>3 credit hours</u>]
- MATH 222 Honors Calculus IV [<u>3 credit hours</u>]

Electrical and Computer Engineering (ECE) Core Courses

Students must complete the following 8 courses (21 credit hours):

- ELEC 220 Fundamentals of Computer Engineering [4 credit hours]
- ELEC 241 Fund. of Electrical Engineering I [3 credit hours] and ELEC 240 Fund. of EE I Lab [1 credit hour]
- ELEC 242 Fund. of Electrical Engineering II [<u>3 credit hours</u>] and ELEC 244 Fund. EE II Lab [<u>1 credit hour</u>]
- ELEC 301 Introduction to Signals [3 credit hours]
- ELEC 305 Introduction to Physical Electronics [<u>3 credit hours</u>]
- ELEC 326/COMP 326 Digital Logic Design [3 credit hours]

Computation Course

Students must complete the following course:

COMP 140 Computational Thinking [4 credit hours]

DESIGN REQUIREMENTS

Students pursuing the BSEE degree must complete a design sequence of 3 courses (9 credit hours) taken during their junior and senior years.

Design Laboratory

In the junior year, students must complete 1 of the approved Design Laboratory courses (3 credit hours) based on their specialization area:

- ELEC 327 Implementation of Digital Systems [<u>3 credit hours</u>] (for Computer Engineering, Data Science, or Neuroengineering specializations)
- ELEC 332 Electronic Systems Principles and Practice [3 credit hours] (for Data Science, Neuroengineering or Systems specializations)
- ELEC 364 Photonics Measurements: Principles and Practice [3 credit hours] (for Photonics, Electronics, and Nanodevices specializations)

Note: The required Design Laboratory does not count as a specialization course. If the Design Laboratory requirement (ELEC 327, 332, or 364) is satisfied with the lab in the student's chosen specialization area, then the student takes 3 of 6 courses in his/her chosen major area; however, if the Design Laboratory requirement is satisfied with the lab in the student's minor area, then it is recommended that the student take 4 of 6 courses in his/her chosen major specialization area. It is important to consult a departmental advisor in this situation or if interested in taking a second Design Laboratory course.

Design

Students must complete the following course (3 credit hours) during both the fall and spring semesters of their senior year. Within the senior design sequence, professional issues and project management for electrical engineers provides instruction in professional engineering topics and the nontechnical aspects of the design process, including ethics, design methodology, project planning, technical presentations, and documentation. Both semesters of the senior year are devoted to the team design project using the resources of the Oshman Engineering Design Kitchen (OEDK) through the ELEC 494 Senior Design course. In the fall semester of the senior year, students finalize their project topics in coordination with the faculty and begin the design project. In the spring semester, students continue in the laboratory to complete their design project. Several presentations and design contests within the ECE department and the School of Engineering occur in the spring in which to showcase the projects.

ELEC 494 Senior Design [3 credit hours, 2 semesters required]

AREAS OF SPECIALIZATION

Students must complete a total of 6 courses (minimum of 18 credit hours) from at least two areas of specialization offered within the BSEE degree program, including at least 3 courses from one area of specialization. Also, ELEC graduate courses in the 500-level series may be used to satisfy specialization area requirements with permission. Consult departmental advisors and the Electrical and Computer Engineering of for the latest information.

Computer Engineering

Students pursuing the Computer Engineering specialization must complete a total of 3 courses from the following, and an additional 3 courses from the other areas of specialization.

ELEC 323/COMP 322 Principles of Parallel Programming [4 credit hours]

- ELEC 342 Analog Electronic Circuits [3 credit hours]
- ELEC 345/COMP 345 Introduction to Computer Vision [3 credit hours]
- ELEC 419/BIOE 419 Innovation Lab for Mobile Health [<u>3 credit hours</u>]
- ELEC 421/COMP 421 Operating Systems and Concurrent Programming [4 credit hours]
- ELEC 422 VLSI Systems Design [<u>3 credit hours</u>]
- ELEC 424/COMP 424 Mobile and Embedded System Design and Application [4 credit hours]
- ELEC 425/COMP 425 Computer Systems Architecture [4 credit hours]
- ELEC 427 Advanced Digital Hardware Design, Implementation, and Optimization [3 credit hours]
- ELEC 429/COMP 429 Introduction to Computer Networks [4 credit hours]
- ELEC 446/COMP 446 Mobile Device Applications Project [4 credit hours]
- COMP 321 Introduction to Computer Systems [4 credit hours]
- COMP 382 Reasoning about Algorithms [4 credit hours]
- COMP 430 Introduction to Database Systems [4 credit hours]

Note: The sequence of COMP 140, COMP 182, and COMP 215 is recommended in addition for the Computer Engineering specialization as these courses are prerequisites for many of the Computer Science courses.

Data Science

Students pursuing the Data Science specialization must complete a total of 3 courses from the following, and an additional 3 courses from the other areas of specialization.

- ELEC 345/COMP 345 Introduction to Computer Vision [3 credit hours]
- ELEC 424 Mobile & Embedded System Design and Application [4 credit hours]
- ELEC 425/COMP 425 Computer Systems Architecture [4 credit hours]
- ELEC 427 Advanced Digital Hardware Design, Implementation, and Optimization [3 credit hours]
- ELEC 431 Digital Signal Processing [<u>3 credit hours</u>]
- ELEC 475 Learning from Sensor Data [3 credit hours]
- ELEC 480/BIOE 480 Introduction to Neuroengineering [3 credit hours]
- ELEC 488/CAAM 415/NEUR 415 Theoret. Neuroscience: From Cells to Learning Systems [3 credit hours]
- ELEC 489/CAAM 416/NEUR 416 Theoret. Neuroscience: Networks and Learning [3 credit hours]
- COMP 330 Tools and Models for Data Science [3 credit hours]
- STAT 444 Data Mining and Statistical Learning [3 credit hours]

Neuroengineering

Students pursuing the Neuroengineering specialization must complete a total of 3 courses from the following, and an additional 3 courses from the other areas of specialization.

- ELEC 342 Analog Electronic Circuits [3 credit hours]
- ELEC 345 Introduction to Computer Vision [3 credit hours]
- ELEC 381/BIOE 381 Fundamentals of Nerve and Muscle Electrophysiology [3 credit hours]
- ELEC 431 Digital Signal Processing [<u>3 credit hours</u>]
- ELEC 480/BIOE 480 Introduction to Neuroengineering [3 credit hours]
- ELEC 481/BIOE 481/NEUR 481 Computational Neuroscience and Neural Engineering [3 credit hours]
- ELEC 482/BIOE 482 Physiological Control Systems [3 credit hours]
- ELEC 485/BIOE 485/COMP 485 Fundamentals of Medical Imaging I [3 credit hours]
- ELEC 486/BIOE 486/COMP 486 Fundamentals of Medical Imaging II [3 credit hours]
- ELEC 488/CAAM 415/NEUR 415 Theoret. Neuroscience: From Cells to Learning Systems [<u>3 credit hours</u>]
- ELEC 489/CAAM 416/NEUR 416 Theoret. Neuroscience: Networks and Learning [3 credit hours]

Photonics, Electronics, and Nano-Devices

Students pursuing the Photonics, Electronics, and Nano-Devices specialization must complete a total of 3 courses from the following, and an additional 3 courses from the other areas of specialization.

- ELEC 262 Introduction to Waves and Photonics [3 credit hours]
- ELEC 306 Applied Electromagnetics [3 credit hours]
- or PHYS 302 Intermediate Electrodynamics [<u>4 credit hours</u>]
 ELEC 342 Analog Electronic Circuits [<u>3 credit hours</u>]
- ELEC 361 Quantum Mechanics for Engineers [<u>3 credit hours</u>]
- or PHYS 311 Introduction to Quantum Physics [<u>3 credit hours</u>]
- ELEC 365/MSNE 365 Nanomaterials for Energy [<u>3 credit hours</u>]
- ELEC 462 Optoelectronic Devices [<u>3 credit hours</u>]
- PHYS 412 Solid State Physics [<u>3 credit hours</u>]
- PHYS 416 Computational Physics [<u>3 credit hours</u>]

Systems: Communications, Control, Networks, and Signal Processing

Students pursuing the Systems: Communications, Control, Networks, and Signal Processing specialization must complete a total of 3 courses from the following, and an additional 3 courses from the other areas of specialization:

- ELEC 302 Introduction to Systems [3 credit hours]
- ELEC 306 Applied Electromagnetics [<u>3 credit hours</u>]
- ELEC 345 Introduction to Computer Vision [3 credit hours]
- ELEC 430 Digital Communication [3 credit hours]
- ELEC 431 Digital Signal Processing [3 credit hours]
- ELEC 433 Architecture for Wireless Communications [3 credit hours]
- ELEC 435/MECH 435 Electromechanical Devices and Systems [3 credit hours]
- ELEC 436/MECH 420 Fundamentals of Control Systems [3 credit hours]
- ELEC 437 Introduction to Communication Networks [3 credit hours]
- ELEC 438 Wireless Networking for Under-Resourced Urban Communities [3 credit hours]
- ELEC 498/COMP 498/MECH 498 Introduction to Robotics [3 credit hours]

BSEE UNRESTRICTED ELECTIVES

Students must complete additional courses to meet the BSEE degree's minimum requirement of at least 134 semester hours.

back to menu

Program Learning Outcomes and Program Educational Objectives for the Bachelor of Arts Degree (BA) with a Major in Electrical Engineering

Upon completing the BA degree, students majoring in Electrical Engineering will be able to demonstrate similar learning outcomes as students completing the BSEE degree with the exception of outcome 4 since capstone design is not required for the BA degree. The program educational objectives for the BA degree are the same as for the BSEE degree.

Requirements for the BA Degree with a Major in Electrical Engineering

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Electrical Engineering (ELEG) must complete:

- A minimum of 21-23 courses (63 credit hours) to satisfy major requirements.
- A minimum of 123 credit hours to satisfy degree requirements.
- The requirements for one area of specialization.

The BA degree provides a basic foundation in Electrical and Computer Engineering that is highly flexible, permitting a student to tailor the program to his or her interests, be they broad or highly focused. Because of its flexibility and large number of electives, the BA can be combined easily 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 program leading to the BA Degree is not accredited by the EAC of ABET. A course can satisfy only one program requirement. Students who place out of required courses without transcript credit must substitute other approved courses in the same area.

Planning sheets and degree plan forms may be found on the Electrical and Computer Engineering de-

Electrical and Computer Engineering undergraduate degrees are organized around a core of required courses and a selection of elective courses from five areas of specialization:

- Computer Engineering: provides a broad background in computer systems engineering, including computer architecture, digital hardware engineering, software engineering, and computer systems performance analysis.
- Data Science: integrates the foundations, tools and techniques involving data acquisition, data analytics, data storage and computing infrastructure in order to enable meaningful extraction of actionable information from diverse and potentially massive data sources.
- Neuroengineering: exploits engineering techniques to understand, repair, manipulates, or treat the diseases of human neural systems and networks.
- Photonics, Electronics, and Nano-devices: encompasses studies of electronic materials, including nanomaterials, semiconductor and optoelectronic devices, lasers and their applications.
- Systems: Control, Communication, and Signal Processing: focuses on wireless communication systems, digital signal
 processing, image processing, and networking.

The specialization electives provide the flexibility to create a focus that crosses traditional areas.

CORE REQUIREMENT

Students must complete a total of 17-19 courses (51 credit hours) as listed below to satisfy the Electrical and Computer

Mathematics and Science Courses

Students must complete a total of 8-10 courses (26 credit hours) depending on course selection as listed below.

- ELEC 261 Electronic Materials and Quantum Devices [3 credit hours]
- ELEC 303 Random Signals [3 credit hours]
- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- MATH 212 Multivariable Calculus [<u>3 credit hours</u>]
- or MATH 221 Honors Calculus III [<u>3 credit hours</u>]
 MATH 355 Linear Algebra [<u>3 credit hours</u>]
- or CAAM 335 Matrix Analysis [<u>3 credit hours</u>]
- PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>] or PHYS 111 Mechanics (with Lab) [<u>4 credit hours</u>]
- PHYS 102 Electricity and Magnetism [<u>4 credit hours</u>] and PHYS 104 E & M Discussion [<u>0 credit</u>] or PHYS 112 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>]

Electrical and Computer Engineering (ECE) Core Courses

Students must complete the following 7 courses (18 credit hours):

- ELEC 220 Fundamentals of Computer Engineering [4 credit hours]
- ELEC 241 Fund. of Electrical Engineering [3 credit hours] and ELEC 240 Fund. EE | Lab [1 credit hour]
- ELEC 242 Fund. of Electrical Engineering II [<u>3 credit hours</u>] and ELEC 244 Fund. EE II Lab [<u>1 credit hour</u>]
- ELEC 305 Introduction to Physical Electronics [<u>3 credit hours</u>]
- ELEC 326/COMP 326 Digital Logic Design [3 credit hours]

Computation Course

Students must complete the following course:

COMP 140 Computational Thinking [4 credit hours]

Design Laboratory

Students must complete 1 approved design laboratory course (3 credit hours) typically based on their specialization:

- ELEC 327 Implementation of Digital Systems [<u>3 credit hours</u>] (for Computer Engineering, Data Science, or Neuroengineering specializations)
- ELEC 332 Electronic Systems Principles and Practice [<u>3 credit hours</u>] (for Data Science, Neuroengineering, or Systems specializations)
- ELEC 364 Photonics Measurements: Principles and Practice [3 credit hours] (for Photonics, Electronics, and Nanodevices specialization)

Note: The required Design Laboratory does not count as a specialization course.

AREAS OF SPECIALIZATION

Students pursuing the BA degree must complete a total of 4 courses (minimum of 12 credit hours), including at least 2 courses in one area, and courses from at least 2 areas. In addition, ELEC graduate courses in the 500-level series may be used to satisfy specialization area requirements with permission. Consult departmental advisors and the ECE website \mathbf{B} for the latest information.

Computer Engineering

Students pursuing the Computer Engineering specialization must complete a total of 2 courses from the following, and an additional 2 courses from the other areas of specialization.

- ELEC 323/COMP 322 Principles of Parallel Programming [4 credit hours]
- ELEC 342 Analog Electronic Circuits [3 credit hours]
- ELEC 345 Introduction to Computer Vision [3 credit hours]
- ELEC 419 Innovation Lab for Mobile Health [3 credit hours]
- ELEC 421/COMP 421 Operating Systems and Concurrent Programming [4 credit hours]
- ELEC 422 VLSI Systems Design [3 credit hours]
- ELEC 424/COMP 424 Mobile and Embedded System Design and Application [4 credit hours]
- ELEC 425/COMP 425 Computer Systems Architecture [4 credit hours]
- ELEC 427 Advanced Digital Hardware Design, Implementation, and Optimization [3 credit hours]
- ELEC 429/COMP 429 Introduction to Computer Networks [<u>4 credit hours</u>]

- COMP 321 Introduction to Computer Systems [4 credit hours]
- COMP 382 Reasoning about Algorithms [4 credit hours]
- COMP 430 Introduction to Database Systems [<u>4 credit hours</u>]

Note: The sequence of COMP 140, COMP 182, and COMP 215 is recommended in addition for the Computer Engineering specialization as these courses are prerequisites for many of the Computer Science courses.

Data Science

Students pursuing the Data Science specialization must complete a total of 2 courses from the following, and an additional 2 courses from the other areas of specialization:

- ELEC 345/COMP 345 Introduction to Computer Vision [3 credit hours]
- ELEC 424 Mobile & Embedded System Design and Application [4 credit hours]
- ELEC 425/COMP 425 Computer Systems Architecture [4 credit hours]
- ELEC 427 Advanced Digital Hardware Design, Implementation, and Optimization [3 credit hours]
- ELEC 431 Digital Signal Processing [<u>3 credit hours</u>]
- ELEC 475 Learning from Sensor Data [3 credit hours]
- ELEC 480/BIOE 480 Introduction to Neuroengineering [3 credit hours]
- ELEC 488/CAAM 415/NEUR 415 Theoret. Neuroscience: From Cells to Learning Systems [3 credit hours]
- ELEC 489/CAAM 416/NEUR 416 Theoret. Neuroscience: Networks and Learning [3 credit hours]
- COMP 330 Tools and Models for Data Science [3 credit hours]
- STAT 444 Data Mining and Statistical Learning [<u>3 credit hours</u>]

Neuroengineering

Students pursuing the Neuroengineering specialization must complete a total of 2 courses from the following, and an additional 2 courses from the other areas of specialization.

- ELEC 342 Analog Electronic Circuits [3 credit hours]
- ELEC 345 Introduction to Computer Vision [3 credit hours]
- ELEC 381/BIOE 381 Fundamentals of Nerve and Muscle Electrophysiology [3 credit hours]
- ELEC 431 Digital Communication [3 credit hours]
- ELEC 480/BIOE 480 Introduction to Neuroengineering [<u>3 credit hours</u>]
- ELEC 481/BIOE 481/NEUR 481 Computational Neuroscience and Neural Engineering [3 credit hours]
- ELEC 482/BIOE 482 Physiological Control Systems [3 credit hours]
- ELEC 485/BIOE 485/COMP 485 Fundamentals of Medical Imaging I [3 credit hours]
- ELEC 486/BIOE 486/COMP 486 Fundamentals of Medical Imaging II [3 credit hours]
- ELEC 488/CAAM 415/NEUR 415 Theoret. Neuroscience: From Cells to Learning Systems [3 credit hours]
- ELEC 489/CAAM 416/NEUR 416 Theoret. Neuroscience: Networks and Learning [3 credit hours]

Photonics, Electronics, and Nano-devices

Students pursuing the Photonics, Electronics, and Nano-devices specialization must complete a total of 2 courses from the following, and an additional 2 courses from the other areas of specialization.

- ELEC 262 Introduction to Waves and Photonics [3 credit hours]
- ELEC 306 Applied Electromagnetics [3 credit hours]
 - or PHYS 302 Intermediate Electrodynamics [<u>4 credit hours</u>]
- ELEC 342 Analog Electronic Circuits [<u>3 credit hours</u>]
- ELEC 361 Quantum Mechanics for Engineers [<u>3 credit hours</u>] or PHYS 311 Introduction to Quantum Physics I [<u>3 credit hours</u>]
- ELEC 365/MSNE 365 Nanomaterials for Energy [3 credit hours]
- ELEC 462 Optoelectronic Devices [3 credit hours]
- PHYS 412 Solid State Physics [3 credit hours]
- PHYS 416 Computational Physics [<u>3 credit hours</u>]

Systems: Communication, Control, Networks, Signal Processing

Students pursuing the Systems: Communication, Control, Networks, Signal Processing specialization must complete a total of 2 courses from the following, and an additional 2 courses from the other areas of specialization.

- ELEC 301 Signals and Systems [3 credit hours]
- ELEC 302 Introduction to Systems [3 credit hours]
- ELEC 306 Applied Electromagnetics [3 credit hours]
- ELEC 345 Introduction to Computer Vision [3 credit hours]
- ELEC 430 Digital Communication [<u>3 credit hours</u>] Digital Signal Processing

[3 credit hours]

ELEC 431 [3 cr

- ELEC 433 Architecture for Wireless Communications [<u>3 credit hours</u>]
- ELEC 435/MECH 435 Electromechanical Devices and Systems [3 credit hours]
- ELEC 436/MECH 420 Fundamentals of Control Systems [3 credit hours]
- ELEC 437 Introduction to Communication Networks [3 credit hours]
- ELEC 438 Wireless Networking for Under-Resourced Urban Communities [3 credit hours]
- ELEC 498/COMP 498/MECH 498 Introduction to Robotics [3 credit hours]

BA UNRESTRICTED ELECTIVES

Students must complete additional courses to meet the BA degree's minimum requirement of at least 123 semester hours.

back to menu

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Electrical Engineering undergraduate major and degrees. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: ELEC

Department Description and Code

- Electrical and Computer Engineering: ELEC

- Degree Descriptions and Codes
 - Bachelor of Science in Electrical Engineering degree: BSEE
 - Bachelor of Arts degree: BA
- Major Description and Code
 - Major in Electrical Engineering (attached to both the BA and BSEE degrees): ELEG

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Electrical and Computer Engineering >

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Electrical and Computer Engineering

Graduate Students

- Non-Traditional Students
- Faculty

Programs of Study

- Administration and Faculty
- Important Notices

The George R. Brown School of Engineering

	Department	Undergraduate	Graduate	Course
	Info	Requirements	Requirements	Listings
Jump to:				

MEE Degree in Electrical Engineering PhD Degree in Electrical and Computer Engineering

Graduate Degree Programs

The Electrical and Computer Engineering 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 coordinated MBA/MEE degree is offered in conjunction with the Jesse H. Jones Graduate School of Business. The Doctor of Philosophy (PhD) degree program prepares students for a research career in academia or industry. The PhD degree 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 Electrical and Computer Engineering department does not admit students for a terminal MS degree.

Information on admission to graduate programs is available from the Electrical and Compute Engineering Graduate Committee and on the Electrical and Computer Engineering website d. Students must achieve at least a B (3.0) average in the courses counted toward a graduate degree.

Program Learning Outcomes for the Master of Electrical Engineering Degree (MEE)

Upon completing the MEE degree, students will be able to:

- 1. Apply the principles of mathematics and science necessary to solve advanced electrical engineering problems.
- 2. Practice at an advanced level in at least one of the major sub-fields of electrical engineering.

Requirements for the Master of Electrical Engineering Degree (MEE)

For general university requirements, see Graduate Degrees. Students pursuing the MEE must complete:

- A minimum of 10 courses (30 credit hours) at the 500-level or higher to satisfy degree requirements.
- A minimum of 6 courses (18 credit hours) from an area of specialization.
- A minimum of 2 courses (6 credit hours) from a minor area.
- All courses applied toward the degree with a grade of 'C' or better.
- No more than 1 course (3 credit hours) from transfer work.
- ELEC 698 ECE Professional Masters Seminar Series each semester

Students are admitted to the MEE program in both fall and spring semesters. MEE students are to consult with an academic advisor on the MEE Committee each semester in order to identify and clearly document their individual curricular requirements or degree plan to be followed. An MEE degree planning form and current requirements may be found on the ECE website def.

AREAS OF SPECIALIZATION

Students must complete a minimum of 6 courses (18 credit hours) from one area of specialization and a minimum of 2 courses (6 credit hours) from another area of specialization as a minor area. The following courses represent typical courses under the current five areas of specialization that students may study as part of the MEE degree program. Students may take and are encouraged to take, with the approval of an academic advisor, other courses that are not listed below that are consistent with their career objectives. ELEC 590 may not count as major area courses.

Computer Engineering

- ELEC 513/COMP 513 Complexity in Modern Systems [3 credit hours]
- ELEC 516 Analog Integrated Circuits [<u>3 credit hours</u>]
- ELEC 522 Advanced VLSI Design [<u>3 credit hours</u>]
- ELEC 524/COMP 524 Mobile and Wireless Networking [<u>3 credit hours</u>]
- ELEC 526/COMP 526 High Performance Computer Architecture [3 credit hours]
- ELEC 527 VLSI Systems Design [<u>3 credit hours</u>]
- ELEC 553 Mobile and Embedded Systems Design and Application [<u>4 credit hours</u>]
- ELEC 554/COMP 554 Computer Systems Architecture [<u>4 credit hours</u>]

Data Science

- ELEC 502/COMP 502/STAT 502 Neural Machine Learning [<u>3 credit hours</u>] or COMP 540 Statistical Machine Learning [<u>4 credit hours</u>]
- ELEC 531 Statistical Signal Processing [3 credit hours]
- ELEC 533/CAAM 583/STAT 583 Introduction to Random Processes and Applications [3 credit hours]
- ELEC 535 Information Theory [3 credit hours]
- ELEC 557/COMP 557 Artificial Intelligence
- ELEC 558 Digital Signal Processing [3 credit hours]
- ELEC 575 Learning from Sensor Data [3 credit hours]
- ELEC 631 Advanced Topics in Signal Processing [3 credit hours]
- STAT 640 Data Mining and Statistical Learning [<u>3 credit hours</u>]
- STAT 648 Graphical Models and Networks [3 credit hours]

Neuroengineering

- ELEC 502/COMP 502/STAT 502 Neural Machine Learning I [3 credit hours]
- ELEC 533/CAAM 583/STAT 583 Introduction to Random Processes and Applications [3 credit hours]
- ELEC 548/BIOE 548 Machine Learning and Signal Processing for Neuroengineering [3 credit hours]
- ELEC 580/BIOE 590 Introduction to Neuroengineering [<u>3 credit hours</u>]
- ELEC 585/BIOE 591 Fundamentals of Medical Imaging I [<u>3 credit hours</u>]
- ELEC 588 Theoret. Neuroscience: From Cells to Learning Systems [3 credit hours]
- ELEC 589 Theoret. Neuroscience: Networks and Learning [3 credit hours]
- ELEC 677 A Practical Intro. to Deep Machine Learning [3 credit
- ELEC 680/BIOE 680 Nano-Neurotechnology [3 credit hours]
- STAT 640 Data Mining and Statistical Learning [3 credit hours]

Photonics, Electronics, and Nano-Devices

- ELEC 562 Optoelectronic Devices [3 credit hours]
- ELEC 568 Laser Spectroscopy [<u>3 credit hours</u>]
- ELEC 569/PHYS 569 Ultrafast Optical Phenomena [3 credit hours]
- ELEC 571 Imaging at the Nanoscale [3 credit hours]
- ELEC 603 Topics in Nanophotonics [2 credit hours]
- ELEC 605/PHYS 605 Electrodynamics & Nanophotonics [3 credit hours]
- ELEC 661/CHEM 661/MSNE 661 Nanophotonics and Sustainability [3 credit hours]

Systems

- ELEC 531 Statistical Signal Processing [3 credit hours]
- ELEC 533/CAAM 583/STAT 583 Introduction to Random Processes and Applications [3 credit hours]
- ELEC 535 Information Theory [3 credit hours]
- ELEC 542 Vector Spaces and DSP [3 credit hours]
- ELEC 547 Computer Vision [3 credit hours]
- ELEC 549 Computational Photography [<u>3 credit hours</u>]
- ELEC 551 Digital Communication [<u>3 credit hours</u>]
- ELEC 558 Digital Signal Processing [<u>3 credit hours</u>]

back to menu

Program Learning Outcomes for the PhD Degree in Electrical and Computer

Engineering

Upon completing the PhD degree program in Electrical and Computer Engineering, students will be able to:

- 1. Identify and define relevant research topics in Electrical and Computer Engineering and conduct independent research with results that advance the state of the art in the field.
- 2. Lead research and design groups by communicating innovative ideas effectively.
- 3. Solve real-world problems by integrating knowledge gained in courses and through independent study.

Requirements for the PhD Degree in Electrical and Computer Engineering

For general university requirements, see Graduate Degrees.

Students are admitted to the PhD program only in the fall semester. Electrical and Computer Engineering PhD students move through the program in stages, starting as first-year student, advancing to MS candidate, PhD-qualified student, and PhD candidate; each advancement requires the approval of the Electrical and Computer Engineering Graduate Committee. Students entering with previous graduate work may follow a hybrid program developed in consultation with the faculty and the Graduate Committee. The first 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 have already acquired a master's degree elsewhere must also complete the ELEC 599 project, after which acceptance of their previous master's degree will be determined by the Graduate Committee. No course in which the student earned a grade lower than a B- may count toward an MS or PhD.

A candidate for the PhD degree must demonstrate independent, original research in Electrical and Computer Engineering. After successful completion of all coursework, a student is eligible for PhD candidacy. The student then engages in full-time research, culminating in presentation of the PhD research proposal and then 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 Electrical and Computer Engineering website $\frac{1}{2}$.

back to menu

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Electrical and Computer Engineering graduate degree programs. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: ELEC
- Department Description and Code
- Electrical and Computer Engineering: ELEC
- Degree Descriptions and Codes
 - Master of Electrical Engineering degree: MEE
 - Master of Science degree: MS
- Doctor of Philosophy degree: PhD
- Degree Program Description and Code
 - Degree Program in Electrical Engineering (attached to the MEE degree): ELEG
- Degree Program in Electrical and Computer Engineering (attached to the MS and PhD degrees): ELEC

Feedback

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Electrical and Computer Engineering >

Undergraduate Students	Electrical and Computer Engineering						
Graduate Students	The George R. Brown School of Engineering						
Non-Traditional Students	Department	Undergraduate	Graduate	Course			
▶ Faculty	Info	Requirements	Requirements	Listings			
 Programs of Study Administration and Faculty Important Notices 	The official course offerings, includi Course Catalog. 🗗 To view the most recent course sch			-			
	For additional information regarding http://www.ece.rice.edu/.	g Electrical and Computer En	gineering, see the department	's website:			
	Last Revised : August 24, 2016						

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 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Energy and Water Sustainability >

```
Undergraduate Students
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RICE

Energy and Water Sustainability

The George R. Brown School of Engineering

- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
Director	Si	eering Committee	
Jim Blackburn	PI	nil Bedient	
	W	alter Chapman	
Undergraduate Advisors	D	an Cohan	
Pedro Alvarez	K	en Cox	
Jim Blackburn	Le	eonardo Duenas-Osorio	
	P	eter Hartley	
	G	eorge Hirasaki	
	Q	lin Li	
	C	arrie Masiello	
		a-Yiu San	
		d Segner	
		obert Stein	
		illiam Symes	
		ason Tomson	
		ck Wilson	
	K	riacos Zygourakis	

Program (Undergraduate): Minor

Program (Graduate): N/A

The Civil and Environmental Engineering Department in collaboration with several other Rice University departments offers undergraduate students the opportunity to select a minor in energy and water sustainability (EWSU). Sustainable development is a societal goal that challenges traditional ways of thinking and requires alternative approaches and solutions to balance environmental, economic, and social interests. Carbon management strategies and renewable resources will be key elements of energy policy for the coming decades. Similarly, the long-term viability of existing water use and human settlement patterns must be reconsidered given the effect of climate change in freshwater availability, as well as increasing competing demands for this limited resource. More generally, the dedication of materials, energy, and ecological resources will become more important in economic decision-making, while more and more members of society will demand equity in decision-making processes.

Students choosing this minor will gain knowledge of both the science and policy issues associated with the evaluation of sustainable energy and water strategies that will form a cornerstone of 21st century social systems. Students completing this minor will be better prepared for a global society that is attempting to understand and address the challenge of meeting basic human needs today and in the future while maintaining a functional natural system and social order.

Last Revised : August 17, 2016

SEARCH GA



Previous Editions

Course

GENERAL ANNOUNCEMENTS 2016-2017

Department

2016-2017 > Programs of Study > Energy and Water Sustainability >

Graduate Students

Energy and Water Sustainability

The George R. Brown School of Engineering

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices
- Info
 Requirements
 Requirements
 Listings

 Program Learning Outcomes for the Interdisciplinary Minor in Energy and Water

 Sustainability

 Upon completing the Energy and Water Sustainability minor, a student will be able to:

 1. Apply basic economic concepts applicable to energy and water sustainability including applicable aspects of environmental economics and project-scale economic issues.

Graduate

2. Understand basic environmental issues applicable to energy and water sustainability.

Undergraduate

- 3. Conduct evaluations of social aspects from a sustainability prospective.
- Evaluate projects and political systems from the standpoint of energy and water issues as well as more general sustainability issues.
- 5. Apply sustainability concepts at varying scales and viewpoints, including project level, corporate level, and municipal, state, national, and international levels.
- 6. Understand the role of climate change on projects and societies in the future.

Requirements for the Interdisciplinary Minor in Energy and Water Sustainability

Students pursuing a minor in Energy and Water Sustainability (EWSU) must complete:

A minimum of 7 courses (19 credit hours) to satisfy the minor requirements

CORE REQUIREMENTS

Students must complete a total of 3 courses (9 credit hours) listed from the Core Courses and the Design Practicum course (at least one credit hour) to satisfy the Energy and Water Sustainability minor's Core Requirements.

Core Courses

Students must complete a total of 3 courses (9 credit hours) as listed below.

- CEVE 302/ENGI 302 Sustainable Design [3 credit hours]
- CEVE 307/ENST 307/ESCI307 Energy and the Environment [3 credit hours]
- CEVE 479 Engineering Project Management and Economics [3 credit hours]
 - or ECON 480/ENST 480 Environmental Economics [3 credit hours]

Design Practicum

Students are required to complete 1 special topics course (at least one credit hour), typically during the fall of their senior year. Students in engineering and architecture who must take a senior design course will typically fulfill this requirement by preparing a report that describes the incorporation of sustainability concepts into their design effort, in consultation with the senior (capstone) design course instructor. Students not engaged in a suitable design project will either consult with an extant design group or pursue a project related to their own area of study in consultation with the advisors for this interdisciplinary minor.

CEVE 499 Special Topics [at least 1 credit hour]

ELECTIVES

To fulfill the remaining Energy and Water Sustainability minor requirements, students must complete a total of 3 additional courses (3 credit hours each for a total of 9 credit hours) from the following categories. No more than two courses can be drawn from any one of the three categories. No more than two of these electives can be used also to fulfill major requirements, and at

least one elective course must be taken from a different school than the one hosting the student's major. Should students wish to substitute a course for the sustainability area that is not listed, please consult with the Energy, Water and Sustainability advisor.

Energy

Students may choose to complete up to 2 courses (6 credit hours) from the following:

- ECON 437/ENST 437 Energy Economics [3 credit hours]
- ESCI 415 Economic Geology Petroleum [3 credit hours]
- ESCI 417 Petroleum Industry Economics and Management [<u>3 credit hours</u>]
- ESCI 550 Modern Exploration Technology [<u>3 credit hours</u>]
- SOCI 367/ENST 367 Environmental Sociology [3 credit hours]

Water

Students may choose to complete up to 2 courses (6 credit hours) from the following:

- CEVE 314/BIOE 365/GLHT 314 Sustainable Water Purification for the Developing World [3 credit hours]
- CEVE 412 Hydrology and Water Resources Engineering [3 credit hours]
- CEVE 418/ESCI 418 Quantitative Hydrogeology [3 credit hours]
- CEVE 444 Environmental Microbiology and Microbial Ecology [3 credit hours]

Sustainability

Students may choose up to complete up to 2 courses (6 credit hours) from the following:

- ARCH 313/ENST 313 Case Studies in Sustainable Design [3 credit hours]
- CEVE 406/ENST 406 Introduction to Environmental Law [3 credit hours]
- CEVE 492 Modeling and Analysis of Networked Systems [3 credit hours]
- CHBE 281/ENST 281 Engineering Sustainable Communities [3 credit hours]
- ENST 302/SOCI 304 Environmental Issues: Rice into the Future [3 credit hours]
- POLI 331 Environmental Politics and Policy [3 credit hours]
- POLI 432 Urban Politics [3 credit hours]
- POLI 441/ENST 441 Common Property Resources [3 credit hours]
- STAT 485 Environmental Statistics and Decision Making [3 credit hours]

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate minor in Energy, Water, and Sustainability. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses from other departments apply towards the minor in Energy and Water Sustainability.

Department Description and Code

- Energy and Water Sustainability: EWSU

Minor Description and Code

- Minor in Energy and Water Sustainability: EWSU

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University Calendar

Rice A-Z Maps-Directions

Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Energy and Water Sustainability >

Undergraduate Students	Energy and Water Sustainability						
Graduate Students	The George R. Brown School of Engineering						
Non-Traditional Students		Department Info	Undergraduate	Graduate	Course		
► Faculty	Info Requirements Requirements Listings Graduate Requirements Info Info						
Programs of Study	Energy and Water Sustainability does not offer an academic program at the graduate level.						
Administration and Faculty							
Important Notices	Last Revised : August 12, 2016						

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Energy and Water Sustainability >

Undergraduate Students	Energy and Water Sustainability						
► Graduate Students	The George R. Brown School of Engineering						
Non-Traditional Students	Department	Undergraduate Requirements	Graduate	Course			
▶ Faculty	Info Requirements Requirements Listings Course Listings Info Info						
Programs of Study	The official course offerings, including course descriptions, listed in the Energy and Water Sustainability Undergraduate Requirements section can be found in Rice's Course Catalog.						
Administration and Faculty							
Important Notices							
	http://engr.rice.edu/ewsminor.a	rding Energy and Water Sustaina Ispx. &	ability, see the department's v	vebsite:			
	Last Revised : August 24, 2016						

General Announce	ements 6100 M	ain MS-10, Houston,	Texas 77005-1827	Mailing Address: P.O.	Box 1892, Houston, Tex	as 77251-1892
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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Engineering Leadership >

2010-2017 > Programs of Study > Engineer					
Undergraduate Students	Engineering Leadership				
Graduate Students	The George R. Brown Sch	ool of Engineering			
Non-Traditional Students	Department	Undergraduate	Graduate	Course	
▶ Faculty	Info	Requirements	Requirements	Listings	
Programs of Study	Executive Director Kazimir Karwowski		aculty Director BA		
Administration and Faculty					
Important Notices	Program (Undergraduate): C	Certificate			
	Program (Graduate): N/A				

The mission of the Rice Center for Engineering Leadership (RCEL) is to educate and develop Rice Engineers to become inspiring leaders, exceptional team members, effective communicators, and bold entrepreneurs. RCEL programming enhances traditional undergraduate education by developing skills that are not expressly covered by the traditional curricula from the School of Engineering. Ultimately, the goal of the RCEL Certificate Program in Engineering Leadership is to equip engineering students with the critical technical, communication, and leadership skills necessary succeed and excel professionally.

The Certificate Program is designed to familiarize undergraduate students with key leadership concepts and allow them to practice the skills necessary to function effectively in a variety of leadership roles – research, academia, executive management, policy-making, and entrepreneurship. Through coursework, extra-curricular activities, internship support, and community events, the Certificate Program lays a foundation for leadership advancement within 3-5 years of graduation. RCEL programming covers a range of important competency domains, including such topics as creative problem solving, conflict resolution, developing self-awareness, setting goals, project management, oral/written communication, and teamwork.

The Certificate Program culminates in the creation of a comprehensive Leadership Portfolio, which documents the personal, academic, and professional growth of the student over the course of his or her time in the program. As a requirement for the Certificate, each student must deliver a final Senior Leadership Presentation that synthesizes and expands upon the information included in the Leadership Portfolio.

In order to fulfill the requirements for the Certificate in Engineering Leadership, undergraduate students must successfully complete 10 credit hours of progressive coursework, in addition to several designated non-course requirements, including a Leadership Development Plan, Senior Leadership Presentation, and professional internship. Upon satisfactory completion of ALL requirements, the Certificate in Engineering Leadership will be formally recognized on the official transcript of the student. Only Engineering majors (declared or anticipated) are eligible to receive the Certificate.

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 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Engineering Leadership >

Undergraduate Students	Engineering Leadership							
▶ Graduate Students	The G	eorge R. Brown So	chool of Engineering					
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings			
▶ Faculty	Prog	Program Learning Outcomes for the Certificate in Engineering Leadership						
Programs of Study		-	Engineering Leadership, studer					
Administration and Faculty	1. De	evelop and articulate a pers	onal point of view about what le	eadership means and how it is	effectively practiced in			
Important Notices	2. Le		m members in engineering env					
			n leaders in engineering enviro					
		0,	engineering and other interpers		o achiava in thair profacsi	ional		
	Increase their self-awareness and confidence about who they are and what they are able to achieve in their professional careers.							
			obs that align with their unique	strengths and self-directed car	eer ambitions.			
	Requ	irements for the C	ertificate in Enginee	ring Leadership				
	Students pursuing the Certificate in Engineering Leadership must complete:							
			credit hours) to satisfy certificate e student's major or minor degre		s applied toward the certif	ficate		
		e Senior Leadership Portfo	, ,	se requirements.				
			n each course completed towar	d the certificate requirements.				
	Ar	applied practicum/internsh	nip course (ENGI 241).					
	aw		ciated with the student's corres the conferral of the student's R		-			
	CORE	REQUIREMENTS						
	Student	CORE REQUIREMENTS Students must complete the following 5 courses (8 credit hours) to satisfy the Certificate in Engineering Leadership Core Requirements.						
	= EN	NGI 218 Leadership Lab I a NGI 315 Leading Teams &	ership Development [<u>2 credit h</u> nd ENGI 219 Leadership Lab l Innovation [<u>3 credit hours</u>] Ilence for Engineers [<u>1 credit h</u>	[2 credits hours total]				
	To fulfill		G OR ADVANCED LAB OPTIC equirements, students must com		g on course selection (2 c	credit		

ENGI 317 Leadership Action Learning [<u>2 credit hours</u>]

or ENGI 318 Advanced Leadership Lab I and ENGI 319 Advanced Leadership Lab II [1 credit hour each]

NON-COURSEWORK SENIOR REQUIREMENTS

The Certificate Program culminates in the creation of a comprehensive Leadership Portfolio, which documents the personal, academic, and professional growth of the student over the course of his or her time in the program. As a requirement for the certificate, each student must deliver a final Senior Leadership Presentation that synthesizes and expands upon the information included in the Leadership Portfolio.

Additional Recommended Courses for Students Pursuing the Certificate in Engineering Leadership

The following courses are not required to complete the Certificate in Engineering Leadership, but are highly recommended.

- ENGI 120 Introduction to Engineering Design [3 credit hours]
- ENGI 128 Introduction to Engineering Systems [3 credit hours]
- ENGI 242 Communication for Engineers [<u>3 credit hours</u>]
- ENGI 303 Engineering Economics [3 credit hours]
- ENGI 320 Ethics and Engineering Leadership [3 credit hours]
- ENGI 428 Entrepreneurship Independent Study [1 credit hour]
- ENGI 505 Engineering Project Management and Economics [3 credit hours]
- BUSI 310 Leading People in Organizations [3 credit hours]

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Certificate in Engineering Leadership. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses from other departments apply towards the certificate in Engineering Leadership Department (or Center) Description and Code

Rice A-Z

- Rice Center for Engineering Leadership: RCEL

Certificate Description and Code

- Certificate in Engineering Leadership: CEL

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Maps-Directions Feedback

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Engineering Leadership >

Undergraduate Students	Engineering Leadership						
Graduate Students	The Ge	The George R. Brown School of Engineering					
Non-Traditional Students		Department Info	Undergraduate	Graduate	Course		
► Faculty	Gradu	Info Requirements Requirements Listings Graduate Requirements Info Info					
Programs of Study	Enginee	Engineering Leadership does not offer an academic program at the graduate level.					
Administration and Faculty							
Important Notices	Last Revise	ed : August 12, 2016					

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Engineering Leadership >

Undergraduate Students	Engineering Leadership						
Graduate Students	The George R. Brown S	The George R. Brown School of Engineering					
Non-Traditional Students	Department	Undergraduate	Graduate	Course			
▶ Faculty	Info Course Listings	Requirements	Requirements	Listings			
Programs of Study	The official course offerings, include	ling course descriptions, listed	in the Engineering Leadershi	p Undergraduate Requiremen			
Administration and Faculty	section can be found in Rice's Cou	section can be found in Rice's Course Catalog.					
Important Notices	To view the most recent course sc	hedule for the 2016-2017 acad	demic year, see Rice's Course	Schedule. 🗗			
	For additional information regardin	g Engineering Leadership, see	e the department's website: ht	tp://www.rcelconnect.org/. 🖨			
	Last Revised : August 24, 2016						

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > English >

RICE

Undergraduate Students	
------------------------	--

Graduate Students

The School of Humanities

English

Non-Traditional Students	Department	Undergraduate	Graduate	Course
	Info	Requirements	Requirements	Listings
Faculty				
Programs of Study	Chair	As	ssistant Professors	
	Rosemary Hennessy	Er	nily Houlik-Ritchey	
Administration and Faculty		La	icy Johnson	
	Professors	Pa	aul Otremba	
Important Notices	Terrence Arthur Doody			
	Rosemary Hennessy	Pr	ofessors Emeriti	
	J. Dennis Huston	Ja	ne Chance	
	Caroline Levander	Lir	nda P. Driskill	
	Helena Michie	Lu	icille P. Fultz	
	Wesley Abram Morris	Da	avid Lee Minter	
	Timothy Morton	Ro	obert Patten	
	Kirsten Ostherr	Su	usan Wood	
	Judith Roof			
	Meredith Skura	Pr	ofessor in the Practice	
	Edward A. Snow	Lc	gan Delano Browning	
	Cary E. Wolfe			
		Se	enior Lecturer	
	Associate Professors	Jil	l "Thad" Logan	
	José F. Aranda Jr.			
	Joseph A. Campana	Le	ecturer	
	Krista Comer	Ar	nanda Johnson	
	Amber Dermont			
	Scott S. Derrick	Vi	siting Lecturer	
	Sarah Ellenzweig	la	n Schimmel	
	Betty Joseph			
	Colleen Lamos		riter in Residence	
	Susan Lurie	Ju	stin C. Cronin	
	Alexander Regier			
	Nicole Waligora-Davis			

Program (Undergraduate): BA degree

Programs (Graduate): MA degree, PhD degree

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 gaining 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. Although students are not normally admitted for an MA, graduate students may earn the MA after obtaining approval of their candidacy for the PhD.

Courses

Feedback

Detailed information on requirements for the major and 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.

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > English >

Þ	Under	graduate	Students
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RICE

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department	Une
Info	Re

Undergraduate	Graduate	Course
Requirements	Requirements	Listings

Program Learning Outcomes for the BA Degree with a Major in English

Upon completing the BA degree, a student majoring in English will be able to:

- 1. Develop sensitivity to the capacities and achievements of English literary language.
- 2. Demonstrate an understanding the depth and breadth of English literary history.
- 3. Develop skills in making eloquent sentences, paragraphs and essays in English.
- 4. Be reflective. They will understand the potential gaps in their own viewpoints and arguments, and appreciate viewpoints and arguments different from their own in English literary theory and criticism.

Requirements for the BA Degree with a Major in English

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in English (ENGL) must complete:

- A minimum of 12 courses (36 credit hours) to satisfy the major requirements
- A minimum of 120 credit hours to satisfy degree requirements
- A minimum of 8 courses (24 credit hours) at the 300-level or above

Students who are pursuing two majors (i.e., are double majors) and have declared ENGL must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements
- A minimum of 6 courses (18 credit hours) at the 300-level or above

Double majors who drop their second major are required to meet the requirements listed for single majors.

All courses with the ENGL prefix and HUMA 101 and 102 may be counted toward the English major. AP credit does not count toward the major. The department recommends that all English majors take courses in British and American history and, if they plan to do graduate work, at least six hours of upper-level courses in a foreign language.

CORE REQUIREMENTS

All students majoring in English must complete a total of 7 courses (21 credit hours) as listed below to complete the English major's Core Requirements. Specific course offerings will vary from semester to semester.

English Core

Students must complete the following 2 courses (6 credit hours) in the order listed:

- ENGL 200 Critical Reading and Writing [3 credit hours]
- ENGL 300 Practices of Literary Study [<u>3 credit hours</u>]

The following courses fulfill core requirements in each area/field when applicable. Specific course offerings will vary from semester to semester.

Pre-1900 Requirement

Students must complete a total of 3 courses (9 credit hours) at the 300-level or above in periods before 1900. Of the three courses, 2 courses (6 credit hours) must be in periods before 1800 (Pre-1800), but only one may be a Shakespearean course.

English The School of Humanities

- ENGL 312/MDEM 312 Topics in Old English* [3 credit hours]
- ENGL 314/MDEM 319 Medieval Romance* [3 credit hours]
- ENGL 316/MDEM 316 Chaucer* [3 credit hours]
- ENGL 317/MDEM 317/SWGS 301 Arthurian Literature* [3 credit hours]
- ENGL 320 Shakespeare on Film* [<u>3 credit hours</u>]
- ENGL 321 Early Shakespeare* [3 credit hours]
- ENGL 322 Late Shakespeare* [3 credit hours]
- ENGL 323 Renaissance Drama* [3 credit hours]
- ENGL 326 Early Modern Literature* [3 credit hours]
- ENGL 328 Milton* [<u>3 credit hours</u>]
- ENGL 330 Origins of the English Novel* [3 credit hours]
- ENGL 333 18th Century British Fiction* [3 credit hours]
- ENGL 338 Survey of British Romanticism* [<u>3 credit hours</u>]
- ENGL 339 Romanticism in Ruins* [3 credit hours]
- ENGL 341 Victorian Literature & Culture [3 credit hours]
- ENGL 342 Victorian Fiction [<u>3 credit hours</u>]
- ENGL 343 Jane Austen's Worlds [3 credit hours]
- ENGL 360 American Literature: Before 1860 [3 credit hours]
- ENGL 361 American Literature: 1860-1910 [3 credit hours]
- ENGL 366 Topics in American Literature [3 credit hours]
- ENGL 400 Seminar for Majors [<u>3 credit hours</u>]
- ENGL 418 Renaissance Drama* [3 credit hours]
- ENGL 419 Topics in Shakespeare* [3 credit hours]
- ENGL 432 Topics in Richardson's Clarissa* [3 credit hours]
- ENGL 461 19th-Century American Studies [3 credit hours]

Noncanonical Fields

Students must complete 1 course (3 credit hours) at the 200-level or above in a course that focuses on noncanonical traditions, such as courses in gender and sexuality studies or on African American, Chicano/a, Asian American, ethnic, global, and diasporic writers.

- ENGL 222 World and South Asia [3 credit hours]
- ENGL 351 The City in Literature [3 credit hours]
- ENGL 354/SWGS 364 Queer Literary Cultures [3 credit hours]
- ENGL 369 The American West and its Others [3 credit hours]
- ENGL 371/SPPO 354/SWGS 354 Chicano/a Literature [3 credit hours]
- ENGL 380 Contemporary Anglophone Literatures [<u>3 credit hours</u>]
- ENGL 381/SWGS 327 Women Writers [3 credit hours]
- ENGL 382/SWGS 380 Feminist Theory [3 credit hours]
- ENGL 387 Cultural Studies [<u>3 4 credit hours</u>]
- ENGL 389 Youth Studies [3 credit hours]
- ENGL 392 Contemporary Poetry [<u>3 credit hours</u>]
- ENGL 393 Black Manhattan: 1915-1940 [3 credit hours]
- ENGL 397 Topics in Literature & Culture [3 credit hours]
- ENGL 398 Slavery in 20th Century Film and Fiction [3 credit hours]
- ENGL 399 The Black Imaginary: 1775-Present [3 credit hours]
- ENGL 438 The Grotesque [3 credit hours]
- ENGL 466 Studies in American Literature [3 credit hours]
- ENGL 471/SPAN 456 Chicana/o Literature [3 credit hours]
- ENGL 498/SWGS 430 Queer Theory [<u>3 credit hours</u>]

Capstone Seminar

Students must complete 1 course (3 credit hours) at the 400-level that is not a creative writing course. Capstone courses cannot simultaneously serve to fulfill another requirement.

- ENGL 400 Seminar for Majors [3 credit hours]
- ENGL 418 Renaissance Drama [<u>3 credit hours</u>]
- ENGL 419 Topics in Shakespeare [3 credit hours]
- ENGL 430 Empire & British Literature [<u>3 credit hours</u>]
- ENGL 432 *Richardson's Clarissa* [<u>3 credit hours</u>]
- ENGL 438 The Grotesque [3 credit hours]
- ENGL 441 Victorian Studies [3 credit hours]
- ENGL 459 Literature and Ecology [3 credit hours]

- ENGL 461 19th Century American Studies [<u>3 credit hours</u>]
- ENGL 466 Studies in American Literature [3 credit hours]
- ENGL 484 Studies in Literary Genres [<u>3 credit hours</u>]
- ENGL 498/SWGS 430 Queer Theory [3 credit hours]

ELECTIVES

To fulfill the remaining English major requirements, students must complete a total of 5 additional courses (15 credit hours) from departmental (ENGL) course offerings. Double majors must complete a total of 3 additional courses (9 credit hours) from ENGL course offerings.

Study Abroad Program for English Majors at the University of Exeter

English majors may opt to spend the spring semester of their junior year at the University of Exeter in the U.K. Students planning to do so should complete ENGL 200 and ENGL 300 by the fall semester of their junior year (the semester preceding study abroad). At Exeter, students will take two courses or modules (each worth 30 Exeter credits) from Rice's approved list of Exeter Courses.

The approved courses taken abroad will transfer back to Rice and will appear on the Rice transcript as transfer credit. The English department has obtained special transfer credit status for these courses in that the final grades received on the Exeter transcript will be transferred in to Rice and counted in the student's Rice GPA. The two Exeter courses will be articulated as ENGL 325 (two instances of 3 semester credit hours each) with the remaining hours articulated as general TRAN credit. With pre-approval from the Department, ENGL 325 may additionally count toward elective and field requirements of the major in the following ways:

- The two instances of ENGL 325, of 3 semester credit hours each can count as general electives in the English major (as 2 courses at the 300 level), or
- The two instances of ENGL 325 may be used, depending on their topical focus, to fulfill up to 2 field distribution requirements of the Major (Pre-1800, Pre-1900, or Noncanonical).

Please refer to the Rice English Department website (http://www.english.rice.edu) for instructions and pre-requisites for applying to the Rice-Exeter program.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate English major and degree. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: ENGL
- Department Description and Code
 - English: ENGL
- Degree Description and Code
- Bachelor of Arts degree: BA
- Major Description and Code
- Major in English: ENGL

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > English >

Undergraduate	Students
---------------	----------

Graduate Students

RICE

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

English

The School of Humanities

Upon completing the MA and PhD degree programs in English, students will be able to:

- Apply advanced abilities in literary, cultural, and critical studies, including: critical reading, thinking, and writing; professional methodologies; literary and cultural histories and theoretical and interdisciplinary perspectives.
- 2. Demonstrate breadth and depth of knowledge in fields of specialization for research and teaching.
- 3. Demonstrate pedagogical ability to teach literature and culture at the university level.
- 4. Demonstrate professional level skills in public and oral presentation through participation in symposia, Work-In-Progress groups, conferences and in-course presentations.
- 5. Demonstrate capacity to create professional-level and ultimately publishable research that makes original contributions to scholarly debates.

Requirements for the MA and PhD Degrees in English

For general university requirements, see Graduate Degrees. 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 two 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.

PhD Program

To gain admission to PhD candidacy, students must satisfy the first six 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 two requirements. Students must:

- 1. Satisfactorily complete a minimum of 12 graduate courses, of which at least 10 must be graduate seminars. With the approval of the PAC, students may enroll in ENGL 621 *Directed Reading*, either as a traditional directed reading course or as a 400-level English course to which a graduate component has been added. ENGL 621 counts toward the 12 required graduate courses but does not count as a graduate seminar. Students also are encouraged to take graduate courses in other departments related to their areas of interest. These will count toward the 12-course requirement but not usually for distribution.
- 2. Satisfactorily complete the following two required courses: ENGL 600 *Topics in Literary Theory* and ENGL 605 *Third-Year Writing Workshop.* These count toward the 12-course requirement.
- 3. Satisfactorily complete the distribution requirement, which consists of two courses before 1800 and two after 1800. These count toward the 12-course requirement.
- 4. Satisfactorily complete the teaching requirement by serving twice as a teaching assistant, completing ENGL 510 *Pedagogy Seminar* and ENGL 511 *Pedagogy Practicum*, and teaching at least one lower-level course designed in conjunction with the instructor of ENGL 510. ENGL 510 does count toward the 12-course requirement.
- 5. Pass a qualifying exam that consists of two qualifying papers, and pass an oral exam. Refer to english.rice.edu 🕏 for further details.
- 6. Complete a dissertation prospectus that defines the topic of the dissertation, the particular thesis that the dissertation hopes to develop about the topic, and the relevance and importance of the dissertation's thesis for the contribution it will make to the student's chosen field. The dissertation prospectus and a satisfactory draft of a chapter must be approved for the student to advance to candidacy. Refer to english.rice.edu 🖆 for further details.
- 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.

Feedback

MA Degree

The English department does not have a terminal 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 to 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. Students must satisfactorily complete ENGL 600 and distribution requirements for the PhD (see above).
- Satisfactorily complete two teaching assistantships (ENGL 601/602) and two research assistantships. These do not count toward the 30-hour requirement.

Financial Support

Financial support depends upon satisfactory progress towards the degree.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the English graduate degree program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: ENGL Department Description and Code
- English: ENGL
- Degree Descriptions and Codes
- Master of Arts degree: MA
- Doctor of Philosophy degree: PhD
- Degree Program Description and Code
 - Degree Program in English: ENGL
- Last Revised : August 18, 2016

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > English >

RICE

Undergraduate Students	Engli	ish							
Graduate Students	The So	The School of Humanities							
Non-Traditional Students	-	Department	Undergraduate	Graduate	Course				
► Faculty	Info Requirements Requirements Listings Course Listings Info Info								
Programs of Study		The official course offerings, including course descriptions, for English can be found in Rice's Course Catalog.							
Administration and Faculty	To view								
Important Notices	For add	For additional information regarding English, see the department's website: http://english.rice.edu/home/.							
	Last Revised : August 24, 2016								

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Environmental Analysis and Decision Making >

Environmental Analysis and Decision Making

The Wiess School of Natural Sciences

Graduate Students

RICE

Non-Traditional Students

Undergraduate Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department	Undergraduate		Graduate	Course
Info	Requirements		Requirements	Listings
Director		Ass	ociate Professors	
Janet Braam	[Dan	iel Cohan	
	(Qilir	n Li	
Track Advising Commi	ttee			
Daniel Cohan	I	Pro	fessor in the Practice	
Loren Raun		Jim	Blackburn	
Evan H. Siemann				
	I	Fac	ulty Fellow	
Professors	l	Lore	en Raun	
Pedro Alvarez				

Program (Undergraduate): N/A

Andrew R. Barron Phil Bedient Dale S. Sawyer Evan H. Siemann

Program (Graduate): MSEADM degree

Rice University introduced the 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 business 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 part of five tracks in the 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.

A coordinated MBA/MSEADM degree is offered in conjunction with the Jesse H. Jones Graduate School of Business.

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Previous Editions

Feedback

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Environmental Analysis and Decision Making >

Undergraduate Students	Environmental Analysis and Decision Making							
► Graduate Students	The Wiess School of Natural Sciences							
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate	Course			
▶ Faculty	Unde	rgraduate Require	Requirements	Listings				
Programs of Study	Environmental Analysis and Decision Making does not offer an academic program at the undergraduate level.							
Administration and Faculty								
Important Notices	Last Revised : August 12, 2016							

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Course

GENERAL ANNOUNCEMENTS 2016-2017

Department

2016-2017 > Programs of Study > Environmental Analysis and Decision Making >

۲	Un	der	gra	dua	te S	Stud	ents
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Environmental Analysis and Decision Making The Wiess School of Natural Sciences

- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices
- InfoRequirementsRequirementsListingsProgram Learning Outcomes for the MS in Environmental Analysis and DecisionMaking Degree (MSEADM)

Graduate

Upon completing the MS Degree in Environmental Analysis and Decision Making, students will be able to:

Undergraduate

- 1. Be able to apply rigorous technical and analytical skills required by business, government, and other organizations dealing with environmental issues.
- 2. Be able to apply advanced practical skills and scientific evaluation methods to problems affecting the environment.
- 3. Demonstrate written, oral, and visual communication strategies to bridge the gaps between science, business and government.
- 4. Possess business and management skills and professional ethics to be effective in a business environment.

Requirements for the MS Degree in Environmental Analysis and Decision Making Degree (MSEADM)

For general university requirements, see Graduate Degrees. Students pursuing the MSEADM degree must complete:

- A minimum of 14 courses (39 credit hours) to satisfy degree requirements.
- A 3-6 month internship.
- A minimum of 30 credit hours at the 500-level or above.

CORE REQUIREMENTS

Students must complete a total of 7 courses (18 credit hours) as listed below to satisfy the MSEADM degree's Core Requirements

Required Science Core Courses

Students must complete a total of 3 courses (9 credit hours) as listed below.

- CEVE 510 Principles of Environmental Engineering [<u>3 credit hours</u>]
 or CEVE 501 Chemistry for Environmental Engineering and Science [<u>3 credit hours</u>]
- EBIO 570 Ecosystem Management and Conservation [3 credit hours]
- STAT 685 Environmental Statistics and Decision Making [3 credit hours]

Required Cohort Courses

Students must complete the following 4 courses (9 credit hours) which focuses on business and communication:

- NSCI 501 Master's Seminar [2 semesters required for a minimum of 2 credit hours]
- NSCI 511 Science Policy and Ethics [3 credit hours]
- NSCI 512 Professional Master's Project [<u>1 credit hour</u>]
- NSCI 610/ENGI 610 Management in Science and Engineering [3 credit hours]

THREE TO SIX MONTH INTERNSHIP

In addition to the core science courses, students are required to complete a three to six month internship. 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.

ELECTIVES

Students must complete at minimum of 7 courses (21 credit hours) as electives from the following three focus areas. To do this, students must complete:

- At least 1 course (3 credit hours) must be completed from EBIO, CEVE, and STAT course offerings for a total of 3 courses (9 credit hours).
- At least 1 course (3 credit hours) must be completed from the Management and Policy focus area.
- A total of 3 additional courses (9 credit hours) from one focus area listed below.

Environmental Sustainability

- CEVE 501 Chemistry for Environmental Engineering and Science [3 credit hours]
- CEVE 502 Sustainable Design [<u>3 credit hours</u>]
- CEVE 507 Energy and the Environment [<u>3 credit hours</u>]
- CEVE 508 Intro to Air Pollution Control [<u>3 credit hours</u>]
- CEVE 509 Hydrology and Water Resources Engineering [3 credit hours]
- CEVE 511 Atmospheric Processes [<u>3 credit hours</u>]
- CEVE 512 Advanced Hydrology and Hydraulics [3 credit hours]
- CEVE 520 Environmental Remediation Restoration [3 credit hours]
- CEVE 534 Fate and Transport of Contaminants in the Environment [3 credit hours]
- CEVE 536 Environmental Biotechnology and Bioremediation [3 credit hours]
- CEVE 550 Environmental Organic Chemistry [3 credit hours]
- EBIO 329 Animal Biology and Physiology [3 credit hours]
- EBIO 336 Plant Diversity [<u>3 credit hours</u>]
- EBIO 523 Conservation Biology [3 credit hours]
- EBIO 524 Conservation Biology Lab [3 credit hours]
- EBIO 525 Ecology [3 credit hours]
- EBIO 540 Global Biochemical Cycles [<u>3 credit hours</u>]
- EBIO 563 Current topics in Ecology [<u>1 credit hour</u>]
- EBIO 566 Applied Phycology [3 credit hours]
- EBIO 568 Topics in Biological Diversity [<u>1 credit hour</u>]
- EBIO 569 Core course in Ecology and Evolutionary Biology [3 credit hours]
- EBIO 579 Aquatic Ecology with Scuba [3 credit hours]
- EBIO 580 Sustainability Development and Reporting [<u>3 credit hours</u>]
- ESCI 618 Quantitative Hydrogeology [<u>3 credit hours</u>]
- ESCI 650 Remote Sensing [<u>3 credit hours</u>]
- ESCI 654 Geographic Information Science [<u>3 credit hours</u>]
- POST 411/GLHT 411 Sustainable Development [3 credit hours]
- STAT 684/CEVE 684 Environmental Risk Assessment and Human Health [3 credit hours]

Management and Policy

- CEVE 505/ENGI 505 Engineering Project Development and Management [3 credit hours]
- CEVE 528/ENGI 528 Engineering Economics [3 credit hours]
- CEVE 529/ENGI 529 Engineering Leadership and Ethics [3 credit hours]
- ESCI 617 Petroleum Industry Economics and Management [3 credit hours]
- ECON 437/ENST 437 Energy Economics [3 credit hours]
- ECON 480/ENST 480 Environmental Economics [3 credit hours]
- MGMT 609 Managing Energy Transitions [<u>1.5 credit hours</u>]
- MGMT 610 Fundamentals of the Energy Industry [<u>1.5 credit hours</u>]
- MGMT 661 International Business Law [3 credit hours]
- MGMT 670 Operations Strategy [<u>1.5 credit hours</u>]
- MGMT 676 Social Enterprise [<u>1.5 credit hours</u>]
- MGMT 721 General Business Law [1.5 credit hours]
- POST 501 Energy Policy [<u>3 credit hours</u>]

Quantitative Decision-Making

- CEVE 313/STAT 313 Uncertainty and Risk in Urban Infrastructures [3 credit hours]
- CEVE 528/ENGI 528 Engineering Economics [3 credit hours]
- ESCI 650 Remote Sensing [<u>3 credit hours</u>]
- ESCI 654 Geographic Information Science [3 credit hours]
- ECON 480/ENST 480 Environmental Economics [3 credit hours]
- STAT 553 Biostatistics [<u>3 credit hours</u>]

- STAT 605* R for Data Science [3 credit hours]
- STAT 606* SAS Statistical Programming [3 credit hours]
- STAT 615 Regression and Linear Models [<u>3 credit hours</u>]
- STAT 684/CEVE 684 Environmental Risk Assessment and Human Health [3 credit hours]

*Only one of these two courses may be counted toward the degree.

Professional Science Master's 5th Year Degree Option for Rice Undergraduates

Rice students have an option to achieve the MS in Environmental Analysis and Decision Making degree by adding an additional fifth year to the four undergraduate years of science studies. Advanced Rice students in good standing may apply during their junior year to the graduate program. Upon acceptance, depending on course load, financial aid status, and other variables they may then start taking required core courses of the environmental analysis and decision making program during their senior year. A plan of study based on their particular focus area will need to be approved by the program director and the PSM director. Students should be aware there could be financial aid implications, if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time (12 hours) status.

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.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Environmental Analysis and Decision Making graduate degree program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses from other department apply towards the graduate degrees in Environmental Analysis and Decision Making.

Department Description and Schedule

- Biosciences: BIOS

Degree Descriptions and Codes

- Master of Science in Environmental Analysis and Decision Making degree: MSEADM

Degree Program Description and Code

- Degree Program in Environmental Analysis and Decision Making: EADM

Last Revised : August 18, 2016

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University Calendar Rice A-Z

Maps-Directions Feedback

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Environmental Analysis and Decision Making >

Undergraduate Students	Environmental Analysis and Decision Making						
► Graduate Students	The Wi	ess School of Na	tural Sciences				
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings		
▶ Faculty	Cours	e Listings	Requirements	Roquinento	Listings		
Programs of Study		0	e	,	sis and Decision Making Gradu	uate	
Administration and Faculty			d in Rice's Course Catalog. 🗗				
Important Notices	► Important Notices To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule. 🗗						
	For additional information regarding Environmental Analysis and Decision Making, see the department's website: https://profms.rice.edu/enviroanalysis.aspx?id=2147483926.						
	Last Revise	d : August 24, 2016					

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Environmental Studies >

Undergraduate Students

Graduate Students

Environmental Studies

The Wiess School of Natural Sciences, The School of Social Sciences, and The School of Humanities

Non-Traditional Students Department Undergraduate Graduate Course Faculty Info **Requirements** Requirements Listings Programs of Study Director **ENST Steering Committee** Administration and Faculty Dominic Boyer Jim Blackburn Dominic Boyer Important Notices **Environmental Science Major Advisors Richard Johnson** Andre Droxler Jeff Kripal Evan Siemann Elizabeth Long Julia Morgan **Environmental Studies Minor Advisor Timothy Morton** Dominic Boyer Evan Siemann Albert Pope

Programs (Undergraduate): BA degree, BS degree, Minor

Program (Graduate): N/A

Environmental Studies is an interdisciplinary field that explores the interconnection between humans and the natural environment. Modern environmental issues reflect the complex interactions of natural and social systems at global and local scales, and the resulting impacts on the Earth have led many to ask whether humankind has entered into a new epoch in the planet's history, one in which humans are now a key driver in the change of Earth systems. The Environmental Studies program fosters the critical, integrative thinking required to better understand the complexities of this human-nature relationship and the resultant scales of impact, and to assess and develop solutions that meet intergenerational human needs without compromising the natural systems upon which humans depend.

The Environmental Studies Program offers a major in Environmental Science for both the BA and BS degrees, and a minor in Environmental Studies and 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 desiring a major with an environmental emphasis have multiple options:

- the environmental science major (through the pursuit of a BA or BS degree)
- environmental engineering (a concentration in the Civil and Environmental Engineering major)
- environmental policy (an area of specialization in the Policy Studies major)
- environmental engineering (a concentration in the Chemical and Biomolecular Engineering major)
- environmental earth science track (a track in the Earth Science major)

Students seeking advice regarding the Environmental Studies Program may contact Dr. Dominic Boyer (dcb2@rice.edu) or the coordinator for the Center for Energy and Environmental Research in the Human Sciences (cenhs@rice.edu).

Students seeking advice regarding the Environmental Science major should contact Dr. Andre Droxler (andre@rice.edu) for the major concentration in Earth Science or Dr. Evan Siemann (siemann@rice.edu) for the major concentration in Ecology and Evolutionary Biology.

Last Revised : August 17, 2016
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University Calendar

Maps-Directions

Feedback



GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Environmental Studies >

Undergraduate Students

Non-Traditional Students

Administration and Faculty

Graduate Students

Programs of Study

Important Notices

Faculty

Environmental Studies

The Wiess School of Natural Sciences, The School of Social Sciences, and The School of Humanities

	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
lump to:				
Environ	mental Science			
BS in	Environmental Science			
BA in	Environmental Science			
Environ	mental Studies			

Upon completing the BS degree, students majoring in Environmental Science will be able to:

- 1. Demonstrate foundational knowledge in the natural sciences that is fundamental to the Environmental Sciences.
- 2. Be able to integrate knowledge of natural and applied sciences to understand complex natural systems and cycles.
- 3. Be able to synthesize knowledge from natural sciences and engineering and apply it to the study of the environment.
- Understand environmental issues from a scientific perspective and be able to solve issues using a variety of interdisciplinary perspectives (e.g., social sciences, economics, humanities, and/or architecture).
- 5. Be able to apply methods and theories to develop and test hypotheses or to propose and analyze solutions to environmental issues, using sound experimental, statistical, and/or design practices.

Requirements for the BS Degree with a Major in Environmental Science

For graduation requirements, see Graduation Requirements. Students pursuing the BS degree with a major in Environmental Science (ENVS) must complete:

- A minimum of 25-28 courses (a minimum of 73 credit hours) depending on course selection to satisfy major requirements.
- A minimum of 133 credit hours to satisfy degree requirements.
- The requirements of a major concentration. When students declare the major in Environmental Science, students must additionally identify and declare one of the major concentrations, either in a.) Ecology and Evolutionary Biology or b.) Earth 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. The Environmental Science major requirements for the B.S. degree are listed below.

CORE REQUIREMENTS

Students must complete a total of 18-21 courses (52-53 credit hours) depending on course selection as listed below to satisfy the major's Core Requirements for the BS degree.

Foundation Coursework

Students must complete a total of 11-13 courses (32 credit hours) depending on course selection as listed below.

BIOC 201 Introductory Biology [3 credit hours]

- CHEM 122 General Chemistry II [3 credit hours] and CHEM 124 General Chemistry I Lab [1 credit hour]
- MATH 101 Single Variable Calculus I [<u>3 credit hours</u>]
 or MATH 111 Fundamental Theorem of Calculus [<u>3 credit hours</u>]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- or MATH 112 Calculus and its Applications [3 credit hours]
- STAT 280 Elementary and Applied Statistics [<u>4 credit hours</u>] or STAT 305 Intro to Statistics for the Biosciences [<u>4 credit hours</u>]
- PHYS 101 Mechanics (with Lab) [4 credit hours] and PHYS 103 Mechanics Discussion [0 credit]
 or PHYS 111 Mechanics (with Lab) [4 credit hours]
 or PHYS 125 General Physics (with Lab) [4 credit hours]
- PHYS 102 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>] and PHYS 104 E & M Discussion [<u>0 credit</u>] or PHYS 112 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>] or PHYS 126 General Physics II [<u>4 credit hours</u>]

Note: CHEM 121 and CHEM 123 can be satisfied by completing CHEM 151 *Honors General Chemistry I* [<u>3 credit hours</u>] and CHEM 153 *Honors General Chemistry I Lab* [<u>1 credit hour</u>]. Similarly, CHEM 122 and CHEM 124 can be satisfied by completing CHEM 152 *Honors General Chemistry II* [<u>3 credit hours</u>] and CHEM 154 *Honors General Chemistry II Lab* [<u>1 credit hours</u>] and CHEM 154 *Honors General Chemistry II Lab* [<u>1 credit hours</u>] and CHEM 154 *Honors General Chemistry II Lab* [<u>1 credit hours</u>].

Core Courses

Students must complete a total of 6 courses (18 credit hours) as listed below. The core courses acquaint students with a range of environmental topics encountered by scientists, engineers, managers, and policy makers. Core courses stress the components of the global environment and their interactions, culminating with a tropical seminar that integrates across the field.

- ENST 100/ARCH 105 Environmental Culture and Society [3 credit hours]
- ESCI 107 Oceans & Global Change [3 credit hours]
 - or ESCI 109 Oceanography [3 credit hours]
 - or ESCI 201 Science Behind Global Warming [3 credit hours]
- EBIO 213 Introduction to Experimental Ecology and Evolutionary Biology [2 credit hours]
- EBIO 325 Ecology [<u>3 credit hours</u>]
- ESCI 301 Introduction to the Earth [4 credit hours]
- ENST 4XX SEMINAR: Topics in Environmental Science [3 credit hours]

Field Experience

Students must complete between 1-2 courses (2-3 credit hours) depending on course selection from the following:

- ESCI 103 Field Trips for the Earth [<u>1 credit hour</u>]
- EBIO 306 Undergraduate Independent Study (with field component) [1-3 credit hours]
- EBIO 316 Lab Module in Ecology [1 credit hour]
- EBIO 317 Lab Module in Behavior [1 credit hour]
- EBIO 319 Tropical Field Biology [2 credit hours]
- EBIO 320 Ecology and Conservation of Brazilian Wetlands Lab [2 credit hours]
- EBIO 324 Conservation Biology Lab [1 credit hour]
- EBIO 327 Biological Diversity [<u>1 credit hour</u>]
- EBIO 330 Insect Biology Lab [1 credit hour]
- EBIO 337 Field Bird Biology [1 credit hour]
- ESCI 334 Geological Field Techniques [3 credit hours]
- ESCI 380/FOTO 390 Visualizing Nature [3 credit hours]
- ENST 379/EBIO 379 Underwater Ecology [1 credit hour]
- FWIS 187 Exploring the Science and History of Houston's Bayous [3 credit hours]

MAJOR CONCENTRATION: ECOLOGY AND EVOLUTIONARY BIOLOGY

Students must complete a total of 3-4 courses (9-12 credit hours) as listed below to satisfy the requirements for the major concentration in Ecology and Evolutionary Biology.

Core Requirements

Students must complete 2 courses (6 credit hours) from the following:

- EBIO 270 Ecosystem Management [3 credit hours]
- EBIO 323/ENST 323 Conservation Biology [3 credit hours]
- EBIO 372 Coral Reef Ecosystems [<u>3 credit hours</u>]

Electives

Students must complete at least 1 course (3 credit hours) from the following. Note that the course not completed in the Core Requirements list for the major concentration in Ecology and Evolutionary Biology may be completed to apply towards the major concentration's Electives requirement.

- EBIO 270 Ecosystem Management [3 credit hours]
- EBIO 321 Animal Behavior [3 credit hours]
- EBIO 323/ENST 323 Conservation Biology [<u>3 credit hours</u>]
- EBIO 326 Insect Biology [<u>3 credit hours</u>]
- EBIO 331/BIOC 331 Biology of Infectious Diseases [3 credit hours]
- EBIO 334/BIOC 334 Evolution [<u>3 credit hours</u>]
- EBIO 336 Plant Diversity [<u>3 credit hours</u>]
- EBIO 338 Design and Analysis of Biological Experiments
- EBIO 365 Introductory Phycology [<u>3 credit hours</u>]
- EBIO 366 Applied Phycology [<u>3 credit hours</u>]
- EBIO 372 Coral Reef Ecosystems [3 credit hours]
- ESCI 340/EBIO 340/ENST 340 Global Biogeochemical Cycles [3 credit hours]

MAJOR CONCENTRATION: EARTH SCIENCE

Students must complete a total of 3 courses (minimum of 9 credit hours) as listed below to satisfy requirements for the major concentration in Earth Science.

Core Requirements

Students must complete 2 courses (6-7 credit hours depending on course selection) from the following:

- ESCI 321 Earth Systems and Cycles [3 credit hours]
- ESCI 323 Earth Structure and Deformation [<u>4 credit hours</u>]
- ESCI 340/EBIO 340/ENST 340 Global Biogeochemical Cycles [3 credit hours]

Electives

Students must complete at least 1 course (3 credit hours) from the following. Note that the course not completed in the Core Requirements list for the major concentration in Earth Science may be completed to apply towards the major concentration's Electives requirement.

- ESCI 321 Earth System Evolution and Cycles [3 credit hours]
- ESCI 322 Earth Chemistry and Materials [4 credit hours]
- ESCI 323 Earth Structure and Deformation [4 credit hours]
- ESCI 340/EBIO 340/ENST 340 Global Biogeochemical Cycles [3 credit hours]
- ESCI 380/FOTO 390 Visualizing Nature (if not selected for field course) [3 credit hours]
- ESCI 418/CEVE 418 Quantitative Hydrogeology [3 credit hours]
- ESCI 421 Paleoceanography [<u>3 credit hours</u>]
- ESCI 425/CHEM 425/ENST 425 Organic Geochemistry [3 credit hours]
- ESCI 430 Principles of Trace-Element and Isotope Geochemistry [3 credit hours]
- ESCI 431 Geomorphology [<u>3 credit hours</u>]
- ESCI 435 Mechanics of Sediment Transport [<u>3 credit hours</u>]
- ESCI 452 Geographic Information Science [<u>3 credit hours</u>]
- ESCI 467 Geomechanics [<u>3 credit hours</u>]

ADVANCED ELECTIVES

Students must complete 1 course (minimum of 3 credit hours) from each of the following areas for a total of 3 courses (9-10 credit hours depending on course selection) to enhance breadth and to satisfy the Environmental Science major's Advanced Electives requirement. Students may also petition to complete alternative courses to be applied toward the Advanced Electives requirement.

Social Sciences

Students must complete 1 course (3 credit hours) from the following:

- ENST 332/ANTH 332 The Social Life of Clean Energy [3 credit hours]
- ANTH 348 Anthropologies of Nature [<u>3 credit hours</u>]
- ANTH 381 Medical Anthropology [3 credit hours]
- ENST 437/ECON 437 Energy Economics [3 credit hours]
- ENST 480/ECON 480 Environmental Economics [<u>3 credit hours</u>]
- POLI 331 Environmental Politics and Policy [3 credit hours]
- POLI 332 Urban Politics [<u>3 credit hours</u>]
 Comparative Urban Politics and Policy

POLI 362

[3 credit hours]

- POST 401 Energy Policy [<u>3 credit hours</u>]
- ENST 302/SOCI 304 Environmental Issues: Rice into the Future [3 credit hours]
- SOCI 313 Demography [3 credit hours]
- SOCI 423 Sociology of Food [<u>3 credit hours</u>]
- ENST 367/SOCI 367 Environmental Sociology [3 credit hours]

Humanities and Architecture

Students must complete 1 course (3 credit hours) from the following:

- ENST 313/ARCH 313 Case Studies in Sustainable Design [3 credit hours]
- ENST 322/ARCH 322 Case Studies in Sustainability [3 credit hours]
- ENGL 358 Consumption and Consumerism [<u>3 credit hours</u>]
- ENGL 367/SWGS 367 American Ecofeminism [3 credit hours]
- ENST 368/ENGL 368 Literature and the Environment [3 credit hours]
- ENGL 459 Literature and Ecology [<u>3 credit hours</u>]
- HIST 376 Natural Disasters in the Caribbean [<u>3 credit hours</u>]
- HIST 425 20th Century American Conservatism [3 credit hours]
- ENST 202/HUMA 202 Culture, Energy and the Environment [3 credit hours]

Natural Science and Engineering

Students must complete 1 course (3-4 credit hours) from the following courses. In addition, students may complete 1 course listed in the major concentration requirements outside of the student's declared concentration.

- CEVE 302/ENGI 302 Sustainable Design [3 credit hours]
- ENST 307/CEVE 307/ESCI 307 Energy and the Environment [3 credit hours]
- CEVE 308 Air Pollution Control [<u>3 credit hours</u>]
- CEVE 401 Environmental Chemistry [4 credit hours]
- CEVE 404 Atmospheric Particulate Matter [3 credit hours]
- ENST 406/CEVE 406 Introduction to Environmental Law [3 credit hours]
- CEVE 411 Atmospheric Processes [<u>3 credit hours</u>]
- CEVE 412 Hydrology and Water Resources Engineering [3 credit hours]
- CEVE 420 Environmental Remediation and Restoration [3 credit hours]
- CEVE 434 Fate and Transport of Contaminants in the Environment [3 credit hours]
- CEVE 484/STAT 484 Environmental Risk Assessment and Human Health [3 credit hours]
- CHEM 211 Organic Chemistry I [3 credit hours] and CHEM 213 Organic Chemistry Discussion [0 credit]
- ENST 281/CHBE 281 Engineering Sustainable Communities [3 credit hours]
- Independent Research (see below for details)

CAPSTONE REQUIREMENT

To satisfy the remaining Environmental Science major requirements, students pursuing the BS degree must complete at least 1 course (3 credit hours minimum) from the following.

- ESCI 390 Geologic Field Camp [<u>1-6 credit hours</u>]
- ESCI 391 Earth Science Field Experience [1-6 credit hours]
- EBIO 403 Undergraduate Honors Research [2 credit hours] or 404 Undergraduate Honors Research [2 credit hours]
- ESCI 481 Undergraduate Research in Earth Science [1-6 credit hours]

Program Learning Outcomes for the BA Degree with a Major in Environmental Science

Upon completing the BA degree, students majoring in Environmental Science will be able to:

- 1. Demonstrate foundational knowledge in the natural sciences that is fundamental to the Environmental Sciences. This understanding should be adequate to support the incorporation of Environmental science knowledge into the study and practice of a field other than environmental science.
- 2. Be able to integrate knowledge of natural and applied sciences to understand complex natural systems and cycles.
- 3. Be able to synthesize knowledge from natural sciences and engineering and understand how it applies to the study of the environment.
- 4. Understand environmental issues from a scientific perspective and be able to solve issues using a variety of interdisciplinary perspectives (e.g., social sciences, economics, humanities, and/or architecture).

Requirements for the BA Degree with a Major in Environmental Science

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Environmental Science (ENVS) must complete:

- A minimum of 22-24 courses (a minimum of 62 credit hours) depending on course selection to satisfy major requirements.
- A minimum of 122 credit hours to satisfy degree requirements.
- The requirements of a major concentration. When students declare the major in Environmental Science, students must additionally identify and declare one of the major concentrations, either in a.) Ecology and Evolutionary Biology or b.) Earth 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. The major requirements are listed below.

CORE REQUIREMENTS

Students must complete 16-17 courses (44-45 credit hours) depending on course selection as listed below to satisfy the major's Core Requirements for the BA degree.

Foundation Coursework

Students must complete a total of 9 courses (24 credit hours) depending on course selection as listed below.

- BIOC 201 Introductory Biology [3 credit hours]
- EBIO 202 Introductory Biology II [<u>3 credit hours</u>]
- CHEM 121 General Chemistry / [3 credit hours] and CHEM 123 General Chemistry / Lab [1 credit hour]
- CHEM 122 General Chemistry II [3 credit hours] and CHEM 124 General Chemistry I Lab [1 credit hour]
- MATH 101 Single Variable Calculus I [<u>3 credit hours</u>]
 or MATH 111 Fundamental Theorem of Calculus [<u>3 credit hours</u>]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>] or MATH 112 Calculus and its Applications [<u>3 credit hours</u>]
- STAT 280 Elementary and Applied Statistics [<u>4 credit hours</u>]
 or STAT 305 Intro to Statistics for the Biosciences [<u>4 credit hours</u>]

Note: CHEM 121 and CHEM 123 can be satisfied by completing CHEM 151 *Honors General Chemistry I* [<u>3 credit hours</u>] and CHEM 153 *Honors General Chemistry I Lab* [<u>1 credit hour</u>]. Similarly, CHEM 122 and CHEM 124 can be satisfied by completing CHEM 152 *Honors General Chemistry II* [<u>3 credit hours</u>] and CHEM 154 *Honors General Chemistry II Lab* [<u>1 credit hours</u>] and CHEM 154 *Honors General Chemistry II Lab* [<u>1 credit hours</u>].

Core Courses

Students must complete a total of 6 courses (18 credit hours) as listed below. The core courses acquaint students with a range of environmental topics encountered by scientists, engineers, managers, and policy makers. Core courses stress the components of the global environment and their interactions, culminating with a tropical seminar that integrates across the field.

- ENST 100/ARCH 105 Environmental Culture and Society [3 credit hours]
- ESCI 107 Oceans & Global Change [3 credit hours]
 - or ESCI 109 Oceanography [3 credit hours]
 - or ESCI 201/ENST 201 Science Behind Global Warming [3 credit hours]
- EBIO 213 Introduction to Experimental Ecology and Evolutionary Biology [2 credit hours]
- EBIO 325 Ecology [3 credit hours]
- ESCI 301 Introduction to the Earth [4 credit hours]
- ENST 4XX SEMINAR: Topics in Environmental Science [3 credit hours]

Field Experience

Students must complete between 1-2 courses (2-3 credit hours) depending on course selection from the following:

- EBIO 306 Undergraduate Independent Study (with field component) [1-3 credit hours]
- EBIO 316 Lab Module in Ecology [<u>1 credit hour</u>]
- EBIO 317 Lab Module in Behavior [1 credit hour]
- EBIO 319 Tropical Field Biology [<u>2 credit hours</u>]
- BIO 320 Ecology and Conservation of Brazilian Wetlands Lab [2 credit hours]
- EBIO 324 Conservation Biology Lab [<u>1 credit hour</u>]
- EBIO 327 Biological Diversity [<u>1 credit hour</u>]
- EBIO 330 Insect Biology Lab [<u>1 credit hour</u>]
- EBIO 337 Field Bird Biology [<u>1 credit hour</u>]
- ENST 379/EBIO 379 Underwater Ecology [1 credit hour]

- ESCI 103 Field Trips for the Earth [<u>1 credit hour</u>]
- ESCI 380/FOTO 390 Visualizing Nature [<u>3 credit hours</u>]
- ESCI 334 Geological Field Techniques[<u>3 credit hours</u>]
- ESCI 390 Geologic Field Camp
- ESCI 391 Earth Science Field Experience [1-6 credit hours]
- FWIS 187 Exploring the Science and History of Houston's Bayous [3 credit hours]

MAJOR CONCENTRATION: ECOLOGY AND EVOLUTIONARY BIOLOGY

Students must complete a total of 3 courses (minimum of 9 credit hours) as listed below to satisfy the requirements for the major concentration in Ecology and Evolutionary Biology.

Core Requirements

Students must complete 2 courses (6 credit hours) from the following:

- EBIO 270 Ecosystem Management [3 credit hours]
- EBIO 323/ENST 323 Conservation Biology [3 credit hours]
- EBIO 372 Coral Reef Ecosystems [<u>3 credit hours</u>]

Electives

Students must complete at least 1 course (3 credit hours) from the following. Note that the course not completed in the Core Requirements list for the major concentration in Ecology and Evolutionary Biology may be completed to apply towards the major concentration's Electives requirement.

- EBIO 270 Ecosystem Management [3 credit hours]
- EBIO 321 Animal Behavior [3 credit hours]
- EBIO 323/ENST 323 Conservation Biology [3 credit hours]
- EBIO 326 Insect Biology [<u>3 credit hours</u>]
- EBIO 331/BIOC 331 Biology of Infectious Diseases [3 credit hours]
- EBIO 334/BIOC 334 Evolution [3 credit hours]
- EBIO 336 Plant Diversity [<u>3 credit hours</u>]
- EBIO 338 Design and Analysis of Biological Experiments
- EBIO 365 Introductory Phycology [<u>3 credit hours</u>]
- EBIO 366 Applied Phycology [<u>3 credit hours</u>]
- EBIO 372 Coral Reef Ecosystems [3 credit hours]
- ESCI 340/EBIO 340/ENST 340 Global Biogeochemical Cycles [3 credit hours]

MAJOR CONCENTRATION: EARTH SCIENCE

Students must complete a total of 3-4 courses (9-12 credit hours) as listed below to satisfy the requirements for the major concentration in Earth Science.

Core Requirements

Students must complete 2 courses (6-7 credit hours depending on course selection) from the following:

- ESCI 321 Earth System Evolution and Cycles [3 credit hours]
- ESCI 323 Earth Structure and Deformation [4 credit hours]
- ESCI 340/EBIO 340/ENST 340 Global Biogeochemical Cycles [3 credit hours]

Electives

Students must complete at least 1 course (3 credit hours) from the following. Note that the course not completed in the Core Requirements list for the major concentration in Earth Science may be completed to satisfy the major concentration's Electives requirement.

- ESCI 321 Earth System Evolution and Cycles [3 credit hours]
- ESCI 322 Earth Chemistry and Materials [<u>4 credit hours</u>]
- ESCI 323 Earth Structure and Deformation [4 credit hours]
- ESCI 340/EBIO 340/ENST 340 Global Biogeochemical Cycles [3 credit hours]
- ESCI 380/FOTO 390 Visualizing Nature (if not selected for field course) [3 credit hours]
- ESCI 418/CEVE 418 Quantitative Hydrogeology [3 credit hours]
- ESCI 421 Paleoceanography [<u>3 credit hours</u>]
- ESCI 425/CHEM 425/ENST 425 Organic Geochemistry [3 credit hours]
- ESCI 430 Principles of Trace-Element and Isotope Geochemistry [3 credit hours]
- ESCI 431 Geomorphology [<u>3 credit hours</u>]
- ESCI 435 Mechanics of Sediment Transport [3 credit hours]
- ESCI 452 Geographic Information Science [<u>3 credit hours</u>]

ADVANCED ELECTIVES

To fulfill the remaining major requirements for the BA degree, students must complete 1 course (3-4 credit hours depending on course selection) from each of the following areas for a total of 3 courses (9-10 credit hours depending on course selection) to enhance breadth. Students may also petition to complete alternative courses to be applied toward the Advanced Electives requirement.

Social Sciences

Students must complete 1 course (3 credit hours) from the following:

- ENST 332/ANTH 332/The Social Life of Clean Energy [3 credit hours]
- ANTH 348 Anthropologies of Nature [<u>3 credit hours</u>]
- ANTH 381 Medical Anthropology [<u>3 credit hours</u>]
- ENST 437/ECON 437 Energy Economics [3 credit hours]
- ENST 480/ECON 480 Environmental Economics [3 credit hours]
- POLI 331 Environmental Politics and Policy [3 credit hours]
- POLI 332 Urban Politics [<u>3 credit hours</u>]
- POLI 362 Comparative Urban Politics and Policy [<u>3 credit hours</u>]
- POST 401 Energy Policy [<u>3 credit hours</u>
- ENST 302/SOCI 304 Environmental Issues: Rice into the Future [3 credit hours]
- SOCI 313 Demography [<u>3 credit hours</u>]
- ENST 367/SOCI 367 Environmental Sociology
- SOCI 423 Sociology of Food [<u>3 credit hours</u>]

Humanities and Architecture

Students must complete 1 course (3 credit hours) from the following:

- ENST 313/ARCH 313Case Studies in Sustainable Design [3 credit hours]
- ENST 322/ARCH 322Case Studies in Sustainability [3 credit hours]
- ENGL 358 Consumption and Consumerism [3 credit hours]
- ENGL 367/SWGS 367 American Ecofeminism [3 credit hours]
- ENST 368/ENGL 368 Literature and the Environment [3 credit hours]
- ENGL 459 Literature and Ecology [<u>3 credit hours</u>]
- HIST 376 Natural Disasters in the Caribbean [3 credit hours]
- HIST 425 20th Century American Conservatism [3 credit hours]
- ENST 202/HUMA 202 Culture, Energy and the Environment [3 credit hours]

Natural Science and Engineering

Students must complete 1 course (3 credit hours) from the following courses. In addition, students may complete 1 course listed in the major concentration requirements outside of the student's declared concentration.

- CEVE 302/ENGI 302 Sustainable Design [3 credit hours]
- ENST 307/CEVE 307/ESCI 307 Energy and the Environment [3 credit hours]
- CEVE 308 Air Pollution Control [<u>3 credit hours</u>]
- CEVE 310 Principles of Engineering [3 credit hours]
- CEVE 401 Environmental Chemistry [4 credit hours]
- CEVE 404 Atmospheric Particulate Matter [3 credit hours]
- ENST 406/CEVE 406 Introduction to Environmental Law [3 credit hours]
- CEVE 411 Atmospheric Processes [<u>3 credit hours</u>]
- CEVE 412 Hydrology and Water Resources Engineering [3 credit hours]
- CEVE 420 Environmental Remediation and Restoration [<u>3 credit hours</u>]
- CEVE 434 Fate and Transport of Contaminants in the Environment [3 credit hours]
- CEVE 484/STAT 384 Environmental Risk Assessment and Human Health [3 credit hours]
- CHEM 211 Organic Chemistry I [<u>3 credit hours</u>] and CHEM 213 Organic Chemistry Discussion [<u>0 credit</u>]
- ENST 281/CHBE 281 Engineering Sustainable Communities [3 credit hours]
- PHYS 101 Mechanics (with Lab) [4 credit hours] and PHYS 103 Mechanics Discussion [0 credit]
- PHYS 102 Electricity and Magnetism (with Lab) [4 credit hours] and PHYS 104 E & M Discussion [0 credit]

Independent Research

Students are encouraged to undertake independent research on environmentally related topics as part of their degree programs, in cooperation with one or more faculty. Course options for independent research, repeatable for credit, include: EBIO 403, EBIO 404, ESCI 481. Students also can enroll in senior honors thesis programs within their concentrations, or by arrangement with other departments, and/or through the Rice Undergraduate Scholars Program. Students completing a thesis will be eligible

for the Award of Distinction in Research and Creative Works. Details for each program can be found here:

- EBIO Honors Research
- (https://biosciences.rice.edu/Content.aspx?id=2147484071)
- ESCI Senior Honors Thesis (http://earthscience.rice.edu/academics/undergraduate-program/honors-thesis)
- Rice Undergraduate Scholars Program (http://rusp.rice.edu/about/)

Requirements for the Minor in Environmental Studies

Students pursuing the minor in Environmental Studies (ENST) must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of four courses (12 credit hours) at the 300-level or above.

The Environmental Studies minor was specifically created to provide undergraduates from a broad range of academic backgrounds with a cohesive program offering foundational literacy in the social, cultural, and scientific dimensions of environmental issues, and a cross-disciplinary holistic understanding of the challenges and solutions for creating a sustainable world. Students completing the minor will be able to synthesize frameworks, tools, and perspectives from multiple disciplines; master sustainability terminology; understand major environmental issues from multiple perspectives; develop and assess environmental solutions in an informed and logical manner; and convey knowledge and insights about environmental issues in multiple formats. Students seeking advice regarding the Environmental Studies minor may contact Dr. Dominic Boyer (dcb2@rice.edu) or the coordinator for the Center for Energy and Environmental Research in the Human Sciences (cenhs@rice.edu).

CORE REQUIREMENTS

Students must complete a total of 2 courses (6 credit hours) as listed below to satisfy the Environmental Studies minor's Core Requirements.

Core Course

Students must complete the following course:

ENST 100/ARCH 105 Environment, Culture and Society [3 credit hours]

Introductory Course

Students must complete 1 course (3 credit hours) from the following. Current/former EBIO majors are eligible to substitute EBIO 325 in place of EBIO 124 to meet the introductory course requirement from the natural sciences.

- EBIO 124 Introduction to Ecology and Evolutionary Biology [3 credit hours]
- ESCI 101/ENST 101 The Earth [3 credit hours]
- ESCI 107 Oceans and Global Change [3 credit hours]
- ESCI 109 Oceanography [<u>3 credit hours</u>]
- ESCI 201/ENST 201 The Science Behind Earth Global Warming and Climate Change [3 credit hours]

ELECTIVE COURSES

To fulfill the remaining Environmental Studies minor requirements, students must complete a total of 4 additional elective courses (12 credit hours). At least 2 courses (6 credit hours) must be completed from each of the categories listed below. Given the wide range of courses at Rice related to Environmental Studies, students are encouraged to contact the Minor Director to suggest courses to include on the list of approved electives.

From the Schools of Architecture, Humanities, and Social Sciences

Students must complete a total of 2 courses (6 credit hours) from the following:

- ANTH 332/ENST 332 The Social Life Of Clean Energy [3 credit hours]
- ARCH 313/ENST 313 Case Studies in Sustainable Design [3 credit hours]
- ARCH 322/ENST 322 Case Studies in Sustainability: The Regenerative Repositioning Of New or Existing Rice Campus Buildings [<u>3 credit hours</u>]
- ECON 437/ENST 437 Energy Economics [3 credit hours]
- ECON 480/ENST 480 Environmental Economics [3 credit hours]
- ENGL 358 Consumption & Consumerism [3 credit hours]
- ENGL 368/ENST 368 Literature and the Environment [3 credit hours]
- ENGL 459 Topics in Literature And Ecology [3 credit hours]
- FOTO 390/ESCI 380 Visualizing Nature [<u>3 credit hours</u>]

- HART 302 From the Sublime to the Sustainable: Art, Architecture And Nature [3 credit hours]
- HIST 425 20th Century American Conservation Movement [3 credit hours]
- HUMA 202/ENST 202 Culture, Energy and the Environment [3 credit hours]
- SOCI 304/ENST 302 Environmental Issues: Rice into the Future [3 credit hours]

From the Schools of Engineering and Natural Sciences

Students must complete a total of 2 courses (6 credit hours) from the following:

- CEVE 302/ENGI 302 Sustainable Design [3 credit hours]
- CEVE 307/ENST 307 / ESCI 307 Energy and the Environment [3 credit hours]
- CEVE 310 Principles of Environmental Engineering [<u>3 credit hours</u>]
- CEVE 406/ENST 406 Introduction to Environmental Law [3 credit hours]
- CHBE 281/ENST 281 Engineering Sustainable Communities [3 credit hours]
- EBIO 204/ENST 204 Environ. Sustain.: Design & Practice Of Community Agriculture [1 credit hour]
- EBIO 270 Ecosystem Management [<u>3 credit hours</u>]
- EBIO 319 Tropical Field Biology [2 credit hours]
- EBIO 320 Ecology And Conservation of Brazilian Wetland Laboratory [2 credit hours]
- EBIO 323/ENST 323 Conservation Biology [3 credit hours]
- EBIO 325 Ecology [<u>3 credit hours</u>]
- EBIO 327 Biological Diversity Lab [<u>1 credit hour</u>]
- EBIO 372 Coral Reef Ecosystems [3 credit hours]
- EBIO 379/ENST 379 Lab Module in Aquatic Ecology with Scuba [<u>1 credit hour</u>]
- ELEC 365/MSNE 365 Nanomaterials for Energy [3 credit hours]
- ESCI 321 Earth System Evolution and Cycles [4 credit hours]
- ESCI 340/EBIO 340/ENST 340 Global Biogeochemical Cycles [3 credit hours]
- ESCI 380/FOTO 390 Visualizing Nature [<u>3 credit hours</u>]
- ESCI 407 Introduction To Biogeochemistry II [<u>3 credit hours</u>]
- ESCI 425/CHEM 425/ENST 425 Organic Geochemistry [3 credit hours]
- ESCI 450/CEVE 450 Remote Sensing [<u>3 credit hours</u>]
- ESCI 452 GIS for Geoscientists [3 credit hours]

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the various Environmental Studies undergraduate degrees, majors, and minor. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: ENST

- Department Description and Code
 - Environmental Studies: ENST
- Degree Descriptions and Codes
 - Bachelor of Arts degree: BA
 - Bachelor of Science degree: BS
- Major Description and Code
- Major in Environmental Science (attached to both the BA and BS Degrees): ENVS

Major Concentration Description and Code

- Major concentration in Ecology and Evolutionary Biology (attached to both the BA and BS Degrees): ESEC
- Major concentration in Earth Science (attached to both the BA and BS Degrees): ESEA

Minor Description and Code

- Minor in Environmental Studies: ENST

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Environmental Studies >

Undergraduate Students	Environmental Studies								
Graduate Students		The Wiess School of Natural Sciences, The School of Social Sciences, and The School of Humanities							
Non-Traditional Students									
► Faculty		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings				
Programs of Study	Environr	nental Studies does not off	er an academic program at the	e graduate level.					
Administration and Faculty	Faculty Last Revised : August 12, 2016								
Important Notices									

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Environmental Studies >

Undergraduate Students	Environmental Studies The Wiess School of Natural Sciences, The School of Social Sciences, and The School of Humanities						
Graduate Students							
Non-Traditional Students							
▶ Faculty		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings		
Programs of Study	Cours	e Listings					
Administration and Faculty		ial course offerings, includio an be found in Rice's Cour	0 1 ,	d in the Environmental Studie	s Undergraduate Requirements		
Important Notices	To view	the most recent course sch	edule for the 2016-2017 aca	demic year, see Rice's Cours	se Schedule. 🗗		
	For addit	tional information regarding	Environmental Studies, see	the department's website: ht	tp://culturesofenergy.com/. 🗗		
	Last Revise	d : August 24, 2016					

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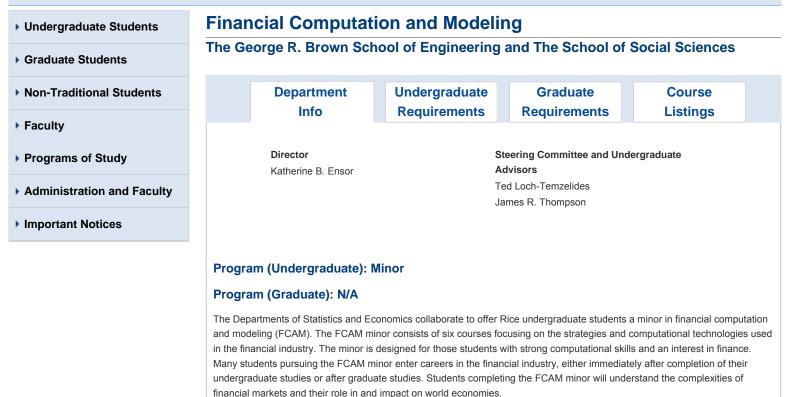
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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Financial Computation and Modeling >



The basic tools component of the FCAM curriculum will equip students with the economic, probability and statistical tools necessary to pursue the advanced analytical courses. In the advanced courses, students will be exposed to state-of-the-art models and methodologies based on long-standing assumptions about the behavior of financial markets. They also will be exposed to alternative views of market behavior and investment strategies. The goal is to educate students to question basic assumptions as well as utilize and understand technologies based on these important assumptions. In the financial industry, a large suite of solutions are implemented and continually enhanced. A goal of the FCAM program is to train leaders in this industry who not only will understand the financial technologies but also will understand the role, impact, and potential pitfalls of these technologies.

Rice A-Z

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Maps-Directions Feedback



GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Financial Computation and Modeling >

Undergraduate Students	Finar	ncial Computa	tion and Modeli	ng					
Graduate Students	The G	The George R. Brown School of Engineering and The School of Social Sciences							
Non-Traditional Students	-	Department	Undergraduate	Graduate	Course				
▶ Faculty	Prog	Info Requirements Requirements Listings Program Learning Outcomes for the Interdisciplinary Minor in Financial							
Programs of Study	Computation and Modeling								
Administration and Faculty	Upon co	ompleting the Financial Com	putation and Modeling minor,	students will be able to:					
Important Notices		emonstrate knowledge of sta lestions or problems in the fi	•	ds and how to choose and app	ly appropriate methods to				
	2. Ur	•	s of Economic Theory and how	w they apply to financial marke	ts as well as how financial				
		emonstrate an understandin Id solve financial problems.	g of basic financial databases	and the ability to use technolog	gies, like R and Excel, to model				
		nderstand core quantitative ind investing.	modeling concepts and demon	strate key skills necessary for	working in the field of finance				
	5. De	emonstrate the ability to und	erstand, interpret, and critically	y evaluate empirical financial s	tudies and investment				

Requirements for the Interdisciplinary Minor in Financial Computation and Modeling

Students pursuing the minor in Financial Computation and Modeling (FCAM) must complete:

- A minimum of 6 courses (18-19 credit hours) to satisfy minor requirements.
- A minimum of 5 courses (15 credit hours) at the 300-level or above.

CORE REQUIREMENTS

strategies.

Students must complete a total of 3 courses (9-10 credit hours depending on course selection) as listed below to satisfy the Financial Computation and Modeling minor's Core Requirements.

Basic Tools

Students must complete 3 courses (9 credit hours) from the following:

- ECON 100 Microeconomics / [<u>3 credit hours</u>] or ECON 301 Microeconomics // [<u>3 credit hours</u>]
- STAT 310/ECON 307 Probability and Statistics [3 credit hours]
- STAT 410 Linear Regression [<u>4 credit hours</u>]
 - or ECON 310/STAT 376 *Econometrics* [<u>3 credit hours</u>] or ECON 309 *Applied Econometrics* [<u>3 credit hours</u>]

ELECTIVES

To fulfill the remaining Financial Computation and Modeling minor requirements, students must complete a total of 3 additional courses (9 credit hours) from the following 4 groups. No more than 1 course can be taken from each group to satisfy the Electives requirement. Students majoring in Economics (ECON) must take at least 1 advanced course from Statistics (STAT) course offerings. Students majoring in Statistics (STAT) must take at least 1 advanced course from Economics (ECON) course offerings.

Group I

Students may complete 1 course (3 credit hours) from the following:

- ECON 418 Economic Forecasting [3 credit hours]
- STAT 421 Applied Time Series and Forecasting [3 credit hours]

Group II

Students may complete 1 course (3 credit hours) from the following:

- ECON 449 Principles of Financial Engineering [3 credit hours]
- STAT 449 Quantitative Financial Risk Management [3 credit hours]

Group III

Students may complete the following course:

STAT 486 Market Models [<u>3 credit hours</u>]

Group IV

Students may complete 1 course (3 credit hours) from the following:

- BUSI 343 Financial Management [3 credit hours]
- ECON 343 Corporate Finance [3 credit hours]
- ECON 355 Financial Markets [3 credit hours]
- ECON 443 Financial Economics [3 credit hours]
- ECON 455 Money and Financial Markets [3 credit hours]
- STAT 482 Quantitative Financial Analytics [3 credit hours]

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate minor in Financial Computation and Modeling. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses offered by other departments apply toward the minor in Financial Computation and Modeling

Rice A-Z

Department Description and Code

- Financial Computation and Modeling: FCAM

Minor Description and Code

- Minor in Financial Computation and Modeling: FCAM

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Financial Computation and Modeling >

Undergraduate Students	Financial Computation and Modeling						
Graduate Students	The George R. Brown School of Engineering and The School of Social Sciences						
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings		
► Faculty	Graduate Requirements						
▶ Programs of Study				c program at the graduate level.			
Administration and Faculty							
Important Notices	Last Revise	ed : August 12, 2016					

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Financial Computation and Modeling >

Undergraduate Students	Financial Computation and Modeling						
Graduate Students							
Non-Traditional Students	Department	Undergraduate	Graduate	Course			
▶ Faculty	Info Course Listings	Requirements	Requirements	Listings			
Programs of Study	The official course offerings, including course descriptions, listed in the Financial Computation and Modeling's Undergraduates						
Administration and Faculty	section can be found in Rice's Cour	rse Catalog. 샵					
Important Notices	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.						
	For additional information regarding Financial Computation and Modeling, see the department's website: http://www.cofes- rice.org/about-cofes/.						
	Last Revised : August 24, 2016						

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 Rice A-Z
 Maps-Directions
 Feedback

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491 of 923

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Global Affairs >

Undergraduate Students	Global Affairs						
Graduate Students	The School of Social Sciences	i					
Non-Traditional Students		ndergraduate	Graduate	Course			
Faculty	Info	equirements	Requirements	Listings			
Programs of Study	Faculty Director	Ва	aker Institute Fellows				
	Mark P. Jones		dward P. Djerejian				
Administration and Faculty			ussell Green				
	Professors		even Lewis				
mportant Notices	Dominic Boyer		m Krane				
	Lyn Ragsdale	To	ony Payan				
	Richard Stoll						
	Ted Loch-Temzelides		ecturers				
			ichael Ard				
	Associate Professor		ory Birenbaum				
	Songying Fang		Chris Bronk				
			olly Heard				
		Sc	cott McHugh				
	Program (Undergraduate): N/A Program (Graduate): MAGA degree The Master of Arts in Global Affairs (MGA) program, a joint effort between the Baker Institute for Public Policy and the School of						
	Social Sciences, offers graduate students a scholarship and offers practical training for gorganizations.						
	The MGA program is a two-year, 36-credit h with two terms run in each semester. There for pursuit of an Area of Study, participation	is also a required one-v	week pre-term math boot ca	mp. The second-year is reserve			
	Last Revised : August 17, 2016						

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Global Affairs >

Undergraduate Students	Global Affairs							
Graduate Students	The School of Social Sciences							
Non-Traditional Students		Department	Undergraduate	Graduate	Course			
▶ Faculty	Info Requirements Requirements Listings Undergraduate Requirements Info Info							
Programs of Study	Global A	ffairs does not offer an aca	ademic program at the undergra	aduate level.				
Administration and Faculty								
Last Revised : August 18, 2016								

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Global Affairs >

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The School of Social Sciences

Global Affairs

- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices
- Department Info
 Undergraduate Requirements
 Graduate Requirements
 Course Listings

 Program Learning Outcomes for the Master of Arts in Global Affairs degree, students will be able to:
 Upon completion of the Master of Arts in Global Affairs degree, students will be able to:
 Upon completion of the Master of Arts in Global Affairs degree, students will be able to:
 - 1. Demonstrate leadership, communication, and research skills to conduct independent studies enabling them to understand and formulate public policy recommendations in the international arena.
 - 2. Apply quantitative skills to data analysis to make policy recommendations.
- 3. Describe real-life experience in international public policy development by participating in an internship.
- 4. Assess the social responsibilities of governments, non-governmental organizations, corporations, and individuals in the global twenty-first century.
- 5. Analyze and develop new and innovative solutions to emerging challenges in the global community.

Requirements for the Master of Arts in Global Affairs Degree (MAGA)

For general university requirements, see the Professional Degrees section of Graduate Degrees. Students pursuing the Master of Arts in Global Affairs degree must complete:

- A minimum of 36 credit hours to satisfy degree requirements.
- The required Internship.
- The required Capstone project.

FIRST-YEAR CORE REQUIREMENTS

During their first year, students must complete the following 12 courses (18 credit hours) to satisfy the Master of Arts in Global Affairs degree program's Core Requirements:

- GLBL 501 Global Systems / [1.5 credit hours]
- GLBL 502 Institutions and Development [<u>1.5 credit hours</u>]
- GLBL 503 Introduction to Statistics for Masters Students [1.5 credit hours]
- GLBL 504 Quantitative Applications in Global Politics and Policy [<u>1.5 credit hours</u>]
- GLBL 505 Macroeconomics and the Global Economy [1.5 credit hours]
- GLBL 506 Macroeconomics for the Global Economy [1.5 credit hours]
- GLBL 507 Decision Making Under Uncertainty [1.5 credit hours]
- GLBL 510 Cultural Directions in International Affairs [1.5 credit hours]
- GLBL 512 International Conflict [<u>1.5 credit hours</u>]
- GLBL 513 International Cooperation [1.5 credit hours]
- GLBL 514 The Middle East Cauldron and United States Policy [1.5 credit hours]
- GLBL 515 International Security in a Multipolar World [1.5 credit hours]

SECOND-YEAR AREA OF SPECIALIZATION ELECTIVES

Students must complete 3 courses (a minimum of 9 credit hours) from one area of specialization. Students will choose their electives according to their individual academic interests and career goals. No more than 3 credit hours at the 400-level (one course) can be used toward the Area of Study.

International Political Development

- GLBL 531 Conflict, Cooperation, and Change in World Politics [3 credit hours]
- GLBL 541/POST 501 Energy Policy [3 credit hours]

- GLBL 553 International Crisis Management in a Multi-Risk, Inter-Connected World [3 credit hours]
 - HIST 372 Immigration and the State [3 credit hours]
- HIST 436 America and the Middle East [3 credit hours]
- HIST 572 America in the Middle East [4 credit hours]
- POLI 354 Latin American Politics [<u>3 credit hours</u>]
- POLI 459 Gender and Representation in Latin America [3 credit hours]
- POST 530 The Shaping of Health Policy [<u>3 credit hours</u>]
- SOCI 368 Sociology of Disaster [<u>3 credit hours</u>]

International Political Economy

- GLBL 531 Change in World Politics [3 credit hours]
- GLBL 541/POST 501 Energy Policy [3 credit hours]
- GLBL 542 International Macroeconomic Policy [3 credit hours]
- ECON 435 Industrial Organization [<u>3 credit hours</u>]
- ECON 437/ENST 437 Energy Economics [3 credit hours]
- ECON 483 Public Finance [3 credit hours]
- HIST 372 Immigration and the State [3 credit hours]
- HIST 436 America in the Middle East [3 credit hours]
- POLI 335 Political Environment of Business [3 credit hours]
- POLI 354 Latin American Politics [<u>3 credit hours</u>]
- POLI 374 Strategic Interactions in International Relations [3 credit hours]
- POLI 466 Parties and Voting Behavior [<u>3 credit hours</u>]

International Security

- ECON 437/ENST 437 Energy Economics [3 credit hours]
- GLBL 551 Cyberpolitik: International Affairs in Technology & Information [3 credit hours]
- GLBL 552 International Security [<u>3 credit hours</u>]
- GLBL 553 International Crisis Management [3 credit hours]
- HIST 436 America in the Middle East [<u>3 credit hours</u>]
- POLI 373 War and Politics [<u>3 credit hours</u>]
- POLI 374 Strategic Interactions in International Relations [3 credit hours]
- POLI 478 US China: Conflict and Cooperation [3 credit hours]

NOTE: Courses vary. Some listed courses may not be offered every year, and others may be offered that satisfy the requirements with pre-approval. Students should consult their academic advisors before enrolling and check for any course prerequisites.

GLBL 519 MASTER OF GLOBAL AFFAIRS INTERNSHIP (6 CREDIT HOURS)

Students are required to complete a minimum eight-week extensive field experience in which they intern at one of a variety of internationally-based or internationally-focused governmental and nongovernmental organizations, international commissions, embassies, agencies, or corporations. The internship will provide students valuable real-world application of their degree with the goal of facilitating their employment in these organizations.

GLBL 520 GLOBAL AFFAIRS CAPSTONE (3 CREDIT HOURS)

In the second year, students must select a topic of concentration and pursue in-depth research which delves into the real-world, policy aspects of the topic.

Foreign Language Proficiency

Students who expect to complete their degree program with a particular regional focus in mind are expected to be proficient in one of the primary languages of that region. Proficiency is defined as the ability to read and speak the language. This requirement can be met in one of three ways:

- By passing a language proficiency exam administered by the Rice Language Center.
- By achieving a grade of B+ or better in an intermediate language course at Rice. Taking this class does not count toward the 36 credit hours total for degree completion.
- By graduating from a high school or university where a language other than English was the primary language of instruction.

Fifth-Year Master's Degree Option for Rice Undergraduate Students

Rice students have an option to achieve the Master of Arts in Global Affairs degree by adding an additional fifth year to the four undergraduate years of studies. Advanced Rice students in good standing may apply during their junior year to the graduate program. Upon acceptance, depending on course load, financial aid status, and other variables they may then start taking

required core courses of the global affairs program during their senior year. A plan of study based on their particular focus area will need to be approved by the program director. Students should be aware there could be financial aid implications, if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time (12 hours) status.

NOTE: Rice undergraduate students must complete the requirements for a baccalaureate degree and the Master of Arts in Global Affairs independently of each other, i.e. no course may be counted toward the fulfillment of both degrees.

Admission

Applicants to the Master of Arts in Global Affairs degree program are required to submit:

- Statement of purpose
- Professional resume
- Three letters of recommendation
- Official transcripts from all colleges and universities attended, with official degree conferral date
- Approved GRE scores
- Approved TOEFL scores for applicants whose native language is not English and who did not receive a degree from a country in which English is the official language of communication.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Master of Arts in Global Affairs graduate degree program. The following is a quick reference:

Rice A-Z

Course Catalog/Schedule

- Course offerings/subject code: GLBL

Department Description and Code

- Global Affairs: GLBL

Degree Description and Code

- Master of Arts in Global Affairs degree: MAGA

Degree Program Description and Code

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- Degree Program in Global Affairs: GLBL

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Global Affairs >

Global Affairs				
The School of Social Sciences				
► Non-Traditional Students Department Undergraduate Graduate Course Info Requirements Requirements Listing				
ments	Listings			
Course Listings The official course offerings, including course descriptions, for Global Affairs can be found in Rice's Course Catalog.				
To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.				
For additional information regarding Global Affairs, see the department's website: http://mga.rice.edu/.				
Last Revised : August 24, 2016				

General Announce	ements 6100 M	ain MS-10, Houston,	Texas 77005-1827	Vailing Address: P.O.	Box 1892, Houston, Tex	kas 77251-1892
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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Global Health Technologies >

۲	Underg	graduate	Students

Non-Traditional Students

Graduate Students

Global Health Technologies

The George R. Brown School of Engineering, The Weiss School of Natural Sciences, The School of Humanities, and The School of Social Sciences

	Department Underg	graduate Graduate	Course		
Faculty	Info Requi	rements Requirements	Listings		
Programs of Study					
	Director and Advisor	Undergraduate Advisors			
Administration and Faculty	Rebecca Richards-Kortum	Elias K. Bongmba	Elias K. Bongmba		
		Maria Oden	Maria Oden		
Important Notices	Steering Committee				
	Pedro Alvarez	Minor Advisor			
	Rachel Kimbro	Veronica Leautaud			
	Douglas Shuler				
	Tomasz S. Tkaczyk				

Program (Undergraduate): Minor

Program (Graduate): N/A

Rice 360°: Institute for Global Health Technologies collaborates with multiple departments to offer students a minor in Global Health Technologies (GLHT), a unique, multidisciplinary program to educate and train students to reach beyond traditional disciplinary and geographic boundaries to understand, address, and solve global health disparities. With complementary contributions from the humanities, social science, policy, bioscience, and engineering program at Rice, the GLHT minor prepares students to integrate diverse perspectives as they develop solutions to the complex problems of global health, using the formal approach of the engineering design process.

The minor is open to Rice undergraduate students from all disciplines and requires completion of seven courses, including five core courses, and two electives. Students begin the minor by taking GLHT 201 *Introduction to Global Health*, which provides an overview of scientific, economic, and policy issues associated with advanced global health technologies, followed by an introductory design course, GLHT 360 *Appropriate Design for Global Health*. The subsequent core course is selected by the student from a collection of approved courses. The final two courses include GLHT 451 and GLHT 452, *Global Health Challenges II* respectively, which are taken in a two-semester sequence in which multidisciplinary teams of undergraduate students work together to design and implement solutions to existing global health challenges in the developing world. Elective courses include a range of subjects. Courses such as Immunology, Health Economics, Medical Chemistry, or Health Policy, provide students experience in engineering and social sciences as applied to international health challenges.

Throughout the program, GLHT students benefit from receiving guidance and mentorship from Rice faculty and graduate students as well as from the Texas Medical Center, partner organizations in developing countries, and clinicians to design low-cost, effective health technologies.

Last Revised : August 17, 2016

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Global Health Technologies >

٠	Under	graduate	Students

Global Health Technologies

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

The George R. Brown School of Engineering, The Weiss School of Natural Sciences, The School of Humanities, and The School of Social Sciences

	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings		
Program Learning Outcomes for the Interdisciplinary Minor in Global Health Technologies						
Upon completing the Global Health Technologies minor, students will be able to:						
 Demonstrate the ability to prototype and build appropriate technologies that respond to global health design challenges or problems, and/or develop a community health plan or strategy to address these challenges. They will conduct independent 						

- interpreting data—to demonstrate the effectiveness of their proposed solution.2. Demonstrate a broad understanding of the issue of human health, disease, and health care planning from Natural Science, Humanities, and Social Sciences perspectives.
- 3. Understand the basic elements of human health and disease from evolutionary, biological, and epidemiological perspectives.

research and design-from developing a research question and completing a literature review, to analyzing and

- 4. Demonstrate critical thinking and analysis skills within the realm of global health and its related disciplines, including the ability to critically and responsibly synthesize materials and methods from a range of disciplines to address global health problems or questions.
- 5. Demonstrate a knowledge of how health and disease are, in part, social and cultural constructs; students will be able to explain how different populations of individuals within the same geographic locale or in very different geographic locales may understand health and disease differently. They will also demonstrate the ability to assess and explain how different kinds of health planning, delivery systems, institutions, and health products would be more or less effective for different populations.
- 6. Communicate effectively at the college level by demonstrating the ability to write research papers, literature reviews, and other scholarly papers and by being able to verbally present this information effectively and correctly.

Requirements for the Interdisciplinary Minor in Global Health Technologies

Students pursuing the Global Health Technologies (GLHT) must complete:

A minimum of 7 courses (21 credit hours) to satisfy minor requirements.

CORE REQUIREMENTS

Students must complete a total of 5 courses (15 credit hours) as listed below to satisfy the Global Health Technologies minor's Core Requirements.

- GLHT 201 Bioengineering for Global Health Environments [3 credit hours]
- GLHT 360/BIOE 360 Appropriate Design for Global Health [3 credit hours]
- Choose 1 course (3 credit hours) from the following:
 - PSYC 370 Introduction to Human Factors and Ergonomics [3 credit hours]
 - SOCI 345 Medical Sociology [<u>3 credit hours</u>]
 - SOCI 381 Research Methods [3 credit hours]
 - ANTH 381 Medical Anthropology [3 credit hours]
 - GLHT 314 Sustainable Water Purification for the Developing World [3 credit hours]
 - GLHT 392/BIOE 392 Needs Finding and Development in Bioengineering [3 credit hours]
 - GLHT 464/BUSI 464 Social Entrepreneurship [3 credit hours]

GLHT 451 Global Health Design Challenges / [3 credit hours] GLHT 452 Global Health Design Challenges // [3 credit hours]

All core courses will be offered each year: GLHT 201, PSYC 370, SOCI 381, ANTH 381, GLHT 392 and GLHT 451 in the fall and GLHT 360, SOCI 345, GLHT 464, and GLHT 452 in the spring. The sequence indicated is the required sequence, as prerequisites do apply. Prior to enrollment in the capstone course GLHT 451/452, students must successfully complete all other GLHT minor core course requirements, although electives may be taken concurrently. There is no requirement to initiate the GLHT minor in the freshman year. It can be initiated as late as the junior year (beginning of the fifth semester). It will be possible for students to receive credit for GLHT minor courses that also fulfill a requirement within their major.

ELECTIVES

To fulfill the remaining Global Health Technologies minor requirements, students must complete a total of 2 additional courses (6 credit hours) as listed below.

Science/Engineering Elective

Students must complete 1 course (3 credit hours) from the following:

- BIOC 318 Lab module in Microbiology [1 credit hour]
- BIOC 372 Immunology [3 credit hours]
- BIOC 424 Biology and Medicine [3 credit hours]
- BIOC 447 Experimental Biology and the Future of Medicine [3 credit hours]
- BIOC 450 Viruses and Infectious Diseases [3 credit hours]
- BIOC 460 Cancer Biology [<u>3 credit hours</u>]
- BIOE 449/GLHT 449 Digital Design and Visualization [1 credit hour]
- CEVE 302/ENGI 302 Sustainable Design [3 credit hours]
- ELEC 446/COMP 446 Mobile Device Applications Project [4 credit hours]
- GLHT 314/BIOE 365/CEVE 314 Sustainable Water Purification for the Developing World [3 credit hours]
- GLHT 400 Global Health Technologies Independent Research [1-3 credit hours]
- GLHT 401 GLHT Research Paper Writing and Submission [1 credit hour]
- GLHT 510/BIOE 510 Seminar in Tropical Medicine [1 credit hour]
- STAT 280 Elementary Applied Statistics [<u>4 credit hours</u>]
- STAT 305 Introduction to Statistics for Biosciences [4 credit hours]

Humanities/Social Science Elective

Students must complete 1 course (3 credit hours) from the following:

- ANTH 381 Medical Anthropology [3 credit hours]
- ANTH 443 Anthropology of Race, Ethnicity, and Health [3 credit hours]
- ECON 481 Health Economics [3 credit hours]
- ENGL 272 Literature and Medicine [3 credit hours]
- ENGL 273/SWGS 273 Medicine and Media [4 credit hours]
- ENGL 386/FILM 381 Medical Media Arts Lab [4 credit hours]
- ENST 313/ARCH 313 Case Studies in Sustainable Design [3 credit hours]
- ENST 315 Environmental Health [<u>3 credit hours</u>]
- GLHT 464/BUSI 464 Social Entrepreneurship [3 credit hours]
- HEAL 222 Principles of Public and Community Health [3 credit hours]
- HEAL 313 Foundation of Health Promotion and Education [3 credit hours]
- HEAL 407 Epidemiology [<u>3 credit hours</u>]
- HEAL 422 Theory and Models of Health Behavior [3 credit hours]
- HEAL 460 Planning and Evaluation of Health Promotion and Education [3 credit hours]
- HIST 231 Intro to African History: North, West, and Central Africa: Early Times to Present [3 credit hours]
- HIST 232 Intro to African History: East, Central, and Southern Africa, Early Times to Present [3 credit hours]
- POST 430/SOSC 430 The Shaping of Health Policy [3 credit hours]
- PSYC 345 Health Psychology [<u>3 credit hours</u>]
- PSYC 370 Introduction to Human Factors and Ergonomics [3 credit hours]
- PSYC 409 Methods in Human-Computer Interaction [3 credit hours]
- PSYC 480 Advanced Topics [<u>3 credit hours</u>]
- RELI 424 Religion and Politics in Africa [3 credit hours]
- SOCI 313 Demography [<u>3 credit hours</u>]
- SOCI 371/HUMA 371 Poverty, Justice, and Human Capabilities [3 credit hours]
- SOCI 381 Research Methods [<u>3 credit hours</u>]
- SOCI 406 Basic Demographic Techniques [<u>3 credit hours</u>]
- SOCI 465/SWGS 465 Gender and Health [3 credit hours]

Admission

Most GLHT minor courses are open to all Rice students, including those not pursing the GLHT minor, with the exception of GLHT 360 and the capstone course GLHT 451/452. While GLHT 451/452 senior capstone is restricted to students completing the GLHT minor, for GLHT 360, students are required to submit a 250-word statement explaining their interests in and reasons for taking the course to beyondtraditionalborders@rice.edu to gain instructor permission to register for the course. Preferential admission to GLHT 360 will be given to students who indicate they are seeking to complete the GLHT minor course of studies. For information on GLHT minor declaration, visit this website a.

Descriptions and Codes Legend

Note: Internally, the university the following abbreviations (4-digit codes) to identify the undergraduate minor in Global Health Technologies. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: GLHT

Department Description and Code

- Global Health Technologies: GLHT

Minor Description and Code

- Minor in Global Health Technologies: GLHT

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RICE

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Global Health Technologies >

Undergraduate Students	Global Health Technologies				
► Graduate Students	The George R. Brown School of Engineering, The Weiss School of Natural Sciences, The School of Humanities, and The School of Social Sciences				
Non-Traditional Students					
► Faculty	Department Undergraduate Graduate Course Info Requirements Requirements Listings				
Programs of Study	tudy Graduate Requirements				
Administration and Faculty	Global Health Technologies does not offer an academic program at the graduate level.				
Important Notices					
	Last Revised : August 12, 2016				

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Rice Home

Web Services

University Calendar

Maps-Directions

Rice A-Z

Feedback



RICE

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Global Health Technologies > **Global Health Technologies** Undergraduate Students The George R. Brown School of Engineering, The Weiss School of Natural Sciences, Graduate Students The School of Humanities, and The School of Social Sciences Non-Traditional Students Undergraduate Department Graduate Course Faculty Info **Requirements Requirements** Listings Programs of Study **Course Listings** The official course offerings, including course descriptions, for Global Health Technologies can be found in Rice's Course Administration and Faculty Catalog. 🗗 Important Notices To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule. For additional information regarding Global Health Technologies, see the department's website: http://www.rice360.rice.edu/. Last Revised : August 24, 2016

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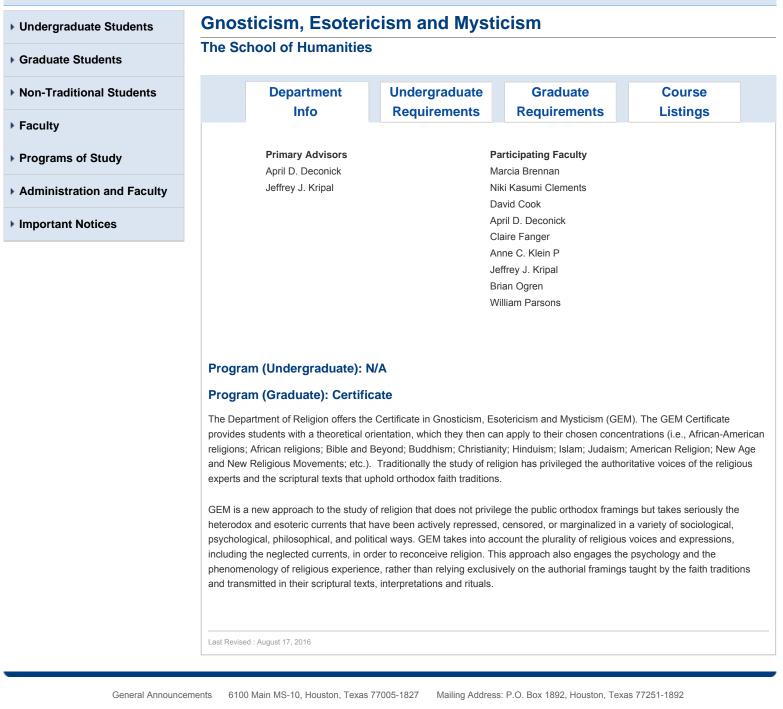
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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Gnosticism, Esotericism and Mysticism >



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Rice Home

Web Services

University Calendar

Maps-Directions

Rice A-Z

Feedback

SEARCH GA

	RI	CE
S	N	UL

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Gnosticism, Esotericism and Mysticism >

Undergraduate Students	Gnosticism, Esotericism and Mysticism				
► Graduate Students	The Sc	hool of Humanitie	25		
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
▶ Faculty	Undergraduate Requirements				
Programs of Study Gnosticism, Esotericism and Mysticism does not offer an academic program at the undergraduate level.					e level.
Administration and Faculty I at Deviced (August 42, 2016) I at Deviced (August 42, 2016)					
Last Revised : August 12, 2016					

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SEARCH GA



Previous Editions

Course

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Gnosticism, Esotericism and Mysticism >

Und	lergrac	luate	Stud	lents
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Gnosticism, Esotericism and Mysticism

The School of Humanities

Department

Þ	Graduate	Students	
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- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices
- InfoRequirementsRequirementsListingsProgram Learning Outcomes for the Certificate in Gnosticism, Esotericism and
Mysticism

Graduate

Upon completing the Certificate in Gnosticism, Esotericism and Mysticism, students will be able to:

Undergraduate

 Understand and interpret religious traditions by examining the plurality of religious voices and expressions, including currents that have been marginalized, neglected, repressed, and censored in a variety of sociological, psychological, philosophical, and political ways.

Requirements for the Certificate in Gnosticism, Esotericism and Mysticism

Students pursuing the Certificate in Gnosticism, Esotericism and Mysticism must complete:

- A minimum of 6 courses (14 credit hours) to satisfy certificate requirements.
- A minimum grade of 'B-' or better for all courses taken for a letter grade.
- All required coursework associated with the student's corresponding degree program. Upon completion, the certificate is
 awarded at the same time as the conferral of the student's Rice degree, along with a formal notation on their academic
 transcript.

CORE REQUIREMENTS

Students must complete a total of 4 courses (12 credit hours) to satisfy the Certificate in Gnosticism, Esotericism and Mysticism's Core Requirements.

Theory-Intensive Courses

Students must complete 3 courses (9 credit hours) from the following:

- RELI 558 Mysticism: Theories and Methods [3 credit hours]
- RELI 581 Gnosticism Seminar [3 credit hours]
- RELI 587 Western Esotericism Method and Theory [3 credit hours]

Thematic Courses

Students must complete 1 course (3 credit hours) from the following:

- RELI 505 American Metaphysical Religion [3 credit hours]
- RELI 522 Islam's Mystical and Esoteric Tradition [3 credit hours]
- RELI 532 Advanced Tibetan Language and Culture [3 credit hours]
- RELI 551 Divine Sex [3 credit hours]
- RELI 566 Pain, Ecstasy, and Embodiment in Religious Experience [3 credit hours]
- RELI 570 Buddhist Wisdom Texts [3 credit hours]
- RELI 574 The Bible and the Brain [3 credit hours]
- RELI 588 The History of Religions School [3 credit hours]
- RELI 589 Mutants and Mystics [3 credit hours]
- RELI 602 The Sacred Spaces of Secular Modernism [3 credit hours]
- RELI 615 Secret Religion [3 credit hours]

Gnosticism, Esotericism and Mysticism (GEM) Research Forum

Students must complete 2 consecutive Fall and Spring semesters (2 credit hours total) of RELI 600. This forum meets monthly throughout the semester.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Certificate in Gnosticism, Esotericism, and Mysticism. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses from other department apply towards the Certificate in Gnosticism, Esotericism, and Mysticism.

Department Description and Code

- Religion: RELI

Certificate Description and Code

- Certificate in Gnosticism, Esotericism, and Mysticism: GEM

Last Revised : August 25, 2016

General Announce	ements 6100 Ma	in MS-10, Houston, Te	exas 77005-1827	Mailing Address: P.O. B	ox 1892, Houston, Texa	s 77251-1892
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RICE

507 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Gnosticism, Esotericism and Mysticism >

Undergraduate Students	Gnosticism, Esotericism and Mysticism							
Graduate Students	The School of Humanities							
Non-Traditional Students	Department Undergraduate Graduate Course Info Requirements Requirements Listings							
► Faculty	Course Listings							
Programs of Study	The official course offerings, including course descriptions, for Gnosticism, Esotericism and Mysticism can be found in Rice's							
Administration and Faculty	Course Catalog. 🗗							
Important Notices	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.							
	For additional information regarding Religion, see the department's website: https://reli.rice.edu/Content.aspx?id=2147483686.							
	Last Revised : August 24, 2016							

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Rice Home Web Services

University Calendar

Rice A-Z

Maps-Directions

Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > History >

۲	Underg	raduate	Students
---	--------	---------	----------

RICE

The School of Humanities

History

- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
Chair	А	ssociate Professors	
Alida Metcalf	1	isa A. Balabanlilar	
		lexander X. Byrd	
Professors		lathan Citino	
Tani E. Barlow	G	. Daniel Cohen	
John B. Boles	R	andal Hall	
Douglas B. Brinkley	N	loramay Lopez-Alonso	
Peter C. Caldwell		V. Caleb McDaniel	
Sayuri Guthrie Shimizu	К	erry R. Ward	
Michael Maas	F	ay Yarbrough	
Ussama Makdisi			
Alida C. Metcalf	A	ssistant Professors	
Paula A. Sanders	N	laya Soifer Irish	
James Sidbury	A	ysha Pollnitz	
Richard J. Smith			
Martin J. Wiener	Р	rofessors Emeriti	
Lora Wildenthal	E	dward L. Cox	
John H. Zammito	K	atherine Fischer Drew	
	Т	homas L. Haskell	
	Ir	a D. Gruber	
	Н	larold Hyman	
	Р	atricia Seed	
	A	lbert Van Helden	
	R	esearch Professor	
	A	llen J. Matusow	

Rorschach Visiting Professor David R. Dow

Program (Undergraduate): BA degree

Programs (Graduate): MA degree, PhD degree

The undergraduate program offers courses in U.S. history; ancient and medieval history; intellectual history; and the history of science; and the early modern and modern history of Europe, Latin America, the Middle East, East and South Asia, Africa, and the Caribbean. Faculty interests range from the Byzantine Empire to colonial Brazil and modern Mexico, from Qing and 20th-century China to colonial Indonesia, and from Kant to human rights. Within U.S. history, the department's particular strengths are Atlantic migrations, slavery, the Old and New South, religion, race, and the Presidency. Within European history, Germany, Britain, and France are strengths. The department has a strong overall emphasis on colonialism across regions and time periods. The department encourages its majors to acquaint themselves with other disciplines in the humanities and social sciences, especially literature, philosophy, fine arts, anthropology, sociology, and political science. Foreign language study is

The graduate program, which trains a limited number of carefully selected students, offers these fields: United States (including colonial America, the U.S. South, and United States and the World), Latin America and the Caribbean, the Atlantic World, transnational Asia and the Middle East. PhD students may concurrently pursue a graduate certificate through the Center for the Study of Women, Gender and Sexuality, or the Center for Critical and Cultural Theory.

Through graduate reciprocal agreements with the Universidade Estadual de Campinas (UNICAMP) and the Instituto Mora, the department offers qualified graduate students the opportunity to earn a second PhD at a top-ranked university in Brazil or Mexico. Students in the dual degree program study in Brazil and write a dissertation that is co-supervised by faculty at Rice, UNICAMP, or Mora.

Rice A-Z

Last Revised : August 17, 2016

Web Services

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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Rice Home

University Calendar

Maps-Directions Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > History >

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

The School of Humanities

History

	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings			
Program Learning Outcomes for the BA Degree with a Major in History							

Upon completing the BA degree, students majoring in History will be able to:

- 1. Identify and connect the ways that people, ideas, and technologies have circulated across the range of geographic regions and historical periods.
- Apply historical questions to concrete cases and demonstrate analytical skills through the use of historical evidence, rigorous logic, and persuasive argument.
- 3. Exhibit a solid understanding of historical methodologies and research skills, including the careful and creative use of primary and secondary sources that are read critically and weighed carefully as historical evidence.
- 4. Demonstrate an awareness of the scholarly literature on a given research topic and identify the position of their research within that literature.
- 5. Exhibit mastery in writing persuasive and analytical prose following the conventions of the discipline.

Requirements for the BA Degree with a Major in History

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in History (HIST) must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 6 courses (18 credit hours) at the 300-level or above.
- A minimum of 6 courses (18 credit hours) at Rice.
- A minimum of 2 courses (6 credit hours) from departmental course offerings of 400-level seminars.
- No more than 4 courses (12 credit hours) via transfer credits.

AP/IB credit may not be used to satisfy any requirements for the history major (even though a student may be able to use AP/IB credit toward general university requirements). Please see the transfer credit guidelines listed below. 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.

CORE REQUIREMENTS

Students must complete at least 1 course (3 credit hours) from at least 4 of the following 5 fields to satisfy the History major's Core Requirements. See below under Electives for course lists.

- Premodern
- Europe
- United States
- Africa, Asia, Latin America, Middle East
- Transnational, Comparative, World

SEMINAR

Students must complete a total of 2 courses (6 credit hours) from any departmental (HIST) course offerings between HIST 400 and HIST 499, with the exception of HIST 403 and HIST 404.

ELECTIVES

To fulfill the remaining History major requirements, students must complete a total of 4 additional courses (12 credit hours) from

HIST course offerings. Of the 10 required courses to satisfy the History major requirements, a minimum of 6 courses total (18 credit hours) must be completed at the 300-level or above.

Jump to: Premodern Courses Europe Courses United States Courses Africa, Asia, Latin America, Middle East Courses Transnational, Comparative, World Courses

Premodern Courses

- FSEM 151/HIST 151 The Hero and His Companion from Gilgamesh to Sam Spade [3 credit hours]
- HIST 110/FSEM 110 Deep History: From the Origins of Humanity to the Present [3 credit hours]
- HIST 120/MDEM 120 Medieval Civilizations [3 credit hours]
- HIST 186 Historical Survey of Jewish Civilization from its Origins to the Present [<u>3 credit hours</u>]
- HIST 190 Oceans in World History [3 credit hours]
- HIST 200 Ancient Empires: Origins of Western Civilization [3 credit hours]
- HIST 201/RELI 203 Judaism of Jesus and Hillel [3 credit hours]
- HIST 205/MDEM 205 Medieval Mediterranean World [3 credit hours]
- HIST 231 Intro. to African History: North, West, and Central Africa: Early Times to Present [3 credit hours]
- HIST 232 Intro. to African History: East, Central, and Southern Africa, Early Times to Present [3 credit hours]
- HIST 271 History of South Asia [3 credit hours]
- HIST 281/MDEM 281 Premodern Middle East History [3 credit hours]
- HIST 302 Traditional Chinese Culture [3 credit hours]
- HIST 307 Imperial Rome from Caesar to Diocletian [3 credit hours]
- HIST 308/MDEM 308 The World of Late Antiquity [3 credit hours]
- HIST 316/CLAS 318 The Invention of Paganism in the Roman Empire [3 credit hours]
- HIST 320 Imperial Gardens: A Cultural Comparison [3 credit hours]
- HIST 324/MDEM 324 Coexistence in Medieval Spain [3 credit hours]
- HIST 327/MDEM 327 Medieval Borderlands [3 credit hours]
- HIST 341 Pre-Modern China [3 credit hours]
- HIST 345/MDEM 345 Renaissance Europe [<u>3 credit hours</u>]
- HIST 357/MDEM 357 Jews & Christians in Medieval Europe [3 credit hours]
- HIST 361 History of Premodern Britain: Tudors and Stuarts, 1485-1707 [3 credit hours]
- HIST 369 Germs, Cities, and Doctors in Latin America [3 credit hours]
- HIST 381/RELI 385 God, Time, and History [3 credit hours]
- HIST 382 Cultural Trends in Medieval Islam, 750-1400 [3 credit hours]
- HIST 401 The Age of Attila the Hun [<u>3 credit hours</u>]
- HIST 434 Islam and the West [3 credit hours]
- HIST 436 America in the Middle East [3 credit hours]
- HIST 439 Comparative Slavery [<u>3 credit hours</u>]
- HIST 493 Early Modern Islamic Empires [3 credit hours]
- HIST 494 Mughal History [3 credit hours]

Back to menu

Europe Courses

- HIST 101 Modern Europe, 1500-1789 [3 credit hours]
- HIST 102 Modern Europe, 1789-Present [3 credit hours]
- HIST 120/MDEM 120 Medieval Civilizations [3 credit hours]
- HIST 144/FSEM 144 The Arab-Israeli Conflict [3 credit hours]
- HIST 190 Oceans In World History [<u>3 credit hours</u>]
- HIST 205/MDEM 205 Medieval Mediterranean World [3 credit hours]
- HSIT 225 Europe Since 1945 [3 credit hours]
- HIST 256 European Politics and Society, 1890-1945 [3 credit hours]
- HIST 324/MDEM 324 Coexistence in Medieval Spain [3 credit hours]
- HIST 327/MDEM 327 Medieval Borderlands [3 credit hours]
- HIST 329/ARCH 329/HART 329 Streets and Urban Life: Paris to Istanbul [3 credit hours]
- HIST 344 European Reformations [<u>3 credit hours</u>]
- HIST 352 History of the Cold War [<u>3 credit hours</u>]
- HIST 354/GERM 344 German History, 1648-1890 [3 credit hours]
- HIST 355/GERM 345 From Democracy to Dictatorship: German History, 1890-1945 [3 credit hours]
- HIST 356 After Nazism: German History, 1945 Present [3 credit hours]

- HIST 357/MDEM 357 Jews & Christians in Medieval Europe [3 credit hours]
- HIST 358 Humanitarianism From the 19th Century to the Present [3 credit hours]
- HIST 361 History of Premodern Britain: Tudors and Stuarts, 1485-1707 [3 credit hours]
- HIST 362 Britain from the Industrial Revolution to the Present [3 credit hours]
- HIST 370 European Intellectual History: Bacon to Hegel [3 credit hours]
- HIST 371 History of Modern France [<u>3 credit hours</u>]
- HIST 372 Immigration and the State: 19th & 20th Century [3 credit hours]
- HIST 373 Social and Political Thought in 19th Century Europe [3 credit hours]
- HIST 374 Jewish History, 1500-1948 [3 credit hours]
- HIST 375 European Romanticism, 1750-1850 [3 credit hours]
- HIST 428 Modern Slavery and Human Trafficking: Global and Local [<u>3 credit hours</u>]
- HIST 429 Religious Violence and Identity in the Middle East [3 credit hours]
- HIST 433 The Arab-Israeli Conflict [3 credit hours]
- HIST 434 Islam and the West [3 credit hours]
- HIST 439 Comparative Slavery [<u>3 credit hours</u>]
- HIST 443/HART 435/MDEM 435 Multicultural Europe, 1400-1700 [3 credit hours]
- HIST 448 Western European Welfare State, 1880-1980: Origins, Consolidations, Crisis [3 credit hours]
- HIST 457 Four Modern Revolutions: 1776, 1789, 1917, 1989 [3 credit hours]
- HIST 459/GERM 332 Topics in Modern Germany: Nazism and the Holocaust [3 credit hours]
- HIST 461 The Second World War: A Political History [<u>3 credit hours</u>]

Back to menu

United States Courses

- HIST 111 Red, White and Black in Early America Creating Racial Identities in the Era of the American Revolution [3 credit hours]
- HIST 117 Early America [<u>3 credit hours</u>]
- HIST 118 United States 1848 to the Present [3 credit hours]
- HIST 144/FSEM 144 The Arab-Israeli Conflict [3 credit hours]
- HIST 190 Oceans in World History [3 credit hours]
- HIST 215 Blacks in the Americas [3 credit hours]
- HIST 216 Black Life in the Nineteenth-Century United States [3 credit hours]
- HIST 241/SWGS 234 U.S. Women's History I: Colonial Beginnings to the Civil War [3 credit hours]
- HIST 242/SWGS 235 U.S. Women's History II: Civil War to the Present [3 credit hours]
- HIST 246 American Civil War Era [3 credit hours]
- HIST 266 Slavery and the Founding Fathers [3 credit hours]
- HIST 268 Modern Slavery [<u>3 credit hours</u>]
- HIST 291 20th Century American Presidents [3 credit hours]
- HIST 295 The American South [<u>3 credit hours</u>]
- HIST 315 Blacks in the Americas [3 credit hours]
- HIST 318 Digital History Methods [3 credit hours]
- HIST 321 U.S. Environmental History [3 credit hours]
- HIST 330 Atlantic Slave Trade and the Origins of Afro America [<u>3 credit hours</u>]
- HIST 347 Black America: From Nadir Through the Great Depression [3 credit hours]
- HIST 350 America, 1900-1940 [3 credit hours]
- HIST 351 America Since 1945 [3 credit hours]
- HIST 352 History of the Cold War [3 credit hours]
- HIST 380/ASIA 380 Asian American Experiences [3 credit hours]
- HIST 386 Carter, Reagan, and the End of the Cold War [3 credit hours]
- HIST 387 The United States in the World: Age of Empire and Revolution [3 credit hours]
- HIST 395 The American South [3 credit hours]
- HIST 397 Economic History in the Americas [<u>3 credit hours</u>]
- HIST 398/SWGS 398 Topics in Legal History [<u>3 credit hours</u>]
- HIST 411 Slave Rebellions in the Americas [3 credit hours]
- HIST 421 Race, Education and Society in the Urban South [3 credit hours]
- HIST 422 The History of Rice University [3 credit hours]
- HIST 423 American Radicals & Reformers [3 credit hours]
- HIST 425 20th Century American Conservation Movement [3 credit hours]
- HIST 427 History of the Civil Rights Movement, 1954 to the Present [3 credit hours]
- HIST 428 Modern Slavery and Human Trafficking: Global and Local [3 credit hours]
- HIST 433 The Arab-Israeli Conflict [<u>3 credit hours</u>]
- HIST 434 Islam and the West [3 credit hours]

Back to menu

- HIST 144/FSEM 144 The Arab-Israeli Conflict [3 credit hours]
- HIST 190 Oceans in World History [<u>3 credit hours</u>]
- HIST 205/MDEM 205 Medieval Mediterranean World [<u>3 credit hours</u>]
- HIST 206/ASIA 211/HART 211 Introduction to Asian Civilizations [3 credit hours]
- HIST 214 Caribbean Nation Building [<u>3 credit hours</u>]
- HIST 215 Blacks in the Americas [<u>3 credit hours</u>]
- HIST 218/ASIA 218/FILM 218 History Through Film in East and Northeast Asia [3 credit hours]
- HIST 226 Colonial Spanish America [<u>3 credit hours</u>]
- HIST 227 Latin American Cultural Traditions [<u>3 credit hours</u>]
- HIST 229 History of South Africa [<u>3 credit hours</u>]
- HIST 231 Intro. to African History: North, West, and Central Africa: Early Times to Present [3 credit hours]
- HIST 232 Intro. to African History: East, Central, and Southern Africa, Early Times to Present [3 credit hours]
- HIST 251/LASR 251 Continuities and Changes in Brazilian History [3 credit hours]
- HIST 266 Slavery and the Founding Fathers [<u>3 credit hours</u>]
- HIST 268 Modern Slavery [<u>3 credit hours</u>]
- HIST 271 History of South Asia [3 credit hours]
- HIST 279 The Caribbean in the Age of Revolution: 1770-1820 [3 credit hours]
- HIST 281/MDEM 281 Premodern History [3 credit hours]
- HIST 296 Methods and Theory in History [3 credit hours]
- HIST 302 Traditional Chinese Culture [<u>3 credit hours</u>]
- HIST 314 Caribbean Nation Building [3 credit hours]
- HIST 315 Blacks in the Americas [3 credit hours]
- HIST 322/ASIA 321 China's Cultural Revolutions [3 credit hours]
- HIST 328 Poverty and Social Justice in Latin America [3 credit hours]
- HIST 329/ARCH 329/HART 329 Streets and Urban Life: Paris to Istanbul [3 credit hours]
- HIST 330 Atlantic Slave Trade and the Origins of Afro America [3 credit hours]
- HIST 334 African Voices, History [<u>3 credit hours</u>]
- HIST 335 Caribbean History to 1838 [<u>3 credit hours</u>]
- HIST 336 Caribbean History 1838 to Present [3 credit hours]
- HIST 338/SWGS 338 19th Century Women's Narratives [3 credit hours]
- HIST 341 Pre-Modern China [<u>3 credit hours</u>]
- HIST 342 Modern China [3 credit hours]
- HIST 352 History of the Cold War [3 credit hours]
- HIST 366/ARCH 366 Rio De Janeiro: A Social and Architectural History [<u>3 credit hours</u>]
- HIST 369 Germs, Cities, and Doctors in Latin America [3 credit hours]
- HIST 376 Caribbean Natural Disaster [<u>3 credit hours</u>]
- HIST 378 Modern Arab History [<u>3 credit hours</u>]
- HIST 379 The Caribbean in the Age of Revolution, 1770-1820 [<u>3 credit hours</u>]
- HIST 384/ASIA 328/SWGS 384 Modern Girl and Asia in the World [3 credit hours]
- HIST 389/ASIA 389 Migrations and the Diasporas in the Indian Ocean World [3 credit hours]
- HIST 397 Economic History in the Americas [3 credit hours]
- HIST 402 Chinese Women Through Time [3 credit hours]
- HIST 411 Slave Rebellions in the Americas [3 credit hours]
- HIST 424 Raj and Resistance [3 credit hours]
- HIST 428 Modern Slavery and Human Trafficking: Global and Local [3 credit hours]
- HIST 429 Religious Violence and Identity in the Middle East [3 credit hours]
- HIST 433 The Arab-Israeli Conflict [3 credit hours]
- HIST 434 Islam and the West [3 credit hours]
- HIST 436 America in the Middle East [3 credit hours]
- HIST 439 Comparative Slavery [3 credit hours]
- HIST 478 Topics in Latin American History [<u>3 credit hours</u>]
- HIST 490/ASIA 490 Colonial Modernity in East Asia [3 credit hours]
- HIST 492/ASIA 492/SWGS 492 Gender Histories: Modern China [3 credit hours]
- HIST 493 Great Islamic Empires of the Early Modern Age [3 credit hours]
- HIST 494 Mughal History [<u>3 credit hours</u>]
- HIST 495 Comparative Modernization of China and Japan [<u>3 credit hours</u>]
- HIST 496 A Turbulent Time: The World of the Haitian Revolution [3 credit hours]

Back to menu

Transnational, Comparative, World Courses

HIST 108 World History Since 1492 [<u>3 credit hours</u>]

- HIST 144/FSEM 144 The Arab-Israeli Conflict [<u>3 credit hours</u>]
- HIST 188 The Atlantic World: Origins to the Age of Revolution [3 credit hours]
- HIST 190 Oceans in World History [3 credit hours]
- HIST 200 Ancient Empires: Origins of Western Civilization [3 credit hours]
- HIST 204 The Idea of Africa [<u>3 credit hours</u>]
- HIST 205/MDEM 205 Medieval Mediterranean World [3 credit hours]
- HIST 218/ASIA 218/FILM 218 History Through Film in East and Northeast Asia [3 credit hours]
- HIST 226 Colonial Spanish America [<u>3 credit hours</u>]
- HIST 227 Latin American Cultural Traditions [<u>3 credit hours</u>]
- HIST 268 Modern Slavery [<u>3 credit hours</u>]
- HIST 271 History of South Asia [3 credit hours]
- HIST 302 Traditional Chinese Culture [3 credit hours]
- HIST 307 Imperial Rome from Caesar to Diocletian [3 credit hours]
- HIST 308/MDEM 308 The World of Late Antiquity [3 credit hours]
- HIST 320 Imperial Gardens: A Cultural Comparison [3 credit hours]
- HIST 322/ASIA 321 China's Cultural Revolutions [3 credit hours]
- HIST 327/MDEM 327 Medieval Borderlands [3 credit hours]
- HIST 340/SWGS 345 History of Feminism [3 credit hours]
- HIST 357/MDEM 357 Jews & Christians in Medieval Europe [3 credit hours]
- HIST 358 Humanitarianism Since the 19th Century to the Present [3 credit hours]
- HIST 372 Immigration and the State: 19th and 20th Century [3 credit hours]
- HIST 378 Modern Arab History [3 credit hours]
- HIST 381/RELI 385 God, Time, and History [3 credit hours]
- HIST 384/ASIA 328/SWGS 384 Modern Girl and Asia in the World [3 credit hours]
- HIST 387 The United States in the World: Age of Empire and Revolution [3 credit hours]
- HIST 389/ASIA 389 Migrations and the Diasporas in the Indian Ocean World [3 credit hours]
- HIST 397 Economic History in the Americas [3 credit hours]
- HIST 411 Slave Rebellions in the Americas [3 credit hours]
- HIST 424 Raj and Resistance [3 credit hours]
- HIST 428 Modern Slavery and Human Trafficking: Global and Local [3 credit hours]
- HIST 429 Religious Violence and Identity in the Middle East [3 credit hours]
- HIST 433 The Arab-Israeli Conflict [3 credit hours]
- HIST 436 America in the Middle East [3 credit hours]
- HIST 439 Comparative Slavery [<u>3 credit hours</u>]
- HIST 455 History of Human Rights [3 credit hours]
- HIST 457 Four Modern Revolutions: 1776, 1789, 1917, 1989 [3 credit hours]
- HIST 493 Great Islamic Empires of the Early Modern Age [3 credit hours]
- HIST 494 Mughal History [3 credit hours]
- HIST 495 Comparative Modernization of China and Japan [3 credit hours]

Back to menu

Department of History International Concentration

To guide and recognize the work of history majors who choose to devote a part of their studies to international historical issues and questions, the History department has established an international studies concentration. In addition to the standard degree requirements, students following this concentration are required to:

- Complete a significant study abroad experience (such as those regularly recommended by the Rice Study Abroad Office), to be pre-approved by the Director of Undergraduate Studies in the Department of History.
- Demonstrate research competency in a language other than English. Students may demonstrate language competence in two ways. Students who pass a departmental language exam will be certified as having met the language requirement. Students who complete a history honors thesis or a 400-level seminar paper that draws on a significant number of non-English secondary or primary sources will also be certified as having met the requirement.

Upon graduation, students who complete the requirements of the international concentration will have the accomplishment noted on their final transcript. For more information, see the department website \mathcal{P} .

Transfer Credit

The Department of History grants transfer credit on a case-by-case basis to enrolled undergraduates. Courses taken at another institution must be the equivalent in required reading, writing, and testing of a Rice history course. Regarding subject matter, however, there does not have to be an equivalent course in the Rice history offerings. For the current procedures and to request transfer credit, see the department website 🗗. Rice students planning to study at a foreign university must also obtain approval

Honors Program

Qualified undergraduates may enroll for 6 semester credit hours of directed honors research and writing, completing an honors thesis in their senior year (these 6 credit hours are in addition to the 30 hours required for the major). Application to the program is required. For current procedures, see the department website 🗗. 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.

Descriptions and Codes Legend

Web Services

Note: Internally, the university uses the following abbreviations to identify the History undergraduate degree, major, and major concentration. The following is a quick reference:

 Course Catalog/Schedule

 - Course offerings/subject code: HIST

 Department Description and Code

 - History: HIST

 Degree Description and Code

 - Bachelor of Arts degree: BA

 Major Description and Code

 - Major in History: HIST

 Major Concentration Description and Code

 - Major Concentration In International Studies: HINT

Rice A-Z

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Rice Home

University Calendar

Maps-Directions Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > History >

Undergraduate Students

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

History

The School of Humanities

Department	Undergraduate	Graduate	Course
Info	Requirements	Requirements	Listings

The Rice University graduate program in history is primarily a PhD program. Students who have a BA in history (or its equivalent) 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 these fields: United States (including colonial America, the U.S. South, and the United States and the World), Latin America and the Caribbean, the Atlantic World, transnational Asia and the Middle East. Further information is available at the department website. For general university requirements, see Graduate Degrees.

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 serving as research assistants or teaching assistants for department members. As far as possible, these assignments are kept consistent with the areas of interests of the students.

Program Learning Outcomes for the MA and PhD Degrees in History

Students graduating from this program will:

- 1. Develop analytic skills in critical thinking and writing that are of value both inside and outside the academy.
- $\ensuremath{\text{2.}}$ Conduct original research that makes a contribution to the field.
- 3. Write a dissertation that makes an original contribution to their field.
- 4. Be equipped to enter the historical profession as academics who can teach, present work to peers, and communicate effectively with the public.
- 5. Acquire expertise in their major field of historical inquiry and learn the skills necessary to write historical monographs.

Requirements for the MA and PhD Degrees in History

MA Program—The department gives priority to applicants for the PhD. Completion of the MA degree usually takes two years; no more than three years may elapse between graduate admission and the completion of the MA degree unless the department graduate committee approves an extension. MA degrees are awarded in three ways: (1) completion of one year of course work (18 credit hours) and a thesis written and defended in an oral examination during the second year; (2) completion of two years of course work (36 credit hours), normally including at least two seminar research papers, and (3) for students continuing to the PhD, completion of all requirements for candidacy, including written and oral examinations.

PhD Program—Doctoral candidates must prepare themselves in three fields of history: two in their major area of concentration, whether U.S. or other history, and a third in an area not included in the first two fields. Students who wish to pursue a third field in an area outside the department should petition the graduate committee by the end of their second semester.

The requirements for completing the degree will be administered as flexibly as possible within the bounds of general university requirements. These requirements state that the PhD degree will be awarded after successful completion of at least 90 semester hours of advanced study and an original investigation reported in an approved thesis. The student may apply for formal admission to candidacy for the PhD degree after passing the qualifying exam.

For the PhD, candidates must:

- Prepare themselves thoroughly in three examination fields.
- Take 8 graduate seminars, including HIST 575 Introduction to Doctoral Studies.

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- Pass an examination in the principal language of research and in one additional language. If the principal language of
 research is English, candidates must pass an examination in one other language.
- Perform satisfactorily on written and oral examinations.
- Complete a dissertation presenting the results of original research.
- Defend the thesis in a public oral examination.

Program Learning Outcomes for the Dual PhD Degree with Universidade Estadual de Campinas (UNICAMP) in Brazil

Upon completing the Dual PhD program with the Universidade Estadual de Campinas, students will be able to:

- Demonstrate oral and written fluency at the graduate level in the target languages.
- Demonstrate knowledge of the historiography on their research topic(s) in the two target languages.
- Demonstrate the ability to work with archives and libraries abroad; and demonstrate the ability to do research in the primary sources in the target languages.
- Demonstrate the ability to work with two advisors showing an understanding of two distinct academic communities.

Requirements for the Dual PhD Degree with Universidade Estadual de Campinas (UNICAMP) in Brazil

Rice will award a PhD degree in History to UNICAMP students who have successfully completed the following requirements:

- 1. Passed their comprehensive examinations and been admitted to candidacy at UNICAMP.
- 2. Completed 6 graduate-level courses at Rice, which one must be HIST 575 *Introduction to Doctoral Studies*, one must be a History research seminar, and one must be a History reading seminar. Students must be enrolled in at least 9 credit hours per semester while at Rice University.
- 3. Written a dissertation in the language of their home institution and a summary in English that is equivalent in style, scholarship and length to an academic journal article.
- 4. Successfully presented the dissertation and the summary in English to a faculty panel at Rice.
- 5. Successfully defended the dissertation at UNICAMP.

UNICAMP will award the Doutor em História to Rice students who have successfully completed the following requirements:

- 1. Passed their comprehensive examinations and been admitted to candidacy at Rice.
- 2. Completed 6 graduate-level courses at UNICAMP, of which must include HH172 Tópicos em Teoria da História, two research seminars, two topical seminars and one elective seminar.
- 3. Written a dissertation in the language of their home institution and a summary in Portuguese, that is equivalent in style, scholarship and length to an academic journal article.
- 4. Successfully presented the dissertation, and the summary, in Portuguese, to a faculty panel at UNICAMP.
- 5. Successfully defended the dissertation at Rice.

Program Learning Outcomes for the Dual PhD Degree with Instituto Mora

Upon completing the dual PhD program with the Instituto Mora, students will:

- 1. Be able to write and present orally at the level expected for PhD students at Mora and Rice.
- 2. Be widely read in historical literature relevant to their research topic in English and Spanish.
- 3. Be able to work in archives and libraries in the United States and Mexico.
- 4. Be able to do original research in relevant primary sources in both languages.
- 5. Understand two distinct academic traditions and learn from both.

Requirements for the Dual PhD Degree with Instituto Mora

Rice will award the Ph.D. in History to Mora students who have successfully completed the following requirements:

- 1. Passed their comprehensive examinations and been admitted to candidacy at Mora.
- 2. Completed 6 graduate-level courses at Rice, of which one must be HIST 575 *Introduction to Doctoral Studies*, one must be a History Graduate Research seminar, and one must be a History Graduate Reading seminar.
- 3. Written a dissertation in the language of their home institution and a summary in English that is equivalent in style, scholarship and length to an academic journal article.
- 4. Successfully presented the dissertation, and the summary, in English, to a faculty panel at Rice.
- 5. Successfully defended the dissertation at Mora.

The Instituto Mora will award the Doctorado en Historia Moderna y Contemporánea to Rice students who have successfully

completed the following requirements:

- 1. Passed their comprehensive examinations and been admitted to candidacy at Rice.
- Completed 8 graduate-level courses at Mora, of which must include Teoría de la Historia; Seminarios de tesis I and II; 2 courses chosen from any of these categories: Teoría Antropológica, Teoría Social, Teoría del Derecho, or Teoría Económica, and 3 additional graduate seminars.
- 3. Written a dissertation in the language of their home institution and a summary in Spanish that is equivalent in style, scholarship and length to an academic journal article.
- 4. Successfully defended the doctoral dissertation at Rice.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the History graduate degree program. The following is a quick reference:

Rice A-Z

Course Catalog/Schedule

- Course offerings/subject code: HIST
- Department Description and Code
 - History: HIST
- Degree Descriptions and Codes
 - Master of Arts degree: MA
 - Doctor of Philosophy degree: PhD
- Degree Program Description and Code
- Degree Program in History: HIST

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```
University Calendar
```

Maps-Directions

Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > History >

RICE

Histo	History						
The Sc	The School of Humanities						
	Department	Undergraduate	Graduate	Course			
Cours		Requirements	Requirements	Listings			
	The official course offerings, including course descriptions, for History can be found in Rice's Course Catalog.						
To view	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.						
For addit	For additional information regarding History, see the department's website: http://history.rice.edu/.						
Last Revise	ed : August 24, 2016						
	The Sc Cours The offic To view For addi	The School of Humaniti Department Info Course Listings The official course offerings, inclue To view the most recent course so	Department Undergraduate Info Undergraduate Requirements Course Listings The official course offerings, including course descriptions, for H To view the most recent course schedule for the 2016-2017 aca For additional information regarding History, see the department	Department Undergraduate Graduate Info Undergraduate Requirements Course Listings The official course offerings, including course descriptions, for History can be found in Rice's O To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course For additional information regarding History, see the department's website: http://history.rice.ed			

 General Announcements
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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Humanities Research Center >

Graduate Students	The School of Humanities					
Non-Traditional Students	Department Info	Undergraduate	Graduate	Course		
Faculty	Inio	Requirements	Requirements	Listings		
Programs of Study	Director Farès el-Dahdah		Assistant to the Director			
Administration and Faculty	Accession Director	n	regram Coordinator			
Important Notices	Associate Director Melissa Bailar		Program Coordinator Carolyn Adams			
			ecturer in Public Humanitie	25		
	Program (Graduate): N/A, no The Humanities Research Center (HR scholars, graduate, and undergraduate facilitating research between the Scho by partnering with other foundations, of HRC in order to incubate ideas and de launched initiatives in Computational H Humanities and offers a minor in Medi scholarships, seminars, courses, confe series.	Medical Humanities minor is a transdisciplinary minor that examines medicine through humanistic disciplines such as y, ethic, religion, literature, cultural anthropology, media studies, and the visual and dramatic arts. For more information,				

Web Services

University Calendar

Rice A-Z

Maps-Directions

Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Humanities Research Center >

Undergraduate Students	Humanities Research Center						
► Graduate Students	The So	The School of Humanities					
► Non-Traditional Students	DepartmentUndergraduateGraduateCourseInfoRequirementsRequirementsListings						
▶ Faculty	Info Requirements Requirements Listings Requirements for the Interdisciplinary Minor in Medical Humanities						
Programs of Study	For infor	For information regarding the interdisciplinary minor in Medical Humanities, please visit the Medical Humanities page.					
Administration and Faculty							
Important Notices	Last Revised : August 12, 2016						

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ersity Calendar Rice A-Z

Maps-Directions

Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Humanities Research Center >

Undergraduate Students	Huma	Humanities Research Center							
► Graduate Students	The Sc	The School of Humanities							
► Non-Traditional Students		Department Undergraduate Graduate Course							
▶ Faculty	Gradu	Info Requirements Requirements Listings Graduate Requirements Info Info							
Programs of Study	The Hun	nanities Research Center of	does not offer an academic pr	ogram at the graduate level.					
Administration and Faculty									
Important Notices	Last Revised : August 12, 2016								

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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RICE

523 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Humanities Research Center >

Undergraduate Students	Humanities Researc	ch Center			
Graduate Students	The School of Humanities	5			
Non-Traditional Students	Department	Undergraduate	Graduate	Course	
▶ Faculty	Info Course Listings	Requirements	Requirements	Listings	
Programs of Study	The official course offerings, includin	g course descriptions, for th	e Humanities Research cente	er can be found in Rice's Cou	urse
Administration and Faculty	Catalog.				
Important Notices	To view the most recent course sche	dule for the 2016-2017 acad	demic year, see Rice's Course	e Schedule.	
	For a list of courses that satisfy the re	equirements for the Medical	Humanities minor, please see	e the Medical Humanities pa	age.
	For additional information regarding	Humanities Research Cente	er, see the department's webs	ite: http://hrc.rice.edu/.	
	Last Revised : August 24, 2016				

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RICE

524 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Jewish Studies >

Indergraduate Students	Jewis	sh Studies			
araduate Students	The Sc	hool of Humanities	5		
Non-Traditional Students		Department	Undergraduate	Graduate	Course
aculty		Info	Requirements	Requirements	Listings
rograms of Study		Director Matthias Henze		Associate Professors Daniel Cohen	
dministration and Faculty		Professors	C	Gisela Heffes Gusan Lurie	
nportant Notices		Matthias Henze		Astrid Oesmann	
	Michael Maas Paula Sanders Assistant Professors				
		Klaus Weissenberger Diane Wolfthal		/laya Soifer Irish Brian Ogren	
			-	.ecturers <i>N</i> elissa Weininger	
				Postdoctoral Fellow	
			J	oshua Furman	
		m (Undergraduate): M m (Graduate): N/A	Minor		
	Jewish S Courses into the p examine: The stud lived and Diversity our cours enrich th also form	tudies is an interdisciplinary in Jewish Studies allow stud oluralistic religion and culture is the texts, history, language y of Jewish life and culture p practiced for over three mill of thought is a hallmark of J ses. The diverse and interdis eir major fields of study with	ents to study Judaism as it h that it is today. In both the h es, philosophy, literature, and rovides an opportunity to exp ennia all over the world. ewish culture dating back to ciplinary nature of the Progra a specific focus on Judaism community, making use of th	umanities and social sciences culture of the Jewish people f plore the continuities and diver the earliest Jewish texts, and	et of shared religious practices s, Jewish Studies broadly from the ancient to the modern. rsity of Judaism as it has been we strive to follow this model in indergraduates the opportunity to ram in Jewish Studies at Rice
	Last Revise	d : August 17, 2016			
General Announcem	ents 6100) Main MS-10, Houston, Texas	77005-1827 Mailing Addres	ss: P.O. Box 1892, Houston, Tex	as 77251-1892
	Rice Home		niversity Calendar Rice		Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Jewish Studies >

Undergraduate Students		sh Studies						
Graduate Students	The Sc	hool of Humaniti	es	5				
Non-Traditional Students	Department Undergraduate Graduate Course							
Faculty	Progr	Info		Requirements	Requirements		Listings	
Programs of Study		•		minor, students will be able to		IJ	ewish Studies	
Administration and Faculty	1. De	monstrate knowledge of k	key	Jewish religious traditions, te	exts, and figures throughout	hist	tory, from the ancient to th	ne
Important Notices	 Demonstrate knowledge of key Jewish religious traditions, texts, and figures throughout history, from the ancient to the contemporary, as well as the place of those traditions, texts, and figures within specific historical, geographical, or sociopolitical contexts. 							
	4. De lite evi 5. De abi usi Requi Students Students • A r • No • No Jewish S Jewish e	monstrate the ability to re rature, religious texts, film dence-based research qu monstrate the ability to ef ility to communicate in a c ing and citing evidence to irements for the I s pursuing the minor in Jeu minimum of 6 courses (18 minimum of 3 courses (9 c more than 3 courses (9 c more than two Hebrew (H Studies minor courses are	ad a n, an liest fect sritic sup nt wish cred cred HEE	Is from multiple disciplines to and interpret primary and sec and modern scholarship; demo ions and arguments in discus tively communicate in writing cal, scholarly manner by deve oport argumentation, and writi erdisciplinary Mino h Studies (JWST) must comp edit hours) to satisfy minor rec lit hours) to satisfy minor rec ati hours) from Study Abroad of 3R) courses and two Religion en to all students at Rice from a for history, literature, art, pol	condary texts critically, inclu- onstrate the ability to use the ssions, verbal presentations, and orally at the college lev eloping evidence-based rese ing and speaking clearly and or in Jewish Studie olete: quirements. above. or other transfer credits. a (RELI) courses.	ding ese , an rel; i earc d co S	g ancient as well as mode texts to develop and supp nd in research papers. this includes demonstratin ch questions and argumer orrectly.	port ng the nts,

CORE REQUIREMENT

Students must complete at least 1 course (3 credit hours) from the following to satisfy the Jewish Studies minor's Core Requirement.

- JWST 120 Israel: Language and Culture [3 credit hours]
- HIST 374 Jewish History, 1500-1948 [<u>3 credit hours</u>]
- RELI 108 Introduction to Judaism [<u>3 credit hours</u>]
- RELI 392 Jerusalem: Holy City in Time and Imagination [3-4 credit hours]

ELECTIVES

To fulfill the remaining Jewish Studies minor requirements, students must complete a total of 5 additional courses (15 credit hours) from the following categories as listed below. At least one course must be completed from each category. If a course is listed in more than one category, students can elect a category for which the course counts, yet each course can apply to only one category.

Language and Literature

- JWST 120 Israel: Language and Culture [<u>3 credit hours</u>]
- ENGL 265 Jewish-American Literature and Culture [<u>3 credit hours</u>]
- FWIS 177 Bizarre Biblical Stories [3 credit hours]
- GERM 329/HUMA 329 Literature of Holocaust and Exile [3 credit hours]
- GERM 351/HART 387 Holocaust Memory in Modern Germany [3-4 credit hours]
- HEBR 125/RELI 125 Introduction to Biblical Hebrew I [3 credit hours]
- HEBR 126/RELI 126 Introduction to Biblical Hebrew II [3 credit hours]
- HEBR 141 First Year Hebrew I [<u>3 credit hours</u>]
- HEBR 142 First year Hebrew II [3 credit hours]
- HEBR 263 Second Year Hebrew I [3 credit hours]
- HEBR 264 Second Year Hebrew II [<u>3 credit hours</u>]
- RELI 213 The Prophet Jeremiah [<u>3 credit hours</u>]
- RELI 243 The Book of Genesis [3 credit hours]
- RELI 326 Angels, Powers, and Monsters [<u>3 credit hours</u>]
- RELI 339 Apocalypse Then and Now [3 credit hours]
- RELI 347/SWGS 347 Sex and Gender in Modern Jewish Culture [3 credit hours]
- RELI 349/FILM349 Holocaust Representation in Literature, Art, and Film [3 credit hours]
- RELI 381 The Messiah [3 credit hours]
- RELI 382 Lost Judaisms [3 credit hours]
- RELI 388 Psalms and Poetry [3 credit hours]

History and Culture

Students must complete at least 1 course (3 credit hours) from the following:

- FSEM 121/GERM 121 From Kafka to the Holocaust: Discourse in Alienation [3 credit hours]
- FWIS 199 Jews on Film: Cinematic Representations of Jewish Life [3 credit hours]
- GERM 351/HART 387 Holocaust Memory in Modern Germany [3 4 credit hours]
- GERM 425 Vienna And Its People [3 credit hours]
- HIST 201/RELI 203 Judaism of Jesus and Hillel [3 credit hours]
- HIST 205/MDEM 205 Medieval Mediterranean World [3 credit hours]
- HIST 324/MDEM 324 Coexistence in Medieval Spain [3 credit hours]
- HIST 357/MDEM 357 Jews and Christians in Medieval Europe [3 credit hours]
- HIST 374 Jewish History, 1500-1948 [<u>3 credit hours</u>]
- HIST 381/RELI 385 God, Time, and History [3 credit hours]
- HART 435/HIST 443/MDEM 435 Multicultural Europe, 1400-1700 [3 credit hours]
- MDEM 377/HART 377 Medieval Manuscripts [3 credit hours]
- RELI 104/MDEM 103 Introduction to Jewish Mysticism [3 credit hours]
- RELI 108 Introduction to Judaism [<u>3 credit hours</u>]
- RELI 215/FILM 215 Mystic Cinema: Kabbalah in Film [3 credit hours]
- RELI 347/SWGS 347 Sex and Gender in Jewish Culture [3 credit hours]
- RELI 349/FILM 349 Holocaust Representation in Literature, Art, and Film [3 credit hours]
- RELI 389 Healing By Killing: Medical Ethics After the Holocaust [3 credit hours]
- RELI 392 Jerusalem: Holy City In Time And Imagination [<u>3 4 credit hours</u>]
- SOCI 363 African American-Jewish Relations [3 credit hours]

Thought, Philosophy, and Ethics

Students must complete at least 1 course (3 credit hours) from the following:

- ANTH 365/SOCI 365 Politics of Representation [3 credit hours]
- ANTH 376/SOCI 376 Art and Activism [3 credit hours]
- FSEM 121/GERM 121 From Kafka to the Holocaust: Discourse in Alienation [3 credit hours]
- GERM 322/HUMA 322 Marx, Freud, Einstein: Forebearers of Modernity [<u>3 credit hours</u>]
- HIST 381/RELI 385 God, Time, and History [3 credit hours]
- MDEM 116/RELI 116 Mysticism Throughout the Ages [3 credit hours]
- RELI 104/MDEM 103 Introduction to Jewish Mysticism [3 credit hours]
- RELI 347/SWGS 347 Sex and Gender in Jewish Culture [3 credit hours]
- RELI 363 Jewish Philosophy: Great Thinkers and Themes in Jewish Thought [3 credit hours]
- RELI 381 The Messiah [3 credit hours]
- RELI 389 Healing By Killing: Medical Ethics After Holocaust [3 credit hours]
- RELI 443 Maimonides "Guide for the Perplexed" [3 credit hours]

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate minor in Jewish Studies. The following is a quick reference:

Course Catalog/Schedule

Course offerings/subject code: Courses offered by other departments apply toward the minor in Jewish Studies.
<u>Department Description and Code</u>
Jewish Studies: JWST
<u>Minor Description and Code</u>
Minor in Jewish Studies: JWST

Last Revised : August 12, 2016

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528 of 923

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Jewish Studies >

Undergraduate Students		Jewish Studies						
Graduate Students	The Sc	hool of Humaniti	es					
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate	Course			
▶ Faculty	Jewish S	Info Requirements Listings Jewish Studies does not offer an academic program at the graduate level.						
Programs of Study		d . August 40, 0040						
Administration and Faculty	Last Revise	d : August 12, 2016						
Important Notices								

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2016-2017 > Programs of Study > Jewish Studies >

Undergraduate Students	lewish Studies			
Graduate Students	The School of Humanitie	es		
Non-Traditional Students	Department	Undergraduate	Graduate	Course
Faculty	Info	Requirements	Requirements	Listings
Programs of Study	Course Listings The official course offerings, includ	ling course descriptions, listed	in the Jewish Studies Underg	graduate Requirements sectior
Administration and Faculty	can be found in Rice's Course Cata	alog. 🖗		
Important Notices	To view the most recent course scl	hedule for the 2016-2017 acad	demic year, see Rice's Course	e Schedule. 🗗
•	For additional information regarding	g Jewish Studies, see the dep	artment's website: https://jewi	shstudies.rice.edu/. 🗗
	Last Revised : August 24, 2016			
	Lasi Neviseu . August 24, 2010			

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Kinesiology >

RICE

Undergraduate Students		siology						
Graduate Students	The W	The Wiess School of Natural Sciences						
Non-Traditional Students		Department	Course					
▶ Faculty		Info	Requirements	Requirements	Listings			
Programs of Study		Chair Nicholas K. lammarino		rofessor in the Practice				
Administration and Faculty								
Important Notices		Professors Bruce Etnyre	sa Basgall					
		Nicholas K. lammarino		acharias Papadakis eidi Perkins				
		Professors Emeriti Eva J. Lee		ugusto X. Rodriguez				
		Hally B. W. Poindexter	P	art-Time Lecturers				
		Dale W. Spence	R	oberta Anding				
				aime Aparicio				
				teven L. Jones				
				/endy Schell . Burke Wilson				
			A	djunct Faculty				
				aren Basen-Engquist				
				homas Krouskop				
				lexis Ortiz awn Stuckey				
				rmin Weinberg				
			~	in the boly				

Program (Undergraduate): BA degree

Program (Graduate): N/A

The department was one of the first of its kind in the nation to institute an academic program structure that allows students to concentrate their efforts in a specific sub-discipline. Within the Kinesiology major there are two distinct major concentrations: health sciences and sports medicine. Additional information on the Kinesiology major and the two major concentrations can be found on the KINE website .

BA in Kinesiology with major concentration in Health Sciences

The goal of the health sciences program is to provide students with a fundamental background in health promotion and disease prevention. This background will enable them to understand the role that health promotion plays in society and the mechanisms that affect public and community health while also considering the complexities of maintaining an optimal level of personal health. The health science program is viewed as an excellent option for undergraduate students who are preparing to enter graduate school in public health, health promotion, and health education, as well as other health-related graduate or professional programs such as medicine or dentistry.

BA in Kinesiology with major concentration in Sports Medicine

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 coursework in foundations of Kinesiology, research methods, motor learning, statistics, exercise physiology, and sports medicine. Practical experience is afforded through several academic labs. Other elective courses include epidemiology, case studies in human performance, motor control, advanced exercise physiology and preventive medicine, sports nutrition, medical terminology 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.

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 website .

Last Revised : August 17, 2016

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

Kinesiology

2016-2017 > Programs of Study > Kinesiology >

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Non-Traditional Students

Administration and Faculty

Graduate Students

Programs of Study

Important Notices

Faculty

The Wiess School of Natural Sciences

Department Info

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equirements	Re

Graduate

Course Listings

Program Learning Outcomes for the BA Degree with a Major in Kinesiology

Major Concentration in Health Sciences Learning Outcomes:

Upon completing the BA degree, a student majoring in Kinesiology with a major concentration in Health Sciences will be able to:

- 1. Prepare and deliver presentations effectively and be able to use information technology.
- 2. Work and collaborate in groups toward a common goal.
- 3. Read, select and interpret important information from health sciences literature. They will be able to design and conduct public health research studies using appropriate methodologies.
- 4. Promote public health education within the framework of legal, ethical, moral, and professional standards.
- 5. Collaborate with other professionals, staff, and communities in the planning and implementation, and evaluation of health education programs. They will be able to administer and manage health education programs, serve as a health education resource person, and communicate and advocate for health and health education.

Major Concentration in Sports Medicine Learning Outcomes:

Upon completing the BA degree, a student majoring in Kinesiology with a major concentration in Sports Medicine will be able to:

- 1. Prepare and deliver presentations effectively and be able to use information technology.
- 2. Work and collaborate in groups toward a common goal.
- 3. Read, select and interpret important information from sports sciences literature. They will be able to design and conduct research studies using appropriate methodologies.
- 4. Identify and apply ethical standards to the design and execution of research studies.
- 5. Understand principles of human nutrition and its application to exercise and sport.
- 6. Understand the principles of sports psychology.
- 7. Be knowledgeable of anatomy relevant to sport, exercise and sport injury. They will develop an understanding of principles of biomechanics applied to exercise and sporting activities. Students will be knowledgeable of prevention, diagnosis, and treatment of injuries and diseases related to exercise and sports.
- 8. Collect and analyze data in a motor learning, exercise physiology, or other sports medicine lab settings.

Requirements for the BA Degree with a Major in Kinesiology

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Kinesiology (KINE) must complete:

- A minimum of 15-16 courses (44-45 credit hours) depending on declared major concentration to satisfy major requirements
- A minimum of 120 semester hours satisfy degree requirements.
- The requirements of a major concentration. When students declare the major in Kinesiology, students must additionally identify and declare one of the major concentrations, either in a.) Health Sciences or b.) Sports Medicine.

Major Concentration in Health Sciences

Advisors: Nicholas K. lammarino, Heidi Perkins, and Augusto X. Rodriguez

CORE REQUIREMENTS

Students must complete a total of 7 courses (21 credit hours) to complete the Core Requirements for the major concentration in

Undergraduate	
Requirements	

quirements

Health Science. These required courses include an introductory course designed to acquaint students with the fundamental concepts of personal health and models of health promotion, understanding and assessing community health needs, methods of understanding the disease process, a course that introduces statistics, a professional preparation course that introduces students to the profession, theories and models commonly used in health promotion research and practice, and an application course in which students plan a health promotion program.

- HEAL 119 Introduction to Health & Wellness [3 credit hours]
- HEAL 222 Principles of Public and Community Health [<u>3 credit hours</u>]
- HEAL 313 Foundations of Health Promotion and Education [3 credit hours]
- HEAL 407 Epidemiology [<u>3 credit hours</u>]
- HEAL 422 Theories and Models of Health Behavior [3 credit hours]
- HEAL 460 Planning and Evaluation of Health Promotion and Education [3 credit hours]
- KINE 319 Statistics for the Health Professional [3 credit hours]

ELECTIVES

To fulfill the remaining requirements for the major concentration in Health Sciences, students must complete a total of 8 additional courses (24 credit hours) from the courses listed below. The remaining credit hours needed are drawn from elective courses that are both within the Department of Kinesiology 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.

- ANTH 210 Anthropology of Death [<u>3 credit hours</u>]
- ANTH 381 Medical Anthropology [<u>3 credit hours</u>]
- ANTH 386 Medical Anthropology of Food and Health [3 credit hours]
- ANTH 388/SWGS 335 The Life Cycle: A Biocultural View [3 credit hours]
- ANTH 446 Advanced Biomedical Anthropology [3 credit hours]
- BIOC 122 Fundamental Concepts in Biology [<u>3 credit hours</u>]
- BIOC 201 Introductory Biology [<u>3 credit hours</u>]
- BIOE 360/GLHT 360 Appropriate Design for Global Health [3 credit hours]
- ENGL 272 Literature and Medicine [<u>3 credit hours</u>]
- ENGL 273/SWGS 273 Medicine and Media [3 credit hours]
- ENST 315 Environmental Health [3 credit hours]
- GLHT 201 Bioengineering and World Health [3 credit hours]
- HEAL 103 Nutrition [<u>3 credit hours</u>]
- HEAL 132 Medical Terminology [3 credit hours]
- HEAL 208 Chemical Alterations of Behavior [3 credit hours]
- HEAL 212 Consumer Health and the Media [3 credit hours]
- HEAL 306/SWGS 306 Human Sexuality [3 credit hours]
- HEAL 350 Understanding Cancer [3 credit hours]
- HEAL 360 Violence in America: A Public Health Perspective [3 credit hours]
- HEAL 379 Internship in Health Sciences [3 credit hours]
- HEAL 380 Disparities in Health in America [3 credit hours]
- HEAL 495 Independent Studies in Health Sciences [3 credit hours]
- HEAL 496 Independent Studies in Health Sciences [3 credit hours]
- HEAL 498 Special Topics in Health Sciences [3 credit hours]
- KINE 300 Human Anatomy [3 credit hours]
- KINE 301 Human Physiology [3 credit hours]
- KINE 326 Exercise Epidemiology [3 credit hours]
- KINE 440 Research Methods [3 credit hours]
- PHIL 314 The Philosophy of Medicine [3 credit hours]
- PHIL 315 Ethics, Medicine, and Public Policy [3 credit hours]
- PHIL 336 Topics in Medical Ethics [3 credit hours]
- POLI 329 Health Policy [3 credit hours]
- PSYC 345 Health Psychology [3 credit hours]
- SOCI 313 Demography [3 credit hours]
- SOCI 345 Medical Sociology [<u>3 credit hours</u>]
- SOCI 355 Sociology of Drugs and Alcohol [3 credit hours]
- SOCI 465/SWGS 465 Gender and Health [3 credit hours]
- SOSC 330 Health Care Reform in the 50 States [3 credit hours]
- SOSC 430/POST 430 The Shaping of Health Policy [3 credit hours]

Major Concentration in Sports Medicine

Advisors: Bruce Etnyre, Augusto X. Rodriguez

Students must complete a total of 11 courses (29 credit hours) to complete the Core Requirements for the major concentration in Sports Medicine. The Core Requirements include detailed exposure to human anatomy and human physiology. In addition, students receive coursework in research methods, motor learning, statistics, exercise physiology, and sports psychology.

- HEAL 103 Nutrition [<u>3 credit hours</u>]
- KINE 300 Human Anatomy [<u>3 credit hours</u>]
- KINE 301 Human Physiology [<u>3 credit hours</u>]
- KINE 302 Biomechanics [<u>3 credit hours</u>]
- KINE 310 Psychological Aspects of Sport and Exercise [3 credit hours]
- KINE 311 Motor Learning [<u>3 credit hours</u>]
- KINE 319 Statistics for the Health Professional [3 credit hours]
- KINE 321 Exercise Physiology [<u>3 credit hours</u>]
- KINE 323 Exercise Physiology Laboratory [<u>1 credit hour</u>]
- KINE 325 Motor Learning Lab [<u>1 credit hour</u>]
- KINE 440 Research Methods [<u>3 credit hours</u>]

ELECTIVES

To fulfill the remaining requirements for the major concentration in Sports Medicine, students must complete a total of 5 additional courses (15 credit hours) from the courses listed below. The remaining credit hours needed are drawn from courses that are both within the Department of Kinesiology and from other academic departments. Our elective courses include epidemiology, case studies in human performance, motor control, advanced exercise physiology and preventive medicine, sports nutrition, medical terminology and muscle physiology and plasticity. Other electives include courses in chemistry, physics, biology and biochemistry, which may also be utilized as medical school prerequisites.

- BIOC 201 Introductory Biology [3 credit hours]
- BIOC 211 Introductory Experimental Biosciences [3 credit hours]
- BIOC 301 Biochemistry I [3 credit hours]
- BIOC 302 Biochemistry II [3 credit hours]
- BIOC 311 Advanced Experimental Biosciences [3 credit hours]
- BIOC 313 Introductory Synthetic Biology [3 credit hours]
- BIOC 372 Immunology [<u>3 credit hours</u>]
- CHEM 121 General Chemistry I [<u>3 credit hours</u>] and CHEM 123 General Chemistry Lab I [<u>1 credit hour</u>]
- CHEM 122 General Chemistry II [<u>3 credit hours</u>] and CHEM 124 General Chemistry Lab II [<u>1 credit hour</u>]
- CHEM 151 Honors Chemistry I [3 credit hours] and CHEM 153 Honors Chemistry Lab I [1 credit hour]
- CHEM 152 Honors Chemistry II [3 credit hours] and CHEM 154 Honors Chemistry Lab II [1 credit hour]
- EBIO 202 Introductory Biology II [<u>3 credit hours</u>]
- HEAL 132 Medical Terminology [<u>3 credit hours</u>]
- HEAL 407 Epidemiology [<u>3 credit hours</u>]
- KINE 120 Scientific Foundations of Kinesiology [3 credit hours]
- KINE 326 Exercise Epidemiology [3 credit hours]
- KINE 351 Human Anatomy Lab [3 credit hours]
- KINE 375 Sports Medicine Internship [3 credit hours]
- KINE 403 Sport Nutrition [3 credit hours]
- KINE 410 Case Studies in Human Performance [3 credit hours]
- KINE 412 Motor Control [<u>3 credit hours</u>]
- KINE 421 Advanced Topics in Exercise Physiology and Preventative Medicine [3 credit hours]
- KINE 495 Independent Study in Sports Medicine [3 credit hours]
- KINE 496 Independent Study in Sports Medicine [3 credit hours]
- KINE 498 Special Topics in Sports Medicine [3 credit hours]
- KINE 499 Teaching Practicum in Sports Medicine
- PHYS 101 Mechanics (with Lab) [4 credit hours] and PHYS 103 Mechanics Discussion [0 credit]
- PHYS 102 Electricity & Magnetism (with Lab) [4 credit hours] and PHYS 104 E & M Discussion [0 credit]
- PHYS 125 General Physics (with Lab) [4 credit hours]
- PHYS 126 General Physics II (with Lab) [4 credit hours]
- PSYC 202 Introduction to Social Psychology [<u>3 credit hours</u>]
- PSYC 203 Introduction to Cognitive Psychology [3 credit hours]
- PSYC 321 Developmental Psychology [3 credit hours]

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Kinesiology undergraduate degree, major, and major concentrations. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: KINE	
- Course offerings/subject code: HEAL	
Department Description and Code	
- Kinesiology: KINE	
Degree Description Code	
- Bachelor of Arts degree: BA	
Major Description and Code	
- Major in Kinesiology: KINE	
Major Concentration Descriptions and Codes	
- Major Concentration in Health Sciences: KHSC	
- Major Concentration in Sports Medicine: KSPM	
Last Revised : August 29, 2016	

Rice A-Z

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University Calendar

Maps-Directions Feedback

RICE

536 of 923

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Kinesiology >

Undergraduate Students	Kinesiology								
Graduate Students	The Wiess School of Natural Sciences								
Non-Traditional Students		Department	Undergraduate	Graduate	Course				
▶ Faculty	Info Requirements Listings Graduate Requirements Info Info								
Programs of Study	Kinesiology does not offer an academic program at the graduate level.								
Administration and Faculty									
Important Notices	Last Revised : August 12, 2016								

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Kinesiology >

RICE

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Graduate Students	The w	iess School of Na	itural Sciences						
Non-Traditional Students		Department	Undergraduate	Graduate	Course				
	-	Info	Requirements	Requirements	Listings				
Faculty	Cours	se Listings							
Dramma of Church		The official course offerings, including course descriptions, for Kinesiology can be found in Rice's Course Catalog: Kinesiology							
Programs of Study			ding course descriptions, for K	inesiology can be found in Rid	ce's Course Catalog: Kinesiolo				
		cial course offerings, incluc alth Sciences. 🗗	ling course descriptions, for K	inesiology can be found in Rid	ce's Course Catalog: Kinesiolo				
Administration and Faculty	and Hea	alth Sciences. 🗗	ting course descriptions, for K		, , , , , , , , , , , , , , , , , , ,				
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Administration and Faculty	and Hea To view	alth Sciences. 🗗		demic year, see Rice's Cours	e Schedule. 귬				
 Programs of Study Administration and Faculty Important Notices 	and Hea To view	alth Sciences. 🗗	hedule for the 2016-2017 aca	demic year, see Rice's Cours	e Schedule. 귬				

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University Calendar Rice A-Z

Maps-Directions Feedback

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Languages and Intercultural Communication >

Languages and Intercultural Communication

The School of Humanities

۲.	Graduate	Students

Non-Traditional Students

Undergraduate Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings				
Director	Lecturers in Japanese						
M. Rafael Salaberry		Yukiko Asano					
	1	Naoko Ozaki					
Associate Directors							
Luziris Pineda Turi	l	_ecturer in Korean					
Meng Yeh	L.	Jayoung Song					
Lecturer in Arabic	I	_ecturers in Portuguese					
Maher Awad		Jonathan Fleck					
	ŀ	Hélade Santos					
Lecturers in Chinese							
Liang Fu	L	_ecturer in Russian					
Peiting Tsai	Alicia Kate White						
Meng Yeh							
C C	Lecturers in Spanish						
Lecturers in French	١	/ictoria Abad					
Maryam Emami	Victoria Arbizu-Sabater						
Gheorghe Socaciu	A	Aymara Boggiano					
Ū	Jonathan Eleck						
Lecturers in German	Kevin García Cruz						
Fatima Baig	Raquel Gaytán						
Katharina Kley	Jose Narbona						
,	Hélade Santos						
Lecturer in Hebrew		Varia Luján Stasevicius					
ТВА	Luziris Pineda Turi						
Lecturer in Hindi		Postdoctoral Fellows					
Divya Chaudhry	ŀ	Alfred Rue Burch					
	ŀ	Alicia Kate White					
Lecturer in Italian							
Cristina Giliberti							

Program (Undergraduate): Certificate

Program Graduate: N/A

The Center for Languages and Intercultural Communication provides opportunities for the development of (a) communicative and interactional abilities in a second language through language analysis and language use, (b) analytical, critical-thinking competence through the study of linguistic, social and cultural aspects that define second language communicative-interactional abilities, and (c) a broad educational experience (intercultural awareness and abilities) that will help students become productive members of a society in which multilingualism and multiculturalism are the norm rather than the exception.

Humanities

RICE

2016-2017 General Announcements

539 of 923

The Center for Languages and Intercultural Communication does not offer degree programs itself, but students are able to pursue language-related degrees in other departments. Those degrees are: the **BA with a major in Asian Studies**, offered by the Chao Center for Asian Studies; the **BA with a major in Classical Studies**, **BA with a major in French Studies**, and **BA with a major in German Studies**, all offered by the Department of Classical and European Studies; and the **BA with a major in Spanish and Portuguese**, and the **BA with a major in Latin American Studies**, offered by the Department of Spanish, Portuguese, and Latin American Studies. The **BA with a major in History** with an International Major Concentration also requires second-language ability. Additional humanities and other BA degrees are greatly enriched by, but do not require, the second-language knowledge that CLIC provides to Rice students.

Rice A-Z

See each departments requirements here (click on the Department Name): http://ga.rice.edu/programsgrid.aspx.

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Web Services

University Calendar

Maps-Directions

Feedback



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Languages and Intercultural Communication >

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RICE

Languages and Intercultural Communication

The School of Humanities

Graduate Students	
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- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

DepartmentUndergraduateGraduateCourseInfoRequirementsRequirementsListings

Program Learning Outcomes for the Certificate in Languages and Intercultural Communication

Upon completing the Certificate in Languages and Intercultural Communication, students will be able to:

- 1. Communicate and interact with speakers of a second language (in both oral and written modes of communication) at an intermediate-advanced level.
- 2. Critically analyze both the target language and their native language as systems of communication.
- 3. Identify structural, conceptual, social and cultural aspects associated with language use (including their own native language).
- 4. Understand the implications of cross-cultural understanding and intercultural communication.
- 5. Function as productive members of a society in which multilingualism and multiculturalism are the norm rather than the exception.

Requirements for the Certificate in Languages and Intercultural Communication

The Certificate will be offered through the Center for Languages and Intercultural Communication (CLIC) in coordination with the Departments of Classical and European Studies (CLEU), the Chao Center for Asian Studies, and Spanish, Portuguese, and Latin American Studies (SPLA).

Students pursuing the certificate in Language and Intercultural Communication must complete:

- A minimum of 4 courses (12 credit hours) in a target language.
- An experiential learning opportunity through an approved study abroad program offering a minimum of six credit hours
- An outcomes assessment procedure to evaluate proficiency outcomes.
- All required coursework associated with the student's corresponding degree program. Upon completion, the certificate is
 awarded at the same time as the conferral of the student's Rice degree, along with a formal notation on their academic
 transcript.

The Certificate enhances the Rice undergraduate curriculum by developing linguistic and intercultural skills that are not expressly covered in the curriculum of language departments. The targeted learning experiences provided by the Certificate program are focused on providing a platform for the intersection of students' professional goals and linguistic skills so as to transfer the classroom knowledge into real world experiences. Faculty within the Center for Languages and Intercultural Communication teach courses which cover the student learning outcomes. The Certificate enhances the Rice undergraduate curriculum by developing linguistic and intercultural skills that are not expressly covered in the curriculum of language departments. The targeted learning experiences provided by the Certificate program are focused on providing a platform for the intersection of students' professional goals and linguistic skills so as to transfer the classroom knowledge into real world experiences. Faculty within the Center for Language departments. The targeted learning experiences provided by the Certificate program are focused on providing a platform for the intersection of students' professional goals and linguistic skills so as to transfer the classroom knowledge into real world experiences. Faculty within the Center for Languages and Intercultural Communication teach courses which cover the student learning outcomes.

COURSE REQUIREMENTS

Students must complete a total of 4 courses (12 credit hours) as listed below to complete the Certificate's Course Requirements.

- 2 courses (6 credit hours) taught in the target language at the 200-level or above.
- 2 courses (6 credit hours) taught in the target language at the 300-level or above.
- All required coursework associated with the student's corresponding degree program. Upon completion, the certificate is

awarded at the same time as the conferral of the student's Rice degree, along with a formal notation on their academic transcript

Additional information for targeted language course requirements:

French and German

All 300-level courses in these languages are taught by CLEU; thus students register for both required 300-level courses through CLEU.

Portuguese and Spanish

Students may fulfill the 300-level course requirement through courses offered by CLIC or SPLA with the following conditions:

- Whenever students complete two 200-level courses offered by CLIC, they must take a minimum of one 300-level course taught by SPLA.
- Whenever students fulfill either one or both of the 200-level course requirements with a 300-level course, they must register for a minimum of TWO 300-level courses offered by SPLA.

Other languages (other than French, German, Portuguese or Spanish)

In cases when 300-level courses are not offered regularly, students can

- Take another 200-level course if available.
 - or Submit a request for transfer credit (see Transfer Credit section below).

EXPERIENTIAL LEARNING

Students must take at least 1 of the required courses through a Rice Faculty-led study abroad program that provides experiential learning opportunities (e.g., service learning, community service, etc.). In cases when there are no Rice Faculty-led programs offered, students should consult with the corresponding advisor for alternative options that include the academic goals associated with the Certificate. In addition, whenever possible, students should register for courses that provide experiential learning opportunities in the form of internships, service learning and similar learning opportunities. The Rice-in-Country program already includes most of these options.

OUTCOMES ASSESSMENT

In order to receive the Certificate, students will complete an examination consisting of an oral exam in the target language and a 500-word essay written in the target language. Students completing the Certificate are expected to reach level B2 (Independent User) of the Common European Framework of Reference for Languages (CEFR) in the selected language. Students receiving the Certificate cannot fail the test; they simply are given information about the level of competence obtained after completing the Certificate requirements. The level reached will be noted on the Certificate.

Placement Testing

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 are administered online prior to O-Week and several weeks before spring registration. Detailed information regarding language placement exams can be found on the CLIC website.

Transfer Credit

The Center for Languages and Intercultural Communication will determine equivalency for foreign language classes taken at other colleges or universities and approve them for transfer credit. University transfer credit guidelines (see Transfer Credit) as well as requirements of the degree-granting department still apply. Students who study abroad should have their transfer credits approved, when possible, 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 CLIC for approval: 1) the appropriate transfer request form from the Office of the Registrar, 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, or a web address of the program if one is available. Students should be aware that the approval process takes about one week and should plan accordingly.

Scholarships

The Center for Languages and Intercultural Communication invests in students participating in CLIC-sponsored study abroad programs by occasionally offering scholarships to off set the cost of tuition, fees, and in some cases, airfare. When funding is available, the scholarships are offered in the spring semester for study abroad programs taking place the following summer. Detailed information on the scholarship and the CLIC-sponsored programs can be found on the CLIC website.

Descriptions and Codes Legend

2016-2017 General Announcements

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Certificate in Languages and Intercultural Communication. The following is a quick reference:

Rice A-Z

Course Catalog/Schedule:

- Course offerings/subject code: Courses from various subjects may apply toward the certificate. Department (or Center) Description and Code

- Center for Languages and Intercultural Communication: CLIC

Certificate Description and Code

- Certificate in Languages and Intercultural Communication: LIC

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Web Services

University Calendar

Maps-Directions

Feedback



Previous Editions

Feedback

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Languages and Intercultural Communication >

Undergraduate Students	Languages and Intercultural Communication					
► Graduate Students	The Sc	The School of Humanities				
Non-Traditional Students		Department Info	Undergraduate	Graduate	Course	
▶ Faculty	Gradu	Info Requirements Requirements Listings Graduate Requirements Fraction of the second se				
Programs of Study	The Cen	ter for Languages and Inte	rcultural Communication does	s not offer an academic program	n at the graduate level.	
Administration and Faculty						
Important Notices	Last Revise	d : August 12, 2016				

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544 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Languages and Intercultural Communication >

Undergraduate Students	Languages and Intercultural Communication					
Graduate Students	The Sc	hool of Humanitie	es			
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate	Course Listings	
▶ Faculty	Cours	e Listings	Requirements	Requirements	Listings	
Programs of Study	The official course offerings, including course descriptions, for the Certificate in Languages and Intercultural Communication can be found in Rice's Course Catalog.					
Administration and Faculty						
Important Notices						
		ional information regarding	g the Center for Languages a spx . 🗗	nd Intercultural Communicatio	n, see the department's	
	Last Revise	d : August 24, 2016				

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545 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Latin American Studies >

Undergraduate Students	Latin American Stud	162			
Graduate Students	The School of Humanities				
Non-Traditional Students	Department	Undergraduate	Graduate	Course	
▶ Faculty	Info	Requirements	Requirements	Listings	
Programs of Study	Director		ssociate Professors		
Administration and Faculty	José F. Aranda, Jr.		osé F. Aranda, Jr. Iexander X. Byrd		
	Associate Director	К	rista Comer		
Important Notices	David Vassar		uis Duno-Gottberg		
	/		Gisela Heffes		
	Professors		Cymene Howe		
	Farés el-Dahdah	Bernard Aresu Moramay López-Alonso			
	Farés el-Dahdah Leslie Schwindt-Bayer Beatriz González-Stephan				
	Rosemary Hennessy		ssistant Professors		
	Carlos Jiménez	F	Fabiola López-Durán		
	Mark P. Jones	N	Manuel Gutiérrez		
	Alida C. Metcalf	L	eonora Souza Paula		
	M. Rafael Salaberry				
	Nicolas Shumway				
	Program (Undergraduate): B	A degree			
	Program (Graduate): N/A				
	Latin American Studies is an interdisciplinary major designed to further understanding of the cultures, histories, and politics of Latin America as viewed from regional and global perspectives. The major draws from courses and faculty from a wide range of departments and programs, including Anthropology, Architecture, Art History, English, French Studies, History, Spanish and Portuguese, and Political Science. This major provides a challenging context for students to develop core skills in interdisciplinarity, language, communication (written and oral), theory, research methodologies, and geography. The BA in Latin American Studies is part of the department of Spanish, Portuguese and Latin American Studies.				
	Last Revised : August 17, 2016				

University Calendar

Rice A-Z

Maps-Directions

Feedback

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Rice Home

Web Services

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Latin American Studies >

Undergraduate Students		American Stu				
Graduate Students	The So	chool of Humanitie	S			
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings	
▶ Faculty	Progr		omes for the BA Deg			
Programs of Study	Studi	•				
Administration and Faculty	Upon co	ompleting the BA degree, stu	udents majoring in Latin Americ	can Studies will be able to:		
Important Notices	 Demonstrate the ability to speak and read fluently, and conduct research in a foreign language. Be able to interpret the historic, cultural, and political dynamics that comprise a specific region selected by the student for 					
	La 4. Be me Requ For gene America • A n • A n • A n	tin American Studies. a able to define a research p ethodology, and concepts fo irements for the Ba eral university requirements, an Studies (LASR) must com- minimum of 10 courses (30 minimum of 120 credit hours minimum of 6 courses (18 cr least one semester studying	A Degree with a Majon , see Graduation Requirements applete: credit hours) to satisfy major re- s to satisfy degree requirement redit hours) at Rice University. g at a Rice-approved, semeste	veral different disciplinary fiele or in Latin America s. Students pursuing the BA equirements.	ds, including appropriate th n Studies degree with a major in Lati	eory, n
	Addition		ed to demonstrate language con pre information regarding study	•	o	

competency requirement.

CORE REQUIREMENT

Students must complete 1 foundation course (3 credit hours) as listed below to satisfy the Latin American Studies major's Core Requirements. This course will both introduce and structure the major. This course will be taught in English, with discussion sections available in Spanish or Portuguese pending student interest.

LASR 158/SPPO 158 Introduction to Latin American Studies [3 credit hours]

ELECTIVES

Students must complete a total of 8 courses (24 credit hours) from the following list which will focus on a specific region, area, or country in Latin America to satisfy the Latin American Studies major's Electives requirement. This area focus will shape each student's proposed course of study. Each course of study and an area focus must be approved by the advisor to the major. At least 2 courses (6 credit hours) must be in the humanities and 2 courses (6 credit hours) in the social sciences.

- ANTH 290 History and Ethnography [<u>3 credit hours</u>]
- ANTH 334/HIST 333 The Culture of Identity Politics in Contemporary Brazil [3 credit hours]
- ANTH 361 Latin American Topics [3 credit hours]
- ARCH 323 Seminar in Architecture [3 credit hours]
- ARCH 366/HIST 366 Rio de Janeiro: A Social and Architectural History [3 credit hours]
- ARCH 452/HART 463 Practicing Utopia: Architecture, Eugenics and the Modern Latin City [3 credit hours]

- ARCH 462/HART 467 Nature In-Vitro: Bodies, Gardens and Built Forms [3 credit hours]
- ARCH 469 Case Study in Urban Design: Brasilia [3 credit hours]
- ARCR 478/FREN 478 The Caribbean in French [3 credit hours]
- ENGL 268 Introduction to Native American Literature [3 credit hours]
- ENGL 367/SWGS 367 Literature and Culture of the US-Mexico Borderlands [3 credit hours]
- ENGL 369/SWGS 329 The American West and its Others [3 credit hours]
- ENGL 372 The American West/Americas [3 credit hours]
- ENGL 378/SWGS 378 Literature of the Americas [3 credit hours]
- ENGL 471/SPPO 456 Studies in Chicano/a Literature [3 credit hours]
- ENGL 486 Studies in Critical Regionalism [3 credit hours]
- HART 265 A Visual Culture Travelogue: Art and Politics in Modern Latin America [3 credit hours]
- HART 375/ARCH 375 Latin-Europe/Latin-America [3 credit hours]
- HART 392 Latin American Art and Cinema since 1960 [4 credit hours]
- HART 465 Latin American Bodies: On Modernism [<u>3 credit hours</u>]
- HIST 188/388 The Atlantic World: Origins to the Age of Revolution [3 credit hours]
- HIST 215/315 Blacks in the Americas [3 credit hours]
- HIST 227 Latin American Cultural Traditions [3 credit hours]
- HIST 228 Modern Latin America [<u>3 credit hours</u>]
- HIST 328 Poverty and Social Justice in Latin America [<u>3 credit hours</u>]
- HIST 330 Atlantic Slave Trade and the Origins of Afro America [3 credit hours]
- HIST 337 Latin American Perspectives [3 credit hours]
- HIST 397 Economic History in the Americas [<u>3 credit hours</u>]
- HIST 421 Race, Education and Society in the Urban South [3 credit hours]
- HIST 478 Topics in Latin American History [3 credit hours]
- LASR 251/HIST 251 Continuities and Changes in Brazilian History [3 credit hours]
- LING 419 Multilingualism [3 credit hours]
- POLI 328 Latino Politics in the United States [3 credit hours]
- POLI 352 The Politics and Culture of Mexico [3 credit hours]
- POLI 354 Latin American Politics [<u>3 credit hours</u>]
- POLI 450 Elections in the Americas [3 credit hours]
- POLI 459 Sex, Gender, and Political Representation in Latin America [3 credit hours]
- POLI 483 U.S.: Mexico Border Issues in Comparative Perspective [3 credit hours]
- SPPO 344 Mapping Latin American Culture [<u>3 credit hours</u>]
- SPPO 345 Art in Latin American Literature [3 credit hours]
- SPPO 350 Brazilian Literature and Culture [3 credit hours]
- SPPO 351 Literatures from the Southern Cone [3 credit hours]
- SPPO 353 Caribbean Literature [<u>3 credit hours</u>]
- SPPO 354/ENGL 371/SWGS 354 Chicano/a Literature [3 credit hours]
- SPPO 364 Spanish Creative Writing [<u>3 credit hours</u>]
- SPPO 368 The Latin American Short Fiction [3 credit hours]
- SPPO 373 The Mexican Renaissance: Art, Literature and the Revolution of 1910 [3 credit hours]
- SPPO 375/FILM 339/HART 304 Trends in Contemporary Cuban Culture [3 credit hours]
- SPPO 377 Brazilian Music and Social Movements [3 credit hours]
- SPPO 385/SWGS 390 Hispanic Cinema [3 credit hours]
- SPPO 403 Critical Readings in Latin American Literature [3 credit hours]
- SPPO 410 The City in Latin America [3 credit hours]
- SPPO 411 Literature and the Environment in Latin America [3 credit hours]
- SPPO 412 Boom-Boom-Crack: Latin American Novel [3 credit hours]
- SPPO 415 Border Narratives [3 credit hours]
- SPPO 420 Latin American Literature in the Movies [3 credit hours]
- SPPO 422 Latin American Cinema [3 credit hours]
- SPPO 430/SWGS 466 Latin American Women's Culture [3 credit hours]
- SPPO 450 Twentieth Century Mexican Novel [3 credit hours]
- SPPO 451 Octavio Paz [3 credit hours]

LATIN AMERICAN STUDIES CAPSTONE

To fulfill the remaining Latin American Studies major's course requirements, students must complete 1 Capstone course (3 credit hours). LASR students will complete this requirement after completing the semester abroad, and will enroll in a research colloquium directed by a faculty member from either Humanities or Social Sciences. As directed by this faculty member, the colloquium director, students will write a research paper on a Latin American topic of their choice. During the course, students will be exposed to different research methodologies, theories appropriate to their field of study, and instruction on how best to incorporate research and sources that emerged from their study abroad. Interdisciplinary modes of research and writing will be a major feature of this colloquium. Students will be expected to highlight the interdisciplinary nature of their research in their completed paper. In addition, students in the colloquium will be expected to workshop their writing at different times during the semester. The completed research paper will be evaluated by the colloquium director and one other professor appropriate to the

topic. With the approval of the colloquium director, this research paper may be written in English.

LASR 491 Latin American Studies Capstone [3 credit hours]

Additional Requirements for the Major in Latin American Studies

STUDY ABROAD

Rice Latin American Studies majors will be required to spend at least one semester studying at a Rice-approved, semesterabroad program in which the primary language of instruction is Spanish, Portuguese, or under special circumstances French. Courses taken abroad may count toward completing the Latin American Studies major and toward meeting the distribution requirements in the major. Study abroad courses cannot count for more than 4 courses (12 semester hours) toward the major. While the semester abroad is ideal, under very special circumstances, the advisor to the major can approve a 12-week summer program as the equivalent of a semester, provided the program allows students to complete at least 3 three-credit courses.

REQUIRED LANGUAGE COMPETENCE

Rice LASR majors will be expected to demonstrate language competence at three different stages of the major:

- Prior to going abroad, students will be examined by Center for Languages & Intercultural Communication (CLIC) faculty trained in proficiency testing to ensure that the students have adequate language competence for studying abroad— adequate at this stage meaning at least Intermediate-High according to proficiency standards set by the American Council on the Teaching of Foreign Languages (ACTFL).
- After returning from the semester abroad, students will be tested for proficiency at the Advanced-Low level, according to ACTFL Guidelines. Proficiency at the Advanced-Low level is desirable, but not required.
- In writing the research paper mentioned above, students must demonstrate to the satisfaction of the colloquium director their ability to do research in a foreign language.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Latin American Studies undergraduate degree and major. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: LASR, SPPO, SPAN. Courses offered by other departments apply toward the major in Latin American Studies.

- Department Description and Code
- Spanish, Portuguese, and Latin American Studies: SPLA
- Degree Description and Code
- Bachelor of Arts degree: BA
- Major Description and Code
 - Major in Latin American Studies: LASR

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Latin American Studies >

Undergraduate Students	Latin American Studies					
► Graduate Students	The Sc	The School of Humanities				
► Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings	
▶ Faculty	Graduate Requirements					
▶ Programs of Study			fer an academic program at th	he graduate level.		
Administration and Faculty						
Important Notices	Last Revise	d : August 12, 2016				

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Latin American Studies >

Undergraduate Students	Latin American Studies				
Graduate Students	The School of Humanities				
Non-Traditional Students	Department Undergraduate Graduate Course Info Requirements Requirements Listings				
▶ Faculty					
Programs of Study	Course Listings The official course offerings, including course descriptions, listed in the Latin American Studies Undergraduate Requirement				
Administration and Faculty	section can be found in Rice's Course Catalog.				
Important Notices	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.				
	For additional information regarding Latin American Studies, see the department's website: https://spanishandportuguese.rice.edu/. 🗗				
	Last Revised : August 24, 2016				

 General Announcements
 6100 Main MS-10, Houston, Texas 77005-1827
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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

551 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Liberal Studies >

Undergraduate Students	Liberal Studies					
Graduate Students	The Susanne M. Glasscoc	k School of Continu	uing Studies			
Non-Traditional Students	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings		
► Faculty	IIIO	Requirements	Requirements	Listings		
Programs of Study	Dean Mary B. McIntire		aculty Director			
Administration and Faculty						
Important Notices	Program (Undergraduate): N	/Α				
	Program (Graduate): MLS degree					
	The part-time Master of Liberal Studies opportunity to challenge themselves in the MLS program allows students to er natural sciences. Though exploring the undergraduate curriculum, it is both po- taught by distinguished Rice faculty ar The program is designed for working a Classes meet one evening per week for fall, winter, and spring. Fall classes begin in September and er courses begin in April and end in early Please refer to the MLS website of for Last Revised : August 17, 2016	tellectually. Designed for the xplore timeless and timely hu e liberal arts at a highly integr possible and well suited to a mand invited visiting faculty who adults and does not follow the or 10–11 weeks, with one or t and before Thanksgiving; wint y June. No classes are held in	se who love to learn new idea iman questions within the hur rated level is not always poss aster's level program. Course appreciate the opportunity to e traditional university schedu two Saturday morning classe ther classes begin in January a n July or August.	as and discuss them with o manities, social sciences, a sible in a career-focused es in the MLS program are teach adults. le of fall and spring semest s. Sessions are offered in t	thers, and ters.	

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University Calendar

Rice A-Z

Maps-Directions

Feedback





Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Liberal Studies >

Undergraduate Students	Liberal Studies						
Graduate Students	The Su	The Susanne M. Glasscock School of Continuing Studies					
Non-Traditional Students		Department	Undergraduate	Graduate	Course		
▶ Faculty	Under	Info Requirements Requirements Undergraduate Requirements Info Info					
Programs of Study	Liberal S	Liberal Studies does not offer an academic program at the undergraduate level.					
Administration and Faculty							
Important Notices	Last Revise	d : August 12, 2016					

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Liberal Studies >

Undergraduate Students	Liberal Studies						
Graduate Students	The Susanne M. Glasscock School of Continuing Studies						
Non-Traditional Students	ondorgi addato o	raduate Course					
▶ Faculty	Info Requirements Requ	uirements Listings					
	Program Learning Outcomes for the Master of Liberal Studies Degree (MLS)						
Programs of Study	Upon completing the Master of Liberal Studies degree, students will:						
Administration and Faculty	 Appreciate major perspectives and methods of the liberal arts by demonstrating a broadened understanding of some basic concepts in the humanities, social sciences, and sciences. 						
Important Notices	2. Appreciate the connection of the liberal arts to their lives and the large	۲ world.					
	 3. Demonstrate a capacity for analytical thinking. 4. Demonstrate good writing skills. 						
	 5. Practice critical listening and good discussion and oral communication 	ı skills.					
	6. Demonstrate academic research methods.						
	Requirements for the Master of Liberal Studies De	egree (MLS)					
	For general university requirements for graduate study, see Graduate Degree complete:	ees. Students pursuing the MLS degree must					

A minimum of 11 courses (33 credit hours) to satisfy degree requirements.

Additionally, MLS students may take only one course in his or her entering session, MLSC 600 *Introduction to Graduate Research, Analysis, and Exposition.* All courses will require research papers; some may require tests or oral presentations. A thesis is not part of the degree program. The program can be completed in approximately four years if one class is completed every session. Students are allowed to take up to seven years to complete the degree.

CORE REQUIREMENTS

Students must complete a total of 3 courses (9 credit hours) from the fields of Humanities, Social Sciences, and Natural Sciences. One course must be taken from each field. The core courses are designed to acquaint first-year students with contrasting perspectives and methodological approaches that define academic inquiry in the three broad fields. Core courses must be completed before courses that satisfy the electives can be taken.

Humanities

Students must complete 1 course (3 credit hours) from the following:

- MLSC 501 The Shaping of Western Thought [3 credit hours]
- MLSC 505 Shakespeare and Film [<u>3 credit hours</u>]
- MLSC 510 Music and Other Arts: Collaboration and Fusion [3 credit hours]
- MLSC 511 An Introduction to Roman Empire: Society and Culture During the Pax Romana [3 credit hours]
- MLSC 512 Contemporary China and the Chinese Diaspora [<u>3 credit hours</u>]
- MLSC 517 Modern Drama on Film and Performance [<u>3 credit hours</u>]
- MLSC 520 Art Music in Western European Culture [<u>3 credit hours</u>]
- MLSC 526 Contemporary Moral Issues [<u>3 credit hours</u>]
- MLSC 527 Contemporary Approaches to the History of Emotions [<u>3 credit hours</u>]
- MLSC 530 17th-18th Centuries Western Philosophy [<u>3 credit hours</u>]
- MLSC 531 African Crisis in Context [<u>3 credit hours</u>]
- MLSC 533 Self-Determination in the Arab World [<u>3 credit hours</u>]
- MLSC 535 Dickens, Oliver Twist, Poverty, and Social Justice [<u>3 credit hours</u>]
- MLSC 536 Traditional Chinese Culture and Its Modern Legacy [<u>3 credit hours</u>]

- MLSC 537 Profiles from the Past: Famous Figures in Western History [3 credit hours]
- MLSC 539 Immigration and the State: Europe and the US in Comparative Perspective [3 credit hours]
- MLSC 541 Human Rights, Gender Equality and Religious Beliefs [<u>3 credit hours</u>]
- MLSC 542 The Epic Journey [<u>3 credit hours</u>]
- MLSC 543 The City in Literature [<u>3 credit hours</u>]
- MLSC 544 Writing Children's Literature [<u>3 credit hours</u>]
- MLSC 545 Window to the Soul: Exploring [<u>3 credit hours</u>]
- MLSC 547 Profiles from the Past II: Famous Figures in Western History [3 credit hours]
- MLSC 548 The History of Philosophy Set in Cultural Context [3 credit hours
- MLSC 549 Comparative Imperial Pleasure Gardens: Power and Landscape [3 credit hours]

Social Sciences

Students must complete 1 course (3 credit hours) from the following:

- MLSC 503 Violence and Human Nature [<u>3 credit hours</u>]
- MLSC 504 Islam: State and Society [3 credit hours]
- MLSC 507 Introduction to Social Systems: The Whole Is Greater Than the Sum of its Parts [3 credit hours]
- MLSC 509 Stereotypes, Prejudice and Discrimination [<u>3 credit hours</u>]
- MLSC 514 South by Southeast Asia: Crucible of Diversity in Religion and Politics [3 credit hours]
- MLSC 516 Pictures and Words: A View of Muslim Politics Through the Arts [3 credit hours]
- MLSC 519 Psychology of Beliefs [<u>3 credit hours</u>]
- MLSC 523 Theory and Practice of Punishment [<u>3 credit hours</u>]
- MLSC 524 Evolutionary Psychology [<u>3 credit hours</u>]
- MLSC 527 Comparative Approaches to the History of Emotions [3 credit hours]
- MLSC 529 Gender Equity [<u>3 credit hours</u>]
- MLSC 531 African Crisis in Context [3 credit hours]
- MLSC 533 Self-Determination in Arab World [3 credit hours]
- MLSC 534 Human Rights in World Affairs [3 credit hours]
- MLSC 535 Dickens, Oliver Twist, Poverty, and Social Justice [<u>3 credit hours</u>]
- MLSC 536 Traditional Chinese Culture [<u>3 credit hours</u>]
- MLSC 539 Immigration and the State: Europe and the US in Comparative Perspective [3 credit hours]
- MLSC 541 Human Rights, Gender Equality, and Religious Beliefs [<u>3 credit hours</u>]
- MLSC 549 Comparative Imperial Pleasure Gardens: Power and Landscape [3 credit hours]

Natural Science

Students must complete 1 course (3 credit hours) from the following:

- MLSC 502 Our Environment: Science and Culture [3 credit hours]
- MLSC 506 The Solar System, The Sun, and the Mind of Man [3 credit hours]
- MLSC 508 Earth Systems Dynamics [3 credit hours]
- MLSC 513 DNA: Human Identity and Origins [3 credit hours]
- MLSC 515 Science in the First Person [<u>3 credit hours</u>]
- MLSC 518 Judging Science [<u>3 credit hours</u>]
- MLSC 522 Evolution in Science and Society [<u>3 credit hours</u>]
- MLSC 525 Plagues and Populations [<u>3 credit hours</u>]
- MLSC 528 Physics for Society [<u>3 credit hours</u>]
- MLSC 532 The Grand Design [3 credit hours]
- MLSC 538 Our Changing Planet [<u>3 credit hours</u>]
- MSLC 540 Is Anybody Out There: The Search for Life Beyond Earth [3 credit hours]
- MLSC 550 Modern Astronomy and Our Place in the Universe [3 credit hours]
- MLSC 604 Exploration and Discovery in Antarctica [<u>3 credit hours</u>]

ELECTIVES

Students must complete an additional 7 courses (21 credit hours) from MLSC course offerings at the 600-level to fulfill the Electives requirement. All new students must take MLSC 600 *Introduction to Graduate Research, Analysis, and Exposition* in their first term. The course counts toward the electives requirements. Electives may focus on just one "track" (natural sciences, social sciences, or humanities) or may be chosen more broadly.

CAPSTONE

Students must complete 1 course (3 credit hours) from the following. 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.

- MLSC 700 Capstone I [<u>3 credit hours</u>]
- MLSC 701 Capstone II [<u>3 credit hours</u>]

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.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the graduate Liberal Studies degree program. The following is a quick reference:

Rice A-Z

Course Catalog/Schedule

- Course offerings/subject code: MLSC

Department Description and Code

- School of Continuing Studies: SOCS

Degree Descriptions and Codes

- Master of Liberal Studies degree: MLS Degree Program Description and Code

- Degree Program in Liberal Studies: LBST

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Web Services

University Calendar

Maps-Directions

Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Liberal Studies >

Undergraduate Students	Liberal Studies							
Graduate Students	The Susanne M. Glassco	ock School of Conti	nuing Studies					
Non-Traditional Students	Department	Undergraduate	Graduate	Course				
Faculty	Info Course Listings	Requirements	Requirements	Listings				
Programs of Study	The official course offerings, includ	ing course descriptions, for Li	beral Studies can be found in F	Rice's Course Catalog. 🗗				
Administration and Faculty	To view the most recent course sch	nedule for the 2016-2017 aca	demic year, see Rice's Course	Schedule. 🗗				
Important Notices	For additional information regarding	For additional information regarding Liberal Studies, see the department's website: http://mls.rice.edu/.						
	Last Revised : August 24, 2016							

General Announce	ements 6100 M	ain MS-10, Houston,	Texas 77005-1827	Mailing Address: P.O	. Box 1892, Houston, Te	xas 77251-1892
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Undergraduate Students

557 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Lifetime Physical Activity Program >

Lifetime Physical Activity Program

Graduate Students	Department	Undergraduate	Graduate	Course	
Non-Traditional Students	Info	Requirements	Requirements	Listings	
▶ Faculty	-				
	Director		structors		
Programs of Study	Dr. Elizabeth Slator		n Baber Banta		
			hn Barron		
Administration and Faculty		Da	imon Bowens		
Lungertant Nations		Da	vid Broadstone		
Important Notices		Je	nnifer Buergermeister		
		An	nanda Caldwell		
		Kri	is Cortez		
		Me	egan Gossett		
		Lis	a Hastings		
			ke Henshaw		
			stina Koutsoudas		
			ithna Kumar		
			sanna Leonard		
			Ondra McGee		
			ather Nabors		
			cqueline Nalett		
			arcia Oliveira		
			Iton Pinzon-Cancino		
			met Rosowsky nis Watkins		
			nie Wu		
		En			

Program (Undergraduate): N/A, no degree program

Program (Graduate): N/A

Historically, Rice University has recognized that becoming physically educated is integral to one's overall education. Since the university was founded in 1912, the Lifetime Physical Activity Program has worked to create a multi-faceted 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 Rice University students to activities that are not necessarily mainstream in United States culture.

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 multi-sport focus (e.g., volleyball/basketball), allowing students to experience three or four activities during one 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, team sports (flag football, basketball, volleyball, soccer, softball), and other activities such as fencing, self-defense for women, golf, yoga, and nutrition.

Undergraduates must successfully complete one LPAP course (1 credit) in order to satisfy the graduation requirement. Students may use up to four LPAP courses (4 credits total) towards the total credits necessary for graduation. LPAP courses are not repeatable for credit.

Lifetime Physical Activity Program classes are strongly recommended for all first-year students, including transfers who have not taken equivalent courses elsewhere. Because LPAP courses are participation based and must be supervised by an instructor, students are required to adhere to a program-wide attendance policy.

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-----------------------	-----------	--------------	---------------------	----------	-----------------	----------

559 of 923

SEARCH GA

Previous Editions

Feedback

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Lifetime Physical Activity Program >

Undergraduate Students	Lifeti	me Physical A	Activity Program	ו				
Graduate Students		Department	Undergraduate	Graduate	Course			
Non-Traditional Students		Info	Requirements	Requirements	Listings			
FacultyPrograms of Study	The cour	Undergraduate Requirements The courses that can satisfy the Lifetime Physical Activity Program's undergraduate graduation requirements can be found in Rice's Course Catalog. See the Course Listings tab for a link to the official course offerings.						
Administration and Faculty								
Important Notices	Last Revise	ed : August 12, 2016						

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560 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Lifetime Physical Activity Program >

Undergraduate Students	Lifeti	me Physical A	Activity Program	n				
Graduate Students		Department	Undergraduate	Graduate	Course			
Non-Traditional Students		Info	Requirements	Requirements	Listings			
▶ Faculty		Graduate Requirements						
Programs of Study	The Life	time Physical Activity Progr	am does not offer courses at	the graduate level.				
Administration and Faculty	Last Revise	ed : August 12, 2016						
Important Notices								

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561 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Lifetime Physical Activity Program >

Undergraduate Students	Lifetin	me Physical /	Activity Program	n			
Graduate Students		Department	Undergraduate	Graduate	Course		
Non-Traditional Students		Info	Requirements	Requirements	Listings		
▶ Faculty	Cours	e Listings					
Programs of Study		ial course offerings, incluc Catalog. 🗗	ling course descriptions, for th	e Lifetime Physical Activity P	rogram can be found in Rice's		
Administration and Faculty	To view t	he most recent course sc	hedule for the 2016-2017 aca	demic year, see Rice's Cours	e Schedule.		
Important Notices	For additional information regarding the Lifetime Physical Activity program, see the department's website: https://recreation.rice.edu/lpap/.						
	Last Revise	d : August 24, 2016					

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Web Services

University Calendar Rice A-Z

Maps-Directions Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Linguistics >

Undergraduate Students		listics hool of Social Scier	ices		
Graduate Students					
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
Faculty			Requirements	Requirements	Listings
Programs of Study		Chair Michel Achard		Assistant Professors Christina Willis Oko	
Administration and Faculty					
Important Notices		Professors Michel Achard		Professors Emeriti James E. Copeland	
		Masayoshi Shibatani		Philip W. Davis Sydney M. Lamb	
		Associate Professors		Stephen A. Tyler	
		Robert Englebretson			
		Suzanne E. Kemmer			
		Nancy Niedzielski			
	The Rice the depa emerge cross-lin that mot between lead to in e cog typ fiel sou dis ph e lab	rtment adopts a functional, us in faculty research and the de- guistic generalization; the effe vate and constrain linguistic fo language and mind; and inter	age-based approach to la gree programs offered: in- cts of semantics, language orm; grounding of theories est in discourse and socia npirically well-supported th s Australian, Austronesian, A	nguage and linguistic theory. A depth investigation of language e-in-use, sociocultural factors, a in solid empirical data of many l/communicative interaction me neoretical and descriptive lingu	es, coupled with the search for and other functional influences v sorts; an interest in the relation ore generally. These interests
	Last Revise	2d : August 17, 2016			

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RICE

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Linguistics >

Undergraduate Students	Lingu	uistics						
► Graduate Students	The So	hool of Social Sci	iences					
Non-Traditional Students		Department Info	Undergraduate	Graduate	Course			
▶ Faculty	-		Requirements	Requirements	Listings			
▶ Programs of Study		•	student majoring in Linguistics v		I Linguistics			
Administration and Faculty	1. De	monstrate the ability to per	form independent research abo	ut languages and their speal	kers, including the ability to			
Important Notices	 ethically complete field work, collect data, analyze data, utilize laboratory and computing technologies, draw meaningful conclusions from data, and convey research results effectively orally and in writing. Identify and define the main approaches for researching language structure and use at all levels (sounds, words, grammar, 							
	 meaning, social/cultural interaction), as well as be able to critically evaluate and apply the primary concepts, vocabular methods and theories in their own work. 3. Gain an appreciation of the diversity of language and the ways in which it changes over time. They will be able to anal the diversity of sounds and grammar in the world's languages. They will also understand the diversity of regionally-, socially-, and ethnically-defined varieties within a single language. Students will be able to explain why this diversity is relevant to everyday life and how it is crucial to fields both inside and outside of linguistics. 4. Understand language in its relation to cognition, identity formation, culture, and society, and the systematic relationship among them. 							
	Requ	irements for the B	A Degree with a Majo	or in Linguistics				
	0	eral university requirements cs (LING) must complete:	s, see Graduation Requirements	s. Students pursuing the BA o	degree with a major in			
	■ Ar	minimum of 120 credit hour	credit hours) to satisfy major re to satisfy degree requirements credit hours) at the 300-level or a	S.				
	Because	0 0	tifaceted object of study, linguist		disciplinary field. The			

undergraduate major provides both an in-depth grounding in the field as well as cross-disciplinary breadth. Students interested in careers in medically-oriented fields or speech technology are encouraged to meet with the undergraduate advisor to discuss the course most appropriate to their future plans.

CORE REQUIREMENTS

Students must complete a total of 8 courses (24 credit hours) as listed below to satisfy the Linguistics major's Core Requirements.

Core Courses

Students must complete a total of 6 courses (18 credit hours) as listed below.

- LING/ANTH 200 Introduction to the Study of Language [3 credit hours]
- LING 300/ANTH 300 Linguistic Analysis [3 credit hours]
- LING 301/ANTH 301 Phonetics [3 credit hours]
- LING 304 Introduction to Syntax [<u>3 credit hours</u>] or LING 311/ANTH 323 Introduction to Phonology [<u>3 credit hours</u>]
- LING 305/ANTH 305 Historical Linguistics [3 credit hours] or LING 315/PSYC 315 Introduction to Semantics [3 credit hours] or LING 416 Language Universals and Typology [3 credit hours]
- LING 415/SWGS 415 Sociolinguistics [3 credit hours]

Language Requirement

Students must complete 2 courses (6 credit hours) in a foreign language at the 200-level or above or, for non-European languages, at the 100-level or above.

European Languages

If students choose to complete the language requirement in European Languages, 2 courses (6 credit hours) must be completed at the 200-level or above from the following departmental course offerings:

- French (FREN)
- German (GERM)
- Greek (GREE)
- Italian (ITAL)
- Latin (LATI)
- Portuguese (PORT)
- Russian (RUSS)
- Spanish (SPAN)

Non-European Languages

If students choose to complete the language requirement in the Non-European Languages, 2 courses (6 credit hours) must be completed at the 100-level or above from the following departmental course offerings:

- Arabic (ARAB)
- Chinese (CHIN)
- Hebrew (HEBR)
- Hindi (HIND)
- Japanese (JAPA)
- Korean (KORE)
- Tibetan (TIBT)

ELECTIVES

To fulfill the remaining Linguistics major requirements, students must complete a total of 4 additional courses (12 credit hours) from departmental (LING) course offerings at the 300-level or above. Courses listed in the Core Requirements that were not applied toward the Core Requirements may be applied towards the Elective requirement. No more than one Independent Study course may be applied toward the Linguistics major requirements.

Honors Program

The Linguistics Honors Program provides selected undergraduate majors with the opportunity to conduct supervised research. 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.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Linguistics undergraduate degree and major. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: LING Department Description and Code

2017 General Announcements		565 of 923
	 Linguistics: LING <u>Degree Description and Code</u> Bachelor of Arts degree: BA <u>Major Description and Code</u> Major in Linguistics: LING 	
	Last Revised : August 18, 2016	

Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892 General Announcements 6100 Main MS-10, Houston, Texas 77005-1827

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Course

Listings

SEARCH GA

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RICE
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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Linguistics >

Undergraduate Students	Students	raduate	Underg
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Linguistics

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The School of Social Sciences

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- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department	Un
Info	Re

Undergraduate	Graduate	
Requirements	Requirements	

Requirements for the MA and PhD Degrees in Linguistics

The Linguistics Department is not accepting new students into the graduate program for Fall 2016.

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, and forensic linguistics. 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. Students will earn a master's degree upon advancement to candidacy. Students admitted to the program are generally offered financial support in the form of tuition scholarships and/or stipends for living expenses.

During the first 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 will, in general, take five years to progress through the degree program. With no prior linguistics background, course work in the first three years will include:

- one problem-solving course in linguistic analysis (LING 500) to be taken in the first year of study
- two courses in the area of phonetics/phonology (LING 501 and 511)
- two courses in the area of syntactic/semantic analysis (LING 504 and LING 515 or LING 413)
- the two-course sequence in field methods (LING 407 and LING 408) to be taken normally in the second year of study
- two seminars in the department usually to be taken in the second and/or third year of study
- five additional elective courses, including two courses in other subfields of linguistics

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. The department requires a minimum semester GPA of 3.0 to avoid probationary status. Students are expected to serve as teaching assistants for one course per year for four of the five years during the time they are receiving departmental support and this service is included in the normal course load.

Before advancing to candidacy, students must prepare two 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 two members of the faculty reads and referees each paper. The committees are chosen by the student and approved by the student's faculty mentor. The first publishable paper must be approved no later than the end of the fifth semester. Students who fail to meet this deadline will be dismissed from the program. The second publishable paper must be approved by the beginning of the eighth semester 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 one language other than English. See the department web page and Linguistics Graduate Student Handbook for specific details.

In the course of the first three 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 first year, the graduate advisor serves as the student's advisor, but after the first 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 second 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 fourth year, students present to their committee members a third research paper, called the dissertation prospectus, consisting of a substantial dissertation proposal and a comprehensive bibliography. It may be based on a grant proposal to an external funding agency, particulary in the case of proposed fieldwork. Upon completion of the prospectus, students will submit to an oral qualifying exam to be administered by the dissertation committee. The exam will consist of two parts, a general exam demonstrating the student's knowledge of the field and a dissertation prospectus hearing. Upon 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. Upon completion of a complete and acceptable draft of the dissertation, the student will then, in consultation with all members of the dissertation committee, schedule a public defense of the work. 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 requirements, consult the official Linguistics Graduate Student Handbook and the departmental web page at linguistics.rice.edu.

MA Program. Although students are not normally admitted to study for an MA, graduate students may earn the MA after obtaining approval of their candidacy for the PhD. After all the requirements necessary to advance to candidacy have been met, the student may apply for a candidacy master's degree.

Rice A-Z

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Rice Home

University Calendar

Maps-Directions Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Linguistics >

Undergraduate Students	Linguistics
Graduate Students	The School of Social Sciences
Non-Traditional Students	Department Undergraduate Graduate Course
Faculty	Info Requirements Requirements Listings Course Listings Info Info
Programs of Study	The official course offerings, including course descriptions, for Linguistics can be found in Rice's Course Catalog.
Administration and Faculty	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.
Important Notices	For additional information regarding Linguistics, see the department's website: https://linguistics.rice.edu/.
	Last Revised : August 24, 2016

General Announce	ements 6100 M	ain MS-10, Houston,	Texas 77005-1827	Mailing Address: P.O.	Box 1892, Houston, Tex	kas 77251-1892
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569 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Managerial Studies >

Undergraduate Students	Managerial Studies
Graduate Students	The School of Social Sciences
Non-Traditional Students	DepartmentUndergraduateGraduateCourseInfoRequirementsRequirementsListings
► Faculty	inio Requirements Requirements Listings
Programs of Study	Program Director Richard J. Stoll
Administration and Faculty	
Important Notices	Program (Undergraduate): BA degree
	Program (Graduate): N/A
	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 one 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.
	Last Revised : August 17, 2016

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University Calendar

Rice A-Z

Maps-Directions

Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

The School of Social Sciences

Managerial Studies

2016-2017 > Programs of Study > Managerial Studies >

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Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

	Department	Undergraduate	Graduate	Course	
	Info	Requirements	Requirements	Listings	
Progr	am Learning Outo	omes for the BA Deg	gree with a Major in	Managerial Studi	es

Upon completing the BA degree, a student majoring in Managerial Studies will be able to:

- Demonstrate knowledge of how private economic practices, responsibilities, rights, and rewards are related to public policy, regulating institutions, and politics (including local, state, and federal regulation, international policy, and the like) and will be able to critically evaluate the impact of policy, institutions, and politics on business practices.
- Demonstrate an understanding of economic practices internal to conducting business, including financial reporting, accounting, and market efficiency while also demonstrating an understanding of economic practices external to business, including private investing in company stocks, bonds and options.
- 3. Define and critically apply interdisciplinary methodologies and theories (including those from psychology, economics, and mathematics) to problems in Managerial Studies, as well as demonstrate the ability to evaluate different forms of evidence.
- 4. Demonstrate sufficient proficiency in algebra, calculus, statistics and other pertinent mathematics to develop and verify economic hypotheses as well as to computationally evaluate business problems or proposals.
- 5. Demonstrate an understanding of the underlying principles that govern the way the profession accounts for and communicates business transactions.

Requirements for the BA Degree with a Major in Managerial Studies

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Managerial Studies (MANA) must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- The requirements for a second departmental or interdepartmental major.

CORE REQUIREMENTS

Students must complete a total of 6 courses (18 credit hours) as listed below to satisfy the Managerial Studies major's Core Requirements.

- BUSI 305 Financial Accounting [3 credit hours]
- ECON 100 Principles of Economics [3 credit hours]
- ECON 343 Corporate Finance [<u>3 credit hours</u>]
 or ECON 443 Financial Economics [<u>3 credit hours</u>]
 or BUSI 343 Financial Management [<u>3 credit hours</u>]
- MANA 404 Management Communications [3 credit hours]
- PSYC 101 Introduction to Psychology [<u>3 credit hours</u>]
- PSYC 231 Industrial and Organizational Psychology [3 credit hours]

ELECTIVES

To fulfill the remaining Managerial Studies major requirements, students must complete a total of 4 additional courses (12 credit hours) as listed under the following categories:

Core Statistics Elective

Students must complete 1 course (3 credit hours) from the following:

- STAT 280 Elementary Applied Statistics [4 credit hours]
- STAT 305 Introduction to Statistics for Biosciences [4 credit hours]
- STAT 310/ECON 307 Probability & Statistics [3 credit hours]

Advanced Methods Elective

Students must complete 1 course (3-4 credit hours) from the following:

- CAAM 378 Introduction to Operations Research and Optimization [3 credit hours]
- ECON 310/STAT 376 Econometrics [<u>3 credit hours</u>]
- STAT 385 Methods for Data Analysis [4 credit hours]
- STAT 410 Linear Regression [4 credit hours]
- STAT 421 Applied Time Series and Forecasting [3 credit hours]
- STAT 486 Market Models [<u>3 credit hours</u>]

External Course Electives

Students must complete 2 courses (6 credit hours) from the following:

- ECON 200/301 Microeconomics [3 credit hours]
- ECON 239 Law and Economics [3 credit hours]
- ECON 355 Financial Markets [3 credit hours]
- ECON 421 International Finance [3 credit hours]
- ECON 435 Industrial Organization [<u>3 credit hours</u>]
- ECON 437/ENST 437 Energy Economics [3 credit hours]
- MECH 499 Current Topics [<u>3 credit hours</u>]
- POLI 335 Political Environment of Business [<u>3 credit hours</u>]
- POLI 338/POST 338/SOSC 301 Policy Analysis [3 credit hours]
- STAT 411 Advanced Statistical Methods [3 credit hours]

Honors Program

To apply for admission to the honors program, students must have completed 8 courses from the Managerial Studies curriculum 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 two additional courses from the following:

- MANA 497 and MANA 498 Independent Research [3 credit hours]
- ECON 445 Managerial Economics [3 credit hours]
- ECON 449 Principles of Financial Engineering [3 credit hours]
- STAT 486 Market Models [<u>3 credit hours</u>]
- STAT 421 Applied Time Series and Forecasting [3 credit hours]

MANA 497 and MANA 498 are offered in collaboration with faculty in the Jesse H. Jones Graduate School of Business. 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 120 Herzstein Hall.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Managerial Studies undergraduate degree and major. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: MANA. Courses offered by other departments apply toward the major in Managerial Studies.

- Department Description and Code
- Managerial Studies: MANA
- Degree Description and Code
 - Bachelor of Arts degree: BA

Major Description and Code

- Major in Managerial Studies: MANA

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Managerial Studies >

Undergraduate Students	Mana	gerial Studies	5		
Graduate Students	The Sc	hool of Social Sc	iences		
Non-Traditional Students		Department	Undergraduate	Graduate	Course
▶ Faculty	Gradu	Info Jate Requirement	Requirements s	Requirements	Listings
Programs of Study			an academic program at the g	raduate level.	
Administration and Faculty					
Important Notices	Last Revise	ed : August 12, 2016			

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Managerial Studies >

Undergraduate Students	Mana	gerial Studies	S			
Graduate Students	The Sc	The School of Social Sciences				
Non-Traditional Students		Department	Undergraduate	Graduate	Course	
Faculty	Cours	Info e Listings	Requirements	Requirements	Listings	
Programs of Study		•	ding course descriptions, listed	I in the Managerial Studies Un	dergraduate Requirements	
Administration and Faculty	section c	an be found in Rice's Cou	urse Catalog. 🖗			
Important Notices	To view t	he most recent course sc	hedule for the 2016-2017 acad	demic year, see Rice's Course	Schedule. 🛃	
	For addit	ional information regardin	ng Managerial Studies website	, see the department's website	: http://mana.rice.edu/. 🖨	
	Last Revise	d : August 24, 2016				

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SEARCH GA

Previous Editions

Course

Graduate

GENERAL ANNOUNCEMENTS 2016-2017

Department

2016-2017 > Programs of Study > Materials Science and NanoEngineering >

Materials Science and NanoEngineering

Undergraduate

The George R. Brown School of Engineering

Graduate Students

RICE

Non-Traditional Students

Undergraduate Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department	Undergraduate		Graduate	Course			
Info	Requirements		Requirements	Listings			
Chair		Joir	t Appointments				
Pulickel Ajayan			ro Alvarez				
j - j -			g Bao				
Associate Chair			rew Barron				
Jun Lou		Yildiz Bayazitoglu					
		Lisa Biswal					
Professors		Naomi Halas					
Enrique V. Barrera	Junichiro Kono Qilin Li Angel Marti-Arbona						
Edwin L. Thomas							
Boris I. Yakobson							
			Antonios G. Mikos				
Assistant Professors		Emi	lia Morosan				
Zachary Cordero		Sati	sh Nagarajaiah				
Emilie Ringe		Dou	g Natelson				
Ming Tang	Peter Nordlander						
				Matteo Pasquali			
Professor Emeritus		Gus	Scuseria				
Rex B. McLellan		Rouzbeh Shahsavari					
		Pol	Spanos				
Professor in the Practice		Isab	ell Thomann				
Peter Loos		Jam	es M. Tour				
		Rafa	ael Verduzco				
		Brud	ce Weisman				
		Pete	er G. Wolynes				
			nael S. Wong				
		Eug	ene Zubarev				
		Ass	ociate Research Profess	or			
		Wad	le Adams				
		Albe	erto Pimpinelli				
		Rob	ert Vajtai				
		Lec	turers				
			dy John				
			,				
		Adjunct Professors					
	Ghaithan Al-Muntasheri						
			n Biggins				
		Lijie					
			g Ding				
			nt Houchens				
		Ahm	nad Kabbani				

Sergio Kapusta Valery Khabashesku Ajit Roy Glaura Goulart Silva Abhishek Singh

Programs (Undergraduate): BA degree, BSMSNE degree

Programs (Graduate): MMSNE degree, MS degree, PhD degree

Studies in Materials Science and NanoEngineering may lead to specialization in one of several areas, including Biomaterials, Carbon Nanomaterials Composites, Computational Materials Science and Material Theories, Electron Microscopy and in situ Methods, Electronic Materials, Energy Conversion and Storage, Low Dimensional Materials, Mechanical Properties and Nanomechanics, Nanotechnology, Optical Materials, Photonics and Nanoplasmonics, Surfaces, Interfaces, Coatings and Thin Films, and Ultralight-Weight Ultrahigh-Strength Multifunctional Materials.

The graduate program offers a professional degree in Materials Science and NanoEngineering. Graduate students also may pursue research degrees. Faculty research areas please go to MSNE website . The graduate program, in its comprehensive educational and research activities, collaborates with other departments at Rice and other institutions and industry in Houston, including those in the Texas Medical Center. Collaborations are also extended to universities in the United States, Europe, China, Japan, Mexico, and South America. International collaborations include joint research activities and faculty and student visitor exchanges.

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Rice Home

University Calendar

Maps-Directions Feedback

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01/03/2017
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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Materials Science and NanoEngineering >

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Materials Science and NanoEngineering

Graduate Students

RICE

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

The George R. Brown School of Engineering

	Department	Undergraduate	Graduate	Course
	Info	Requirements	Requirements	Listings
Jump to:				

BSMSNE Degree with a Major in Materials Science and NanoEngineering BA with a Major in Materials Science and NanoEngineering

Program Learning Outcomes for the Bachelor of Science in Materials Science and NanoEngineering Degree (BSMSNE)

Upon completing the BSMSNE degree, a student majoring in Materials Science and NanoEngineering will be able to:

- 1. An ability to apply knowledge of mathematics, science, and engineering.
- 2. An ability to design and conduct experiments, as well as to analyze and interpret data.
- 3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- 4. An ability to function on multidisciplinary teams.
- 5. An ability to identify, formulate, and solve engineering problems.
- 6. An understanding of professional and ethical responsibility.
- 7. An ability to communicate effectively.
- 8. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- 9. A recognition of the need for, and an ability to engage in life-long learning.
- 10. A knowledge of contemporary issues.
- 11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Requirements for the BSMSNE Degree with a Major in Materials Science and NanoEngineering

For general university requirements, see Graduation Requirements. Students pursuing the BSMSNE degree with a major in Materials Science and NanoEngineering (MSNE) must complete:

- A minimum of 32 or 34 courses (88 credit hours) depending on course selection to satisfy major requirements.
- A minimum of 131 credit hours to satisfy degree requirements.

Students seeking the BSMSNE must complete at least 88 semester hours in general math and science, core, and specialization elective courses within the total requirements of 131 hours.

REQUIRED MATH AND SCIENCE PREREQUISITES

Students must complete a total of 13-16 courses (37 credit hours) depending on course selection as listed below. These courses are required pre-requisites to complete the Materials Science and Nanoengineering major's Prerequisites requirement.

- MATH 101 Single Variable Calculus II [3 credit hours]
- MATH 102 Single Variable Calculus I [<u>3 credit hours</u>]
- PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>] or PHYS 111 Mechanics (with Lab) [4 credit hours]
- PHYS 102 Electricity and Magnetism [4 credit hours] and PHYS 104 E & M Discussion (with Lab) [0 credit] or PHYS 112 Electricity and Magnetism (with Lab) [4 credit hours]
- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours]

- CHEM 121 General Chemistry I 3 credit hours and CHEM 123 General Chemistry Lab I 1 credit hour 3
- CHEM 122 General Chemistry II [3 credit hours] and CHEM 124 General Chemistry Lab II [1 credit hour]
 - CAAM 210 Introduction to Engineering Computation [3 credit hours]
 - CAAM 335 Matrix Analysis [3 credit hours]
 - PHYS 201 Waves and Optics [3 credit hours] or CHEM 211 Organic Chemistry I [3 credit hours] and CHEM 213 Organic Chemistry Discussion or CHEM 311 Physical Chemistry I [3 credit hours]

CORE REQUIREMENTS

Students must complete the following 15 courses (39 credit hours) to satisfy the Materials Science and Nanoengineering's Core Requirements:

- MSNE 201 Introduction to NanoEngineering [3 credit hours]
- MSNE 301 Introduction to Materials Science [3 credit hours]
- MSNE 303 Materials Science Junior Lab [1 credit hour]
- MSNE 311 Materials Selection and Design [4 credit hours]
- MSNE 401 Thermodynamics and Transport Phenomena in Materials Science [4 credit hours]
- MSNE 402 Mechanical Properties of Materials [3 credit hours]
- MSNE 406 Physical Properties of Solids [<u>3 credit hours</u>]
- MSNE 407 Capstone Design Project I [4 credit hours]
- MSNE 408 Capstone Design Project II [3 credit hours]
- MSNE 411 Metallography and Phase Relations [3 credit hours]
- MSNE 415 Ceramics and Glasses [3 credit hours]
- MSNE 435 Crystallography and Diffraction [3 credit hours]
- MSNE 437 Crystallography & Diffrac Lab [1 credit hour]
- MSNE 450 Materials Science Sem. [O credit hours] and MSNE 451 Materials Science Sem. [1 credit hour]

ELECTIVES

To fulfill the remaining Materials Science and Nanoengineering major requirements for the BSMSNE degree, students must complete a total of 4 additional courses (12 credit hours) as listed in the following three specialization clusters.

Engineering Cluster (no MSNE courses)

Students must complete 1 course (3 credit hours) from the following:

- BIOE 370 Biomechanics [3 credit hours]
- CAAM 336 Differential Equations in Science and Engineering [3 credit hours]
- CAAM 378 Introduction to Operations and Research and Optimization [3 credit hours]
- CAAM 415 Theoretical Neuroscience / [3 credit hours]
- CAAM 435 Dynamical Systems [3 credit hours]
- CAAM 453 Numerical Analysis / [3 credit hours]
- CAAM 501 Analysis I [3 credit hours]
- CAAM 519 Computational Science I [3 credit hours]
- CEVE 310 Principles of Environmental Engineering [3 credit hours]
- CEVE 311/MECH 311 Mechanics of Solids and Structures [3 credit hours]
- CEVE 427/MECH 427 Computational Structural Mechanics and FEM [3 credit hours]
- CEVE 434 Fate and Transport of Containments in the Environment [3 credit hours]
- CHBE 390 Chemical Kinetics and Reactor Design [3 credit hours]
- CHBE 401 Transport Phenomena I [3 credit hours]
- ELEC 241 Fundamentals of Electrical Engineering I [3 credit hours] and ELEC 240 Fundamentals of Electrical Engineering I Lab [1 credit hour]
- ELEC 243 Electronic Measurement Systems [4 credit hours]
- ELEC 261 Electronic Materials and Quantum Devices [3 credit hours]
- ELEC 361 Quantum Mechanics for Engineers [3 credit hours]
- ELEC 462 Optoelectronic Devices [3 credit hours]
- ENGI 302/CEVE 302 Sustainable Design [3 credit hours]
- ENGI 303 Engineering Economics [3 credit hours]
- MECH 211/CEVE 211 Engineering Mechanics [3 credit hours]
- MECH 403 Computer Aided Design [3 credit hours]
- MECH 417/CEVE 417 Finite Element Analysis [3 credit hours]
- MECH 481 Heat Transfer [<u>3 credit hours</u>]
- STAT 280 Elementary Applied Statistics [4 credit hours]
- STAT 305 Introduction to Statistics for Biosciences [4 credit hours]

Science Cluster (no courses from Engineering)

- ASTR 201 Stars, Galaxies, and the Universe [3 credit hours]
- ASTR 202 Exploration of the Solar System [3 credit hours]
- BIOC 201 Introductory Biology [3 credit hours]
- BIOC 301 Biochemistry I [3 credit hours]
- BIOC 313 Introductory Synthetic Biology [1 credit hour]
- BIOC 385/NEUR 385 Fundamentals of Cellular and Molecular Neuroscience [3 credit hours]
- CHEM 211 Organic Chemistry I [3 credit hours] and CHEM 213 Organic Chemistry Discussion [0 credit]
- CHEM 212 Organic Chem. II [3 credit hours] and CHEM 214 Organic Chem. II Discussion [0 credit]
- CHEM 311 Physical Chemistry I [3 credit hours]
- CHEM 330 Analytical Chemistry [3 credit hours]
- CHEM 360 Inorganic Chemistry [3 credit hours]
- ESCI 307/CEVE 307/ENST 307 Energy and the Environment [3 credit hours]
- ESCI 321 Earth System Evolution and Cycles [4 credit hours]
- MATH 302 Elements of Analysis [3 credit hours]
- MATH 354 Honors Linear Algebra [3 credit hours]
- MATH 355 Linear Algebra [3 credit hours]
- PHYS 201 Waves and Optics [<u>3 credit hours</u>]
- PHYS 202 Modern Physics [<u>3 credit hours</u>]
- PHYS 301 Intermediate Mechanics [4 credit hours]
- PHYS 302 Intermediate Electrodynamics [4 credit hours]
- PHYS 355 Introduction to Biological Physics [3 credit hours]

Technical Cluster (MSNE or Engineering or Science courses)

Students must complete 2 courses (6 credit hours) from the following:

- MSNE 365/ELEC 365 Nanomaterials for Energy [3 credit hours]
- MSNE 433 Computational Materials Modeling [<u>3 credit hours</u>]
- MSNE 523 Properties, Synthesis, and Design of Composite Materials [3 credit hours]
- MSNE 538/CEVE 538 Computational Nanoscience for Green Infrastructure [3 credit hours]
- MSNE 545/ELEC 545 Thin Films [3 credit hours]
- MSNE 555 Materials in Nature and Bio-Mimetic Strategies [3 credit hours]
- MSNE 560/CHBE 560 Colloidal and Interfacial Phenomena [3 credit hours]
- MSNE 569 Science and Applications of Corrosion Science and Engineering [3 credit hours]
- MSNE 580 Microscopy Methods in Materials Science [3 credit hours]
- MSNE 581 Micro and Nano Heat Transport Methodologies and Design [3 credit hours]
- MSNE 593/CHBE 593 Introduction to Polymer Physics and Engineering [3 credit hours]
- MSNE 594/CHBE 594 Properties of Polymers [3 credit hours]
- MSNE 650 Nanomaterials and Nanomechanics [3 credit hours]
- MSNE 661 Nanophotonics, Spectroscopy, and Materials for Sustainability [3 credit hours]

back to menu

Requirements for the BA with a Major in Materials Science and NanoEngineering

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Materials Science and NanoEngineering (MSNE) must complete:

- A minimum of 18 or 20 courses (52 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.

The BA program in Materials Science and NanoEngineering is highly flexible, involves less technical content than the BS, and allows students greater freedom to pursue areas of interest outside of engineering.

REQUIRED PREREQUISITES IN MATERIALS SCIENCE & NANOENGINEERING

To complete the Materials Science and Nanoengineering major requirements, students must first complete a total of 10-12 courses (28 credit hours) depending on course selection as listed below:

- MATH 101 Single Variable Calculus I [<u>3 credit hours</u>]
- MATH 102 Single Variable Calculus II [3 credit hours]
- PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>] or PHYS 111 Mechanics (with Lab) [<u>4 credit hours</u>]
- PHYS 102 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>] and PHYS 104 E & M Discussion [<u>0 credit</u>] or PHYS 112 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>]

- MATH 211 Ordinary Differential Equations and Linear Algebra [<u>3 credit hours</u>]
- MATH 212 Multivariable Calculus [<u>3 credit hours</u>]
- CHEM 121 General Chemistry I [<u>3 credit hours</u>] and CHEM 123 General Chemistry Lab I [<u>1 credit hour</u>]
- CHEM 122 General Chemistry [3 credit hours] and CHEM 124 General Chemistry Lab II [1 credit hour]

REQUIRED COURSES IN MATERIALS SCIENCE & NANOENGINEERING

Students must complete the following 8 courses (24 credit hours) to satisfy the Materials Science and Nanoengineering major requirements for the BA degree.

- MSNE 201 Introduction to NanoEngineering [<u>3 credit hours</u>]
- MSNE 301 Introduction to Materials Science [<u>3 credit hours</u>]
- MSNE 303 Materials Science Junior Lab [<u>1 credit hour</u>]
- MSNE 311 Materials Selection and Design [4 credit hours]
- MSNE 401 Thermodynamics and Transport Phenomena in Materials Science [4 credit hours]
- MSNE 402 Mechanical Properties of Materials [3 credit hours]
- MSNE 406 Physical Properties of Solids [3 credit hours]
- MSNE 435 Crystallography and Diffraction [3 credit hours]

back to menu

Description and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Materials Science and NanoEngineering undergraduate degrees and major. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: MSNE

Department Description and Code

- Materials Science and NanoEngineering: MSNE

Degree Description and Code

- Bachelor of Arts degree: BA

Web Services

- Bachelor of Science in Materials Science and NanoEngineering degree: BSMSNE

Major Code and Description:

- Major in Materials Science and NanoEngineering: MSNE

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Rice Home

University Calendar

Rice A-Z

Maps-Directions Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Materials Science and NanoEngineering >

Undergraduate Students	Materials Science and NanoEngineering			
Graduate Students	The George R. Brown School of Engineering			

Non-Traditional Students

RICE

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

١g

	Department	Undergraduate	Graduate	Course
	Info	Requirements	Requirements	Listings
Jump to: MMSNE	Degree in Materials Sc	ience and NanoEngineering		

MS Degree in Materials Science and NanoEngineering

PhD Degree in Materials Science and NanoEngineering

Requirements for the MMSNE, MS, and PhD Degrees in Materials Science and NanoEngineering

Professional Degree Programs—The Professional Master's of Material Science and NanoEngineering (MMSNE) program is open to students who have shown academic excellence in their undergraduate studies. This non-thesis degree option is designed for engineers who have attained a bachelor's degree and are looking to further their careers in industry. They combine engineering coursework with professional development and communications.

For general university requirements, see Graduate Degrees. For the MMSNE degree, students must complete 30 semester credit hours of course work, at least 24 must be taken at Rice. A list of required and suggested courses are available on the MSNE website 🕼 . Students should develop a specific plan of study based on their particular interests and discussions with their advisor.

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. 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.

Students are expected to earn letter grades of at least B- in all courses taken, and maintain a minimum GPA of 3.0 to graduate. If a student's GPA is below 3.0, the student will be placed on departmental probation. The student may be dismissed from the program if his/her GPA falls below 3.0 for two semesters. Final decision will be made by the Graduate Committee in consultation with the Department Chair.

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 advisor at the beginning of each semester.

All PhD students must attend at least 75% of the MSNE seminars per semester, and MS students must attend at least 50% of the MSNE seminars per semester. For details, please see the degree requirements on the MSNE website de-

Program Learning Outcomes for the Master of Materials Science and NanoEngineering Degree (MMSNE)

Upon completing the MMSNE degree, students will be able to:

- 1. Acquire broad, advanced knowledge within either Materials Science or NanoEngineering, whic is also in-depth in one major sub-discipline of the field.
- Conduct research at an advanced level in at least one area of Materials Science and Nanoengineering.

- 3. Communicate scientific ideas effectively in writing and when speaking.
- 4. Demonstrate the ability to gain admission to a graduate or professional program, if interested in pursuing further education.
- 5. Demonstrate the ability to gain employment or advancement in a technical field related to Materials Science and NanoEngineering, if pursuing non-academic careers.

Requirements for the Master of Materials Science and NanoEngineering Degree (MMSNE)

For general university requirements, see Graduate Degrees. Students pursuing the MMSNE degree must complete:

- A minimum of 10 courses (30 credit hours) at the 500-level or above to satisfy degree requirements.
- A minimum of 8 courses (24 credit hours) at Rice University.
- The requirements for one area of specialization.

The MMSNE degree program offers the following two areas of specialization.

- Materials Science
- NanoEngineering

CORE REQUIREMENTS

Students must complete 3 courses (9-10 credit hours) from the following to satisfy the MMSNE degree program's Core Requirements.

- MSNE 502 Mechanical Properties of Materials [3 credit hours]
- MSNE 503 Thermodynamics and Transport Phenomena in Materials Science [4 credit hours]
- MSNE 506 Physical Properties of Solids [3 credit hours]
- MSNE 535/PHYS 535 Crystallography & Diffraction [3 credit hours]

TECHNICAL ELECTIVES

Students must complete 3 courses (9 credit hours) as technical electives, including at least 2 courses (6 credit hours) from departmental (MSNE) course offerings at the 500-level or above. Advisor approval is not required for students completing 1 course (3 credit hours) outside of MSNE course offerings.

RESEARCH PROJECT

Students must complete the following 2 courses (6 credit hours) to fulfill the Research project requirement. Students must work with their advisor to select their research project.

- MSNE 621 M.M.S. Research Project I [3 credit hours]
- MSNE 622 M.M.S. Research Project II [3 credit hours]

PROFESSIONAL DEVELOPMENT

Students must complete at least 1 course (3 credit hours), but no more than 2 courses (6 credit hours) from the following:

- ENGI 505/CEVE 505 Engineering Project Management and Economics [3 credit hours]
- ENGI 510 Technical and Managerial Communications [3 credit hours]
- ENGI 515 Leading Teams and Innovation [3 credit hours]
- ENGI 528 Engineering Economics [<u>3 credit hours</u>]
- ENGI 529/CEVE 529 Ethics and Engineering Leadership [3 credit hours]
- ENGI 610/NSCI 610 Management for Science and Engineering [3 credit hours]
- ENGI 614 Learning How to Innovate? [2 credit hours]
- ENGI 615 Leadership Coaching for Engineers [<u>3 credit hours</u>]
- NSCI 511 Science, Policy, and Ethics [3 credit hours]
- UNIV 594 Responsible Conduct Research [1 credit hour]

GENERAL ELECTIVES

To fulfill the remaining minimum credit hours at the 500-level or above required for the MMSNE degree, students should work with their advisor to receive approval for courses according to their interests and field of study.

5th Year MMSNE Degree Option for Rice Undergraduates

Rice undergraduate students have the option to earn the MMSNE degree by adding a year after completing their bachelor's degrees. Students in good academic standing may apply to the graduate program during their junior or senior year. Upon acceptance, depending on the course load, financial aid status, and other variables they may complete part of the course

requirements for the MMSNE program during their senior year. A plan of study based on their particular focus area will need to be approved by the program director and the MMSNE advisor. Students who have taken MSNE 401, MSNE 402, MSNE 406 and/or MSNE 435 may request to waive the core course requirements on MSNE 503, MSNE 502, MSNE 506 and/or MSNE 535, respectively, and replace them with other courses upon the approval of the MMSNE advisor. Students should be aware of the financial aid implications, if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time (12 credit hours) status.

back to menu

Program Learning Outcomes for the MS Degree in Materials Science and NanoEngineering

Graduates awarded the terminal MS degree in Materials Science and NanoEngineering will be able to:

- 1. Demonstrate an advanced command of Materials Science and NanoEngineering field work.
- 2. Conduct independent research that demonstrates advanced mastery of a subfield within Materials Science or NanoEngineering.
- 3. Communicate scientific ideas effectively in writing and when speaking.

Requirements for the MS Degree in Materials Science and NanoEngineering

Full-time students seeking the MS degree are expected to complete all the requirements for the degree within two calendar years into the program. Continuation in the program beyond this time limit will require special approval of the department.

For general university requirements, see Graduate Degrees. Students pursuing the MS degree program in Materials Science and NanoEngineering must complete:

A minimum of 30 credit hours of study, of which at least 18 credit hours must be completed through coursework.

COURSEWORK

Students must complete a total of 18 credit hours as listed below to satisfy the Coursework requirements for the MS degree program in Materials Science and NanoEngineering.

Core Courses

Students must complete the following 4 courses (13 credit hours):

- MSNE 502 Mechanical Properties of Materials [<u>3 credit hours</u>]
- MSNE 503 Thermodynamics and Transport Phenomena in Materials Science [4 credit hours]
- MSNE 506 Physical Properties of Solids [<u>3 credit hours</u>]
- MSNE 535/PHYS 535 Crystallography & Diffraction [3 credit hours]

Electives

Students must complete a total of 2 courses from departmental (MSNE) course offerings at the 500-level or above. Students may complete courses that satisfy the Electives requirement from other departmental course offerings upon approval from their advisors or one member of the Departmental Graduate Committee.

NON-COURSEWORK

Students must complete an additional 12 credit hours to complete the total credit hours required for the MS degree program in Materials Science and NanoEngineering. Credit received for MSNE 500, MSNE 501, and MSNE 800 will not be counted toward coursework, but will count toward the total credit hours required for the degree.

- MSNE 500 Materials Science Seminar (students must attend at least 6 of the 13 MSNE seminars per semester for the duration of their study)
- MSNE 800 Research and Thesis (students must register for a minimum of 9 credit hours per semester and must are required to receive an "S" grade. "U" grades are discussed further in the MSNE Graduate Student Handbook in the section Grades.)

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 second semester of enrollment in the graduate program in the MSNE 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. Upon completion of the thesis, each candidate for the MS degree must pass a final public oral examination. The

examination will be conducted by a committee consisting of at least three members. Two, including the advisor, must be MSNE faculty members, and one must be a faculty member from another department.

Candidates for the MS degree are required to provide teaching assistance to the department as a teaching assistant or grader for at least 2 semesters, but no more than 3 semesters.

For details, please see the degree requirements on the MSNE website details.

back to menu

Program Learning Outcomes for the PhD Degree in Materials Science and NanoEngineering

Graduates awarded the PhD degree in Materials Science and NanoEngineering will be able to:

- 1. Demonstrate an advanced command of Materials Science and NanoEngineering field work.
- 2. Conduct independent research that demonstrates advanced mastery of a subfield within Materials Science or NanoEngineering.
- 3. Communicate scientific ideas effectively in writing and when speaking.

Requirements for the PhD Degree in Materials Science and NanoEngineering

Full-time students seeking the PhD degree are expected to complete all the requirements for the degree within five calendar years following entrance into the program. Continuation in the program beyond this time limit will require special approval of the department.

For general university requirements, see Graduate Degrees. Students pursuing the PhD degree program in Materials Science and NanoEngineering must complete:

 A minimum of 90 credit hours advanced relevant study, of which at least 18 credit hours must be completed through coursework.

COURSEWORK

Students must complete a total of 18 credit hours as listed below to satisfy the Coursework requirements for the MS degree program in Materials Science and NanoEngineering.

Core Courses

Students must complete the following 4 courses (13 credit hours):

- MSNE 502 Mechanical Properties of Materials [<u>3 credit hours</u>]
- MSNE 503 Thermodynamics and Transport Phenomena in Materials Science [4 credit hours]
- MSNE 506 Physical Properties of Solids [<u>3 credit hours</u>]
- MSNE 535/PHYS 535 Crystallography & Diffraction [3 credit hours]

Electives

Students must complete a total of 2 courses from departmental (MSNE) course offerings at the 500-level or above. Students may complete courses that satisfy the Electives requirement from other departmental course offerings upon approval from their advisors or one member of the Departmental Graduate Committee.

NON-COURSEWORK

Students must complete an additional 72 credit hours to complete the total credit hours required for the PhD degree program in Materials Science and NanoEngineering. Credit received for MSNE 500, MSNE 501, and MSNE 800 will not be counted toward coursework, but will count toward the total credit hours required for the degree.

- MSNE 500 Materials Seminar (students must attend at least 10 of the 13 MSNE seminars per semester for the duration of their study)
- MSNE 501 Graduate Student Seminar (students must attend at least 9 of the 13 MSNE seminars per semester for the duration of their study)
- MSNE 800 Research and Thesis (students must register for a minimum of 9 credit hours per semester and must are required to receive an "S" grade. "U" grades are discussed further in the MSNE Graduate Student Handbook in the section Grades)

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 second semester of enrollment in the

By the end of the sixth semester of enrollment in the graduate program in the MSNE department, the student must pass an oral qualifying examination.

Each candidate for the PhD degree 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 three members. Two, including the advisor, must be MSNE faculty members, and one must be a faculty member from another department.

Candidates for the PhD degree program in Materials Science and NanoEngineering are required to provide teaching assistance to the department as a teaching assistant or grader for at least 4 semesters, but no more than 6 semesters.

For details, please see the degree requirements on the MSNE website \mathbf{B} .

back to menu

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Materials Science and NanoEngineering graduate degree programs. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: MSNE

Department Description and Code

- Materials Science and NanoEngineering: MSNE

- Degree Descriptions and Codes
 - Master of Materials Science and NanoEngineering degree: MMSNE
 - Master of Science degree: MS
 - Doctor of Philosophy degree: PhD

Degree Program Description and Code

- Materials Science and NanoEngineering degree Program: MSNE

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University Calendar

Rice A-Z

Maps-Directions Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Materials Science and NanoEngineering >

Undergraduate Students	Materials Science and NanoEngineering							
Graduate Students The George R. Brown School of Engineering								
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate	Course			
▶ Faculty	Course	e Listings	Requirements	Requirements	Listings			
Programs of Study	The official course offerings, including course descriptions, for Materials Science and NanoEngineering can be found in Rice's							
Administration and Faculty	Course Catalog. d과							
Important Notices	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.							
		onal information regarding	g Materials Science and Nano	Engineering, see the depart	nent's website:			
	Last Revised	I : August 24, 2016						

General Announce	ements 6100 M	ain MS-10, Houston,	Texas 77005-1827	Mailing Address:	P.O. Box 1892, Houston, T	exas 77251-1892
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RICE

587 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Mathematics >

Indents The Wie Study St	Ematics Ess School of Natur Department Info Chair David Damanik Professors Michael Boshernitzan Robert M. Hardt Shelly Harvey Frank Jones Alexander Kiselev Stephen W. Semmes Michael Wolf	al Sciences Undergraduate Requirements	Requirements Instructors Jennifer Berg John Calabrese Anastassia Etropolski Neil Fullarton Vu Hoang Kyle Kinneberg David Krcatovich	Course Listings
te Students aditional Students ms of Study stration and Faculty	Department Info Chair David Damanik Professors Michael Boshernitzan Robert M. Hardt Shelly Harvey Frank Jones Alexander Kiselev Stephen W. Semmes	Undergraduate	Requirements Instructors Jennifer Berg John Calabrese Anastassia Etropolski Neil Fullarton Vu Hoang Kyle Kinneberg David Krcatovich	
ams of Study histration and Faculty	Info Chair David Damanik Professors Michael Boshernitzan Robert M. Hardt Shelly Harvey Frank Jones Alexander Kiselev Stephen W. Semmes	-	Requirements Instructors Jennifer Berg John Calabrese Anastassia Etropolski Neil Fullarton Vu Hoang Kyle Kinneberg David Krcatovich	
ninistration and Faculty	Chair David Damanik Professors Michael Boshernitzan Robert M. Hardt Shelly Harvey Frank Jones Alexander Kiselev Stephen W. Semmes	Requirements	Instructors Jennifer Berg John Calabrese Anastassia Etropolski Neil Fullarton Vu Hoang Kyle Kinneberg David Krcatovich	Listings
ograms of Study ministration and Faculty cortant Notices	David Damanik Professors Michael Boshernitzan Robert M. Hardt Shelly Harvey Frank Jones Alexander Kiselev Stephen W. Semmes		Jennifer Berg John Calabrese Anastassia Etropolski Neil Fullarton Vu Hoang Kyle Kinneberg David Krcatovich	
	Professors Michael Boshernitzan Robert M. Hardt Shelly Harvey Frank Jones Alexander Kiselev Stephen W. Semmes		John Calabrese Anastassia Etropolski Neil Fullarton Vu Hoang Kyle Kinneberg David Krcatovich	
	Michael Boshernitzan Robert M. Hardt Shelly Harvey Frank Jones Alexander Kiselev Stephen W. Semmes		Anastassia Etropolski Neil Fullarton Vu Hoang Kyle Kinneberg David Krcatovich	
portant Notices	Michael Boshernitzan Robert M. Hardt Shelly Harvey Frank Jones Alexander Kiselev Stephen W. Semmes		Neil Fullarton Vu Hoang Kyle Kinneberg David Krcatovich	
	Shelly Harvey Frank Jones Alexander Kiselev Stephen W. Semmes		Kyle Kinneberg David Krcatovich	
	Frank Jones Alexander Kiselev Stephen W. Semmes		David Krcatovich	
	Alexander Kiselev Stephen W. Semmes			
	Stephen W. Semmes			
			Ye Luo	
	Michael Wolf		Betul Orcan-Ekmekci	
			Arindam Roy	
			Richard Shadrach	
	Associate Professors		Changhui Tan	
	Zhiyong Gao		Zhenghe Zhang	
	Anthony Varilly-Alvarado			
			Clinical Assistant Professor	
	Assistant Professors		Robin Ward (with RUSMP)	
	Milivoje Lukic			
	Ronen Mukamel		Research Professor	
			Michael Field	
	Professors Emeriti		Adjunct Feaults	
	Robin Forman		Adjunct Faculty	
	F. Reese Harvey John Hempel		Ray Johnson	
	John C. Polking			
	Raymond S. Wells			
	Raymona O. Weilo			
	Sr. Instructor			
	Stephen Wang			

Programs (Undergraduate): BA degree, BS degree, Minor

Programs (Graduate): MA degree, PhD degree

Mathematics lies at the foundation of many disciplines in the sciences, engineering fields, and the social sciences, and this influence is growing as these subjects become increasingly quantitative. Recognizing this important role in the wide variety of directions available to our degree recipients, the program in mathematics provides undergraduates with a spectrum of choices. These range from nontheoretical treatments of calculus and courses in 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, dynamics, and partial differential equations.

Faculty research interests range from differential geometry, ergodic theory, group representations, partial differential equations, and probability to real analysis, mathematical physics, complex variables, algebraic geometry, number theory, combinatorics, geometric topology, algebraic topology, and dynamics.

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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Mathematics >

Undergraduate Students

Non-Traditional Students

Administration and Faculty

Graduate Students

Programs of Study

Important Notices

Faculty

RICE

Mathematics

The Wiess School of Natural Sciences

- Department Info
 Undergraduate Requirements
 Graduate Requirements
 Course Listings

 Jump to: BA Degree with a Major in Mathematics BS Degree with a Major in Mathematics Minor in Mathematics
 Source
 Source

 Program Learning Outcomes for the BA Degree with a Major in Mathematics
 Upon completing the BA degree, a student majoring in Mathematics will be able to:
 - 1. Achieve both practical and theoretical fluency in calculus and linear algebra.
 - 2. Acquire a background at the undergraduate level in a wide variety of central areas of mathematics.
 - 3. Be acquainted with formal mathematical reasoning, including proofs.

Requirements for the BA Degree with a Major in Mathematics

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Mathematics (MATH) must complete:

- A minimum of 12 courses (36 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.

Students may choose between the regular Mathematics major (single major) and the double major. The requirements for both single majors and double majors are listed below, and are the same, with the exception of the Electives requirement, which is noted under Electives.

Students receive advanced placement credit for MATH 101 by achieving a score of four or five on the AP AB-level test and for MATH 101 and 102 by achieving a score of four or five 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 and at other times.

CORE REQUIREMENTS

Students must complete a total of 4 courses (12 credit hours) as listed below to satisfy the Mathematics major's Core Requirements.

- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [3 credit hours]
- MATH 211 Ordinary Differential Equations and Linear Algebra [<u>3 credit hours</u>] and MATH 212 Multivariable Calculus [<u>3</u> credit hours]

or MATH 221 Honors Calculus III [3 credit hours] and MATH 222 Honors Calculus IV [3 credit hours]

ELECTIVES

To fulfill the remaining Mathematics major requirements, students must complete a total of 8 additional courses (24 credit hours) from departmental course offerings at the 300-level or above.

Note: The Elective requirements for the double major are the same as the single major except that students may substitute approved mathematics-related courses for up to 3 courses (9 credit hours) of the 8 courses (24 credit hours) required at the 300-

back to menu

level or above.

Program Learning Outcomes for the BS Degree with a Major in Mathematics

Upon completing the BS degree, a student majoring in Mathematics will be able to:

- 1. Achieve both practical and theoretical fluency in calculus and linear algebra.
- 2. Acquire a broad background at the undergraduate level in all the major areas of mathematics, including analysis, algebra, and geometry.
- 3. Learn to read and write proofs.

Requirements for the BS Degree with a Major in Mathematics

For general university requirements, see Graduation Requirements. Students pursuing the BS degree with a major in Mathematics (MATH) must complete:

- A minimum of 14-17 courses depending on course selection (42-51 credit hours) to satisfy the major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.

These requirements are in addition to general university graduation requirements. The chair of the undergraduate committee of the MATH department may modify requirements to meet the needs of students with advanced backgrounds. At most, students can take one course (three credit hours) for any given course number to use toward the degree.

CORE REQUIREMENTS

Students must complete a total of 12-13 courses depending on course selection (36-39 credit hours) as listed below to satisfy the Mathematics major's Core Requirements.

Single Variable Calculus

Students must complete the following 2 courses (6 credit hours):

- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]

Differential Equations

Students must complete 1 course (3 credit hours) from the following:

- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours]
- MATH 381 Introduction to Partial Differential Equations [<u>3 credit hours</u>]
- MATH 423/CAAM 423 Partial Differential Equations I [3 credit hours]

Multivariable Calculus

Students must complete 1-2 courses (3-6 credit hours) depending on course selection as listed below.

MATH 212 Multivariable Calculus [<u>3 credit hours</u>]
 or MATH 221 Honors Calculus III [<u>3 credit hours</u>] and MATH 222 Honors Calculus IV [<u>3 credit hours</u>]

Linear Algebra

Students must complete 1 course (3 credit hours) from the following:

- MATH 221 Honors Calculus III [3 credit hours]
- MATH 354 Honors Linear Algebra [3 credit hours]
- MATH 355 Linear Algebra [<u>3 credit hours</u>]

Real Analysis

Students must complete a total of 2 courses (6 credit hours) from the following:

- MATH 321 Introduction to Analysis I [3 credit hours]
- MATH 322 Introduction to Analysis II [3 credit hours]
- MATH 425 Integration Theory [<u>3 credit hours</u>]

Algebra

Students must complete the following 2 courses (6 credit hours):

- MATH 356 Abstract Algebra I [3 credit hours]
- MATH 463 Abstract Algebra II [<u>3 credit hours</u>]

Geometry and Manifolds

Students must complete 1 course (3 credit hours) from the following:

- MATH 370 Calculus on Manifolds [3 credit hours]
- MATH 401 Differential Geometry [<u>3 credit hours</u>]
- MATH 402 Differential Geometry [<u>3 credit hours</u>]

Complex Analysis

Students must complete 1 course (3 credit hours) from the following:

- MATH 382 Complex Analysis [3 credit hours]
- MATH 427 Complex Analysis [3 credit hours]

Topology

Students must complete 1 course (3 credit hours) from the following:

- MATH 443 General Topology [3 credit hours]
- MATH 444 Geometric Topology [<u>3 credit hours</u>]
- MATH 445 Algebraic Topology [<u>3 credit hours</u>]

ELECTIVES

To fulfill the remaining Mathematics major requirements, students must complete a total of 11 courses (33 credit hours) from departmental course offerings at the 300-level or above. This requirement can include courses taken from the Core Requirements and as Elective courses.

back to menu

Requirements for the Minor in Mathematics

To complete the minor in Mathematics (MATM), students must complete:

- A minimum of 6 courses (18 credit hours) from departmental course offerings at the 200-level or above
- A minimum of 4 courses (12 credit hours) from departmental course offerings at the 300-level or above

Certain approved classes taken outside the mathematics department may be used to satisfy one area of the Core Requirements, but will not count towards the required 6 courses (18 credit hours). An approved upper-level MATH course (other than 490 or 499) may be used to satisfy an area of the Core Requirements. Students seeking to substitute approved courses should consult in advance with the chair of the undergraduate committee. At most one course (three credit hours) from any particular course or course number may be applied to the minor.

CORE REQUIREMENTS

Students must complete 1 course (3 credit hours) from each of the three areas listed below to satisfy the Mathematics minor's Core Requirements.

Analysis

Students must complete 1 course (3 credit hours) from the following:

- MATH 302 Elements of Analysis [3 credit hours]
- MATH 321 Introduction to Analysis I [3 credit hours]
- MATH 381 Introduction to Partial Differential Equations [3 credit hours]
- MATH 382 Complex Analysis [3 credit hours]

Discrete Mathematics and Algebra

Students must complete 1 course (3 credit hours) from the following:

- MATH 356 Abstract Algebra I [<u>3 credit hours</u>]
- MATH 365 Number Theory [<u>3 credit hours</u>]
- MATH 368 Topics in Combinatorics [<u>3 credit hours</u>]

Linear Algebra

- MATH 221 Honors Calculus III [<u>3 credit hours</u>]
- MATH 354 Honors Linear Algebra [3 credit hours]
- MATH 355 Linear Algebra [<u>3 credit hours</u>]

ELECTIVES

To fulfill the remaining Mathematics minor requirements, students must complete a total of 3 additional courses (9 credit hours) from departmental (MATH) course offerings.

back to menu

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Mathematics undergraduate degrees, major, and minor. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: MATH

- Department Description and Code
 - Mathematics: MATH
- Degree Description and Code
 - Bachelor of Arts degree: BA
 - Bachelor of Science degree: BS
- Major Description and Code
- Major in Mathematics (attached to both the BA and BS Degrees): MATH
- Minor Description and Code
- Minor in Mathematics: MATM

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--	-----------------------	-----------	--------------	---------------------	----------	-----------------	----------

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Mathematics >

Und	lergrad	uate \$	Students
-----	---------	---------	----------

Mathematics The Wiess School of Natural Sciences

- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department
InfoUndergraduate
RequirementsGraduate
RequirementsCourse
ListingsProgram Learning Outcomes for the PhD Degree in Mathematics

Students graduating from this program will:

- 1. Apply abstract structures from algebra, analysis, geometry, and topology to analyze and solve both concrete problems and conceptual questions.
- 2. Learn fundamental mathematics independently, outside the structure of a regular course.
- 3. Present mathematical results and reasoning in a compelling way to an audience of mathematicians.
- 4. Use the mathematical literature and databases to find theorems, constructions, or counterexamples.
- 5. Write clear and convincing proofs of one's own original mathematical results.

Requirements for the MA and PhD Degrees 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 one or two years after the BA degree to obtain an MA degree, and they take four or five years to obtain a PhD. An MA is not a prerequisite for the PhD. For general university requirements, see Graduate Degrees.

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 six hours a week.

For courses carrying dual undergraduate and graduate numbers, (e.g., MATH 463/563), the 500-level version is intended to prepare students for advanced work in mathematics. In particular, written assignments should be prepared to high professional standards. Mathematics graduate students should enroll in the 500-level version.

MA Program—Although students are not normally admitted to study for a masters degree, the department does offer non-thesis and thesis MA degrees. Doctoral students may petition for these once they have satisfied all university and departmental requirements.

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 the general examinations in algebra, analysis, and topology or prepare and present 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 one 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, one each in algebra, analysis, and topology. Exams are offered every August, January, and May. First-year students may take any combination of exams at any time. After two semesters of study, students must attempt to pass all remaining exams at each offering. Students must perform satisfactorily on all three by the January exams at the beginning of their fourth semester. The judgment of satisfactory performance on the general examinations for either the MA or PhD degree is the responsibility of the department graduate committee. 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 six to twelve 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.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Mathematics graduate degree program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: MATH
- Department Description and Code
- Mathematics: MATH
- Degree Descriptions and Codes
- Master of Arts degree: MA
- Doctor of Philosophy degree: PhD
- Degree Program Description and Code
 - Degree Program in Mathematics: MATH

Last Revised : August 18, 2016

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-----------------------	-----------	--------------	---------------------	----------	-----------------	----------

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Mathematics >

Undergraduate Students	Mathematics					
Graduate Students The Wiess School of Natural Sciences						
Non-Traditional Students	Department Undergraduate Graduate Course					
Faculty	Info Requirements Requirements Listings Course Listings Info Info					
Programs of Study	The official course offerings, including course descriptions, for Mathematics can be found in Rice's Course Catalog.					
Administration and Faculty	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.					
Important Notices	For additional information regarding Mathematics, see the department's website: http://math.rice.edu/.					
	Last Revised : August 24, 2016					

 General Announcements
 6100 Main MS-10, Houston, Texas 77005-1827
 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Mechanic	al Engineering]>					
Undergraduate Students	Mechanical Engineering The George R. Brown School of Engineering						
Graduate Students							
Non-Traditional Students		Course Listings					
► Faculty		Info	Requirements	Requirements	Listings		
Programs of Study							
Administration and Faculty							
Important Notices	Professors Eleazar Marquez John E. Akin Description						
	Yildiz Bayazitoglu Professors, Joint Appoir Fathi Ghorbel Satish Nagarajaiah C. Fred Higgs, III				nents		
	Andrew J. Meade Associate Professors, Joint App Marcia K. O'Malley Ilinca Stanciulescu			nt Appointments			
		Pol D. Spanos		ninca Stanciulescu			
		Tayfun E. Tezduyar		Adjunct Professors Sarmed Adnan			
		Assistant Professors		Aladin Boriek			
		Matthew Brake		James Dabney			
		Pedram Hassanzadeh		Thomas J. R. Hughes			
				William Miller			
		Professor Emeritus		Steven Rickman Adjunct Associate Professors			
		Chao-Cheng Wang					
				Kenji Takizawa			
				David Woffinden			
	Progra	ams (Undergraduate):	ate): BA degree, BSME degree				
	Progra	ams (Graduate): MME	degree, MS degree, a	and PhD degree			
	aerospa		stems, computational fluid	dynamics, computational me	f a diverse set of areas, including echanics, fluids-thermal science,		

The graduate program offers professional degrees in 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 coordinated MBA/Master of Mechanical Engineering degree is available in conjunction with the Jesse H. Jones Graduate School of Business.

The graduate program, in its comprehensive educational and research activities, collaborates with other departments at Rice and other institutions in Houston, including those in the Texas Medical Center. Collaborations also are extended to universities in the United States, Europe, Japan, and South America. International collaborations include joint research activities and faculty and student visitor exchanges.

	Last Revised : Au	Last Revised : August 17, 2016					
General Announcen	nents 6100 Mai	n MS-10, Houston, Te	exas 77005-1827	Mailing	Address: P.O. Bo	ox 1892, Houston, Te	exas 77251-1892
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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Mechanical Engineering >

Undergraduate Student	S
-----------------------	---

Non-Traditional Students

Administration and Faculty

Graduate Students

Programs of Study

Important Notices

Faculty

Mechanical Engineering

The George R. Brown School of Engineering

Department Undergraduate Graduate Course Info **Requirements** Requirements Listings

Jump to:

BSME Degree with a Major in Mechanical Engineering

Bachelor of Arts Degree (BA) with a Major in Mechanical Engineering

Program Learning Outcomes for the Bachelor of Science in Mechanical Engineering Degree (BSME)

Upon completing the BSME degree, students majoring in Mechanical Engineering will be able to:

- 1. An ability to apply knowledge of mathematics, science, and engineering.
- 2. An ability to design and conduct experiments, as well as to analyze and interpret data.
- 3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- 4. An ability to function on multidisciplinary teams.
- 5. An ability to identify, formulate, and solve engineering problems.
- 6. An understanding of professional and ethical responsibility.
- 7. An ability to communicate effectively.
- 8. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- 9. Recognition of the need for, and an ability to engage in life-long learning.
- 10. A knowledge of contemporary issues.
- 11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Requirements for the BSME Degree with a Major in Mechanical Engineering

For general university requirements, see Graduation Requirements. Students pursuing the BSME degree with a major in Mechanical Engineering (MECH) must complete:

- A minimum of 36 courses (94 credit hours) to satisfy major requirements.
- A minimum of 132 credit hours to satisfy degree requirements.

The Bachelor of Science in Mechanical Engineering (BSME) program prepares students for the professional practice of engineering. The program's goals and objectives are available on the departmental website. The BSME degree program is accredited by the Engineering Accreditation Commission (EAC) of ABET, www.abet.org d. Lists of representative undergraduate courses and the usual order in which they are taken are available from the department.

CORE REQUIREMENTS

Students must complete a total of 32 courses (82 credit hours) to satisfy the Mechanical Engineering major's Core Requirements.

Basic Math and Science Courses (Required Pre-Requisites)

Students must complete the following 13 courses (31 credit hours):

- CHEM 121 General Chemistry I [3 credit hours] and CHEM 123 General Chemistry Lab I [1 credit hour]
- CHEM 122 General Chemistry II [3 credit hours] and CHEM 124 General Chemistry Lab II [1 credit hour]
- MATH 101 Single Variable Calculus I [3 credit hours]

- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours]
- MATH 212 Multivariable Calculus [3 credit hours]
- MSNE 301 Materials Science [<u>3 credit hours</u>]
- PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>]
- PHYS 102 Electricity and Magnetism (with Lab) [4 credit hours] and PHYS 104 E & M Discussion [0 credit]

Computational and Applied Mathematics

Students must complete the following 3 courses (9 credit hours):

- CAAM 210 Introduction to Engineering Computation [<u>3 credit hours</u>]
- CAAM 335 Matrix Analysis [3 credit hours]
- CAAM 336 Differential Equations in Science and Engineering [3 credit hours]

Senior Design

Students must complete the following 2 courses (7 credit hours). During their senior year, mechanical engineering students in the BSME program complete these courses in design application while completing a major design project.

- MECH 407 Capstone Design Project I [4 credit hours]
- MECH 408 Capstone Design Project II [<u>3 credit hours</u>]

Laboratory Courses

Students must complete the following 4 courses (4 credit hours):

- MECH 331 Junior Laboratory I [1 credit hour]
- MECH 332 Junior Laboratory II [<u>1 credit hour</u>]
- MECH 340 Industrial Process Lab [1 credit hour]
- MECH 431 Senior Laboratory I [<u>1 credit hour</u>]

Mechanical Engineering

Students must complete the following 10 courses (31 credit hours):

- MECH 200 Classical Thermodynamics [<u>3 credit hours</u>]
- MECH 211/CEVE 211 Engineering Mechanics [3 credit hours]
- MECH 311/CEVE 311 Mechanics of Solids and Structures [3 credit hours]
- MECH 343 Modeling of Dynamic Systems [4 credit hours]
- MECH 371 Fluid Mechanics I [3 credit hours]
- MECH 401 Machine Design Applications [3 credit hours]
- MECH 412 Vibrations [<u>3 credit hours</u>]
- MECH 420/ELEC 436 Fundamentals of Control Systems [3 credit hours]
- MECH 472 Thermal Systems Design [3 credit hours]
- MECH 481 Heat Transfer [3 credit hours]

ELECTIVES

To fulfill the remaining Mechanical Engineering major requirements, students must complete a total of 4 additional courses (12 credit hours) as listed below.

Limited Electives

Students must complete 1 course (3 credit hours) from the following:

- STAT 305 Introduction to Statistics for Biosciences [4 credit hours]
- STAT 310/ECON 307 Probability and Statistics [3 credit hours]

Technical Electives

Students must complete a total of 3 technical electives (9 credit hours). A minimum of two of these courses must come from Group A. The remaining course can come from Group A or B. Group A courses are fundamental courses in the following focus areas: aerospace engineering (AE), computational engineering (CompE), fluid mechanics and thermal science (FT), solid mechanics and materials (SMM), and system dynamics and control (SDC). Group B courses are additional technical electives that complement the focus areas listed above.

Group A

Students must complete 2 courses (6 credit hours) from the following:

MECH 400/CEVE 400 Advanced Mechanics of Materials (SMM) [3 credit hours]

- MECH 403 Computer Aided Design (CompE, SMM) [3 credit hours]
- MECH 411 Dynamics and Control of Mechanical Systems (SDC) [3 credit hours]
- MECH 417/CEVE 417 Finite Element Analysis (CompE) [3 credit hours]
- MECH 454/BIOE 454/CEVE 454 Computational Fluid Mechanics (AE, CompE, FT) [3 credit hours]
 - MECH 474 Advanced Computational Mechanics [<u>3 credit hours</u>]
 or MECH 555 Computational Fluid-Structure Interaction (AE, FT, CompE) [<u>3 credit hours</u>]
 - MECH 488 Design of Mechatronic Systems (SDC) [<u>3 credit hours</u>]
 - MECH 498/COMP 498/ELEC 498 Introduction to Robotics (SDC) [3 credit hours]
 - MECH 594 Introduction to Aeronautics (AE,FT) [<u>3 credit hours</u>]
 - MSNE 402 Mech Properties of Materials (SMM) [<u>3 credit hours</u>]

Group B

Students must complete 1 course (3 credit hours) at the 300-level or above from School of Engineering departmental course offering, including any ENGI course offerings.

back to menu

Requirements for the Bachelor of Arts Degree (BA) with a Major in Mechanical Engineering

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Mechanical Engineering (MECH) must complete:

- A minimum of 25 courses (68 credit hours) to satisfy major requirements. Note that the courses required to complete the major must be taken after 13 required pre-requisite courses (31 credit hours).
- A minimum of 128 credit hours to satisfy degree requirements.
- A minimum of 9 courses (28 credit hours) at the 300-level or above.

The BA program in mechanical 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 BA degree is not accredited by the Engineering Accreditation Commission of ABET.

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 331 and MECH 340 are not required. Specific major requirements are completed in the junior and senior years.

BASIC MATH AND SCIENCE COURSES (Pre-Requisites)

To fulfill the Mechanical Engineering major requirements for the BA degree, students must first complete a total of 13 courses (31 credit hours) as pre-requisites needed for the courses required in the major.

- CHEM 121 General Chemistry / [3 credit hours] and CHEM 123 General Chemistry Lab / [1 credit hour]
- CHEM 122 General Chemistry II [3 credit hours] and CHEM 124 General Chemistry Lab II [1 credit hour]
- MATH 101 Single Variable Calculus I [<u>3 credit hours</u>]
- MATH 102 Single Variable Calculus II [3 credit hours]
- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours]
- MATH 212 Multivariable Calculus [<u>3 credit hours</u>]
- MSNE 301 Materials Science [3 credit hours]
- PHYS 101 Mechanics (with Lab) [4 credit hours] and PHYS 103 Mechanics Discussion [0 credit]
- PHYS 102 Electricity and Magnetism (with Lab) [4 credit hours] and PHYS 104 E & M Discussion [0 credit]

REQUIRED COURSES FOR MECHANICAL ENGINEERING

Students pursuing the BA degree must complete a total of 12 courses (37 credit hours) as listed below to satisfy the Mechanical Engineering major's requirements.

Computational and Applied Mathematics

Students must complete the following 3 courses (9 credit hours):

- CAAM 210 Introduction to Engineering Computation [<u>3 credit hours</u>]
- CAAM 335 Matrix Analysis [3 credit hours]
- CAAM 336 Differential Equations in Science and Engineering [3 credit hours]

Mechanical Engineering Courses

Students must complete the following 9 courses (28 credit hours):

- MECH 200 Classical Thermodynamics [3 credit hours]
- MECH 211/CEVE 211 Engineering Mechanics [3 credit hours]
- MECH 311/CEVE 311 Mechanics of Solids [<u>3 credit hours</u>]
- MECH 343 Modeling of Dynamic Systems [4 credit hours]
- MECH 371 Fluid Mechanics I [3 credit hours]
- MECH 401 Machine Design Applications [3 credit hours]
- MECH 412 Vibrations [<u>3 credit hours</u>]
- MECH 420/ELEC 436 Fundamentals of Control Systems [3 credit hours]
- MECH 481 Heat Transfer [<u>3 credit hours</u>]

back to menu

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate Mechanical Engineering degrees and major. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: MECH

Department Description and Code

- Mechanical Engineering: MECH

Degree Descriptions and Codes

- Bachelor of Arts degree: BA
- Bachelor of Science degree: BSME

Major Description and Code

- Major in Mechanical Engineering (attached to both the BA and BSME Degrees): MECH

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Previous Editions

Course

Listings

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Mechanical Engineering >

Mechanical Engineering

Department

Info

MME Degree in Mechanical Engineering

MS Degree in Mechanical Engineering PhD Degree in Mechanical Engineering

Jump to:

The George R. Brown School of Engineering

- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Degree Requirements and Program Learning Outcomes for MME, MS, and PhD in Mechanical Engineering

Graduate

Requirements

Undergraduate

Requirements

Professional Degree Program—The professional master's degree in Mechanical Engineering (MME) is a non-thesis degree program intended for students who have completed a 4-year bachelor's program in engineering and wish to join the workforce as practicing professionals, rather than pursuing a research oriented or academic career. It offers preparation in advanced engineering topics in order to enhance an engineer's technical qualifications and increases competitiveness in the job market. The MME program is open to students who have shown academic excellence in their undergraduate studies. Students who have a BS or BA degree in any field of engineering or related study may apply, although some may need to fulfill prerequisites or take remedial courses to earn the MME degree. Students may enroll on a full or part-time basis.

For the MME, degree students must complete 30 semester hours of course work at the 500 level or higher. Lists of required and suggested courses are available from the department. Students should develop a specific plan of study based on their particular interests and discussions with their advisor.

For general university requirements, see Graduate Degrees.

Research Degree Programs—The programs leading to the Master of Science (MS) and Doctor of Philosophy (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.

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.

For general university requirements, see Graduate Degrees.

As part of their degree requirements, graduate students are expected to provide instructional assistance to the department not to exceed 10 hours per week. The department chair will assign graduate student work at the beginning of each semester.

All graduate students (except professional master's students, MME) must attend at least 75 percent of the Mechanical Engineering seminars. For details, please see the degree requirements on the mech.rice.edu

Program Learning Outcomes for the Master of Mechanical Engineering Degree (MME)

Upon completing the MME degree, students will be able to:

- 1. Demonstrate an advanced command of Mechanical Engineering fieldwork.
- 2. Apply professional standards and exercise ethical judgment.
- 3. Communicate scientific ideas effectively in writing and when speaking.

Requirements for the Master of Mechanical Engineering Degree (MME)

For general university requirements, see Graduate Degrees. Students pursuing the MME degree must complete:

- A minimum of 30 credit hours of approved coursework at the 500-level or higher.
- A minimum of 24 credit hours must be taken at Rice University.

CORE REQUIREMENTS

Students must complete a minimum of 6 courses (18 credit hours) from the following to satisfy the MME degree program's Core Requirements.

- MECH 501 Dynamics and Control of Mechanical Systems [<u>3 credit hours</u>]
 or MECH 508/CAAM 508/ELEC 508 Nonlinear Systems: Analysis and Control [<u>3 credit hours</u>]
- MECH 502 Vibrations [<u>3 credit hours</u>]
- MECH 517 Finite Element Analysis [3 credit hours]
- MECH 554/BIOE 554/CEVE 554 Computational Fluid Mechanics [3 credit hours]
- MECH 582 Convective Heat Transfer [3 credit hours]
- MECH 588 Design of Mechatronic Systems [<u>3 credit hours</u>] or MECH 598/COMP 598/ELEC 598 Introduction to Robotics [<u>3 credit hours</u>]
- MECH 594 Introduction to Aeronautics [<u>3 credit hours</u>]

ELECTIVES

To fulfill the remaining MME degree program requirements, students must complete a total of 4 courses (12 credit hours) from courses offered at the 500-level or above with approval by the advisor and the department, some of which could be from outside the department. None of the remaining required 12 credit hours can be from Independent-Study (MECH 611 or MECH 612) courses.

Degree at Entrance4-year BS4-year BAMinimum graduate level semester hours required3030(course work)3130

Professional Science Master's 5th Year Degree Option for Rice Undergraduates

Rice students have an option to achieve the Master of Mechanical Engineering degree by adding an additional fifth year to the four undergraduate years of science studies. Advanced Rice students in good standing may apply during their junior year to the graduate program. Upon acceptance, depending on course load, financial aid status, and other variables they may then start taking required core courses of the mechanical engineering program during their senior year. A plan of study based on their particular focus area will need to be approved by the program director and the PSM director. Students should be aware there could be financial aid implications, if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time (12 credit hours) status.

back to menu

Program Learning Outcomes for the MS and PhD Degrees

Graduates awarded the PhD in Mechanical Engineering will be able to:

- 1. Apply the technical skills required by industrial and governmental organizations to solve mechanical engineering problems at an advanced level.
- 2. Conduct research that demonstrates advanced mastery of a subfield within Mechanical Engineering.
- 3. Communicate scientific ideas effectively in writing and when speaking.
- 4. Understand and exhibit professional and ethical responsibility.
- 5. Recognize the need to engage in life-long learning.
- 6. Recognize and understand the role of leadership.

Requirements for the MS Degree in Mechanical Engineering

Students seeking the MS degree are expected to complete all the requirements for the degree within two 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 candidacy evaluation for the

highest degree program they intend to pursue. The evaluation will be conducted by the end of the second semester of enrollment in the graduate program in the Mechanical Engineering department.

Each candidate for the MS degree must complete a thesis demonstrating ability in research of a fundamental nature (analytical, numerical, or experimental). It is expected that the research will be of sufficient importance and quality that positive results would lead to publications. A committee consisting of at least three members will conduct the examination. Two, including the committee chair, must be members of the department.

The minimum semester hours of course work (a one-semester course is usually three semester hours credit) required for the MS degree is tabulated below as a function of the degree held on entrance into the program. Research and thesis hours, as well as seminar hours, do not count towards these course requirements but do count toward the minimum requirement that a student complete 30 credit hours at the 500 level or above. 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.

Degree at Entrance	<u>5-year BS</u>	<u>4-year BS</u>	<u>4-year BA</u>
Minimum graduate level semester hours required	12	18	24
(course work)			

For details, please see the degree requirements on the Mechanical Engineering website degree and the mechanical Engineering website and

back to menu

Requirements for the PhD Degree in Mechanical Engineering

Students seeking the PhD degree are expected to complete all the requirements for the degree within five 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 second semester of enrollment in the graduate program in the Mechanical Engineering department.

By the end of the third year of enrollment in the graduate program in the Mechanical Engineering 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, numerical or experimental). It is expected that the research will be of sufficient importance and quality that positive results would lead to publications. 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 four members. Three, 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 one-semester course is usually three 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.

Degree at Entrance	MS	<u>5-year BS</u>	<u>BS</u>	<u>BA</u>
Minimum graduate level semester hours required	18	30	36	42
(course work)				

For details, please see the degree requirements on the Mechanical Engineering website and

back to menu

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the various Mechanical Engineering graduate degree programs. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: MECH

Department Description and Code

- Mechanical Engineering: MECH

Degree Descriptions and Codes

- Master of Mechanical Engineering degree: MME

-2017 General Announcements		605 of 923
	 Master of Science degree: MS Doctor of Philosophy degree: PhD <u>Degree Program Description and Code</u> Degree Program in Mechanical Engineering: MECH 	
	Last Revised : August 18, 2016	

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Mechanical Engineering >

Undergraduate Students Mechanical Engineering							
Graduate Students	The George R. Brown School of Engineering						
Non-Traditional Students	Department Info	Undergraduate Requirements	Graduate	Course			
Faculty Course Listings Course Listings							
Programs of Study							
Administration and Faculty	culty						
Important Notices	To see course offerings during the	ne 2016-2017 academic year, se	ee Rice's Course Schedule.	P			
	For additional information regarding Mechanical Engineering, see the department's website: https://mech.rice.edu/.						
	Last Revised : August 24, 2016						

General Announc	ements 6100 M	ain MS-10, Houston,	Texas 77005-1827	Mailing Address: P.O	. Box 1892, Houston, Tex	as 77251-1892
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607 of 923

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Medical Humanities >

Undergraduate Students	Medical Humar	ities						
Graduate Students	The School of Humanities							
▶ Non-Traditional Students	Departme		ergraduate	Graduate	Course			
▶ Faculty	Info	Req	uirements	Requirements	Listings			
Programs of Study	Director and A Kirsten Osther			r ofessors Iarcia Brennan, Religion, Art I	History			
Administration and Faculty	Steering Com		Ji	ames Faubion, Anthropology ugenia Georges, Anthropolog	-			
Important Notices	Melissa Bailar Eugenia Georg		В	Eugenia Georges, Anthropology Bridget Gorman, Sociology Vivian Ho, Economics, Social Sciences				
	Moramay Lope Kirsten Osther Rebecca Richa Zoë Wool	r	R A K R	tachel Kimbro Sociology Inne Klein Religion, Humanitie Girsten Ostherr, English Rebecca Richards-Kortum, Bio ICE	25			
			D	Associate Professors Deborah Harter, Classical and Ioramay Lopez-Alonso, Histor	•			
			N Ji	Assistant Professors liki Clements, Religion ustin Denney, Sociology oë Wool, Anthropology				
			N	rofessors in the Practice Ielissa Bailar, Associate Direc Research Center Sia Merlo, Associate Dean for				
			Ji P B Ji	ecturers ennifer Blumenthal-Barby, Ad rofessor, Philosophy everly Mitchell, Lecturer, Anth ohn Mulligan, Lecturer, Huma enter	ropology			
	Program (Undergrad	uate): Minor						

Program (Graduate): N/A

Medical Humanities is a transdisciplinary minor that examines medicine through humanistic disciplines such as history, ethics, religion, literature, cultural anthropology, media studies, and the visual and dramatic arts. Students will learn about medical systems and practices using methodologies such as close reading, cultural comparison, historical contextualization, creative expression, and critical thinking. The field is committed to interpretive and qualitative work that explores the human dimensions of experiences of health and illness, for doctors and for patients.

The Medical Humanities minor is housed in the Humanities Research Center.

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Maps-Directions Feedback

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Medical Humanities >

Þ	Une	dergr	aduate	Stud	lents
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Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Medical Humanities

The School of Humanities

	Department	Undergraduate	Graduate	Course						
	Info	Requirements	Requirements	Listings						
Program Learning Outcomes for the Interdisciplinary Minor in Medical Humanities										

Upon completing the minor in Medical Humanities, students will be able to:

- 1. Describe the historical, literary, artistic and ethical domains of medical humanities scholarship.
- 2. Analyze and evaluate complex texts relating to the social and cultural aspects of medicine through close reading and critical interpretation of arguments, metaphors, and images.
- 3. Explain how health disparities and disability shape the healthcare experience for patients.
- 4. Conduct independent research and communicate their own arguments about medical humanities in research papers, class presentations, and discussions.

Requirements for the Interdisciplinary Minor in Medical Humanities

Students pursuing the minor in Medical Humanities must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 4 courses (12 credit hours) at Rice University.
- No more than 2 courses (6 credit hours) as transfer work from U.S. or international universities of similar standing.
 Requests for the application of transfer credit towards Medical Humanities minor requirements will be considered by the Medical Humanities director on a case-by-case basis.

In addition to the above, transfer credit coursework received via the articulation of AP, IB or A-level credit will not be considered. Further, transfer credit from online-only courses cannot be used to count toward the minor.

Medical Humanities minor courses are open to all undergraduate students at Rice from all backgrounds. Our classes examine the social, cultural, ethical and aesthetic dimensions of medicine in contemporary and historical contexts.

CORE REQUIREMENT

Students must complete the following course (3 credit hours) to satisfy the Medical Humanities minor's Core Requirement. Students must complete the core course (HURC 201) before they complete their practicum (the core course and practicum may not be taken concurrently).

HURC 201 Introduction to Medical Humanities [3 credit hours]

PRACTICUM

Students must complete a practicum. Students may complete this requirement by taking any of the following courses (3 credit hours). HUMA 401 provides a clinical research setting where students will engage in reflection about their clinical research; HURC 430 provides an archival or other non-clinical setting for engaged research. (Note that HUMA 401 is a year-long course that students must begin in the Fall semester, but only one semester counts toward the practicum. The second semester of HUMA 401 does not count as an elective toward the minor.) Students may take ENGL 386/FILM 381 as either an elective or the practicum, but it will not count toward both requirements.

- ENGL 386/FILM 381 Medical Media Arts Lab [4 credit hours]
- HUMA 401 Independent Study in Medical Humanities Research [3 credit hours]
- HURC 430 Practicum in Health Humanities [3 credit hours]

ELECTIVES

To fulfill the remaining requirements for the Medical Humanities minor, students must complete a total of 4 courses (12 credit hours) from the courses listed below. Students must fulfill the Electives requirement by completing coursework from at least 2 departments, and must take a minimum of 2 courses (6 credit hours) at the 300-level or above.

Anthropology

- ANTH 342 Ethnographies of Care [3 credit hours]
- ANTH 354/SWGS 353 Disability and Gendered Bodies [3 credit hours]
- ANTH 381 Medical Anthropology [<u>3 credit hours</u>]
- ANTH 477 Special Topics [<u>1-4 credit hours: note that not all ANTH 477 Special Topics section will applied toward</u> the minor requirements]
- ANTH 582 Body, Technology, Enhancement [3 credit hours]

Art History

HART 396 Medical Humanities Visual Culture [3 credit hours]

English

- ENGL 272 Literature and Medicine [3 credit hours]
- ENGL 273/SWGS 273 Medicine and Media [3 credit hours]
- ENGL 278 Medicine in the Age of Networked Intelligence [3 credit hours]
- ENGL 386/FILM 381 Medical Media Arts Lab [4 credit hours]

History

- HIST 369 Germs, Doctors, and Cities in Latin America [3 credit hours]
- HIST 479 Biological Approaches to History [<u>3 credit hours</u>]
- HIST 481 Global History of Health and Welfare [3 credit hours]

Humanities Research Center

- HURC 211 19th Century Psychological Fiction and Medicine [3 credit hours]
- HURC 213 The Doctor Is On [3 credit hours]
- HURC 306/506 Health and Humanities Master Class [3 credit hours]
- HURC 307 Critical Humanities of Health and the Body [3 credit hours]
- HURC 361/RELI 361 The Humanities of Care [3 credit hours]

Natural Sciences

NSCI 399 Medical Professionalism [<u>3 credit hours</u>]

Program in Writing and Communication

COMM 415 Medical Communication [3 credit hours]

Religion

- RELI 344/ANTH 343 Seminar on the End of Life [3 credit hours]
- RELI 350/MDEM 350 Demons, Mental Illness, Medicine [3 credit hours]

Sociology

- SOCI 344 Sociology of Mental Health [<u>3 credit hours</u>]
- SOCI 345 Medical Sociology [<u>3 credit hours</u>]
- SOCI 377 Health Disparities [<u>3 credit hours</u>]
- SOCI 422 Social Autopsies [<u>3 credit hours</u>]
- SOCI 465/SWGS 465 Gender and Health [<u>3 credit hours</u>]

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate minor in Medical Humanities. The following is a quick reference:

Course Catalog/Schedule - Course offerings/subject code: Courses offered by other departments apply toward the minor in Medical Humanities. Department Description and Code - Medical Humanities: MDHM Minor Description and Code - Minor in Medical Humanities: MDHM Last Revised : August 12, 2016

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Medical Humanities >

Undergraduate Students	Medical Humanities							
Graduate Students	The School of Humanities							
Non-Traditional Students		Department	Undergraduate	Graduate	Course			
▶ Faculty	Info Requirements Requirements Listings Graduate Requirements Info Info							
Programs of Study	Medical Humanities does not offer an academic program at the graduate level.							
Administration and Faculty								
Important Notices	Last Revised : August 12, 2016							

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Medical Humanities >

Undergraduate Students	Medical Humanities						
Graduate Students	The School of Humanities						
Non-Traditional Students	DepartmentUndergraduateGraduateCourseInfoRequirementsRequirementsListings						
▶ Faculty	Course Listings						
Programs of Study	The official course offerings, including course descriptions, listed in the Medical Humanities Undergraduate Requirements						
Administration and Faculty	section can be found in Rice's Course Catalog.						
Important Notices	To see course offerings during the 2016-2017 academic year, see Rice's Course Schedule.						
	For additional information regarding Medical Humanities, see the department's website: http://hrc.rice.edu/medicalhumanities/.						
	Last Revised : August 24, 2016						

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Medieval and Early Modern Studies >

Medieval and Early Modern Studies

The School of Humanities

- Graduate Students
- Non-Traditional Students

Undergraduate Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department	Undergraduate		Graduate		Course	
Info	Requirements		Requirements		Listings	
			-			
Diane Wolfthal						
John Huston	I	Dav	id Cook			
Michael Maas	:	Sara	ah Ellenzweig			
Joseph Manca		Jeffr	rey Fleisher			
Scott McGill	:	Shir	n-Shan Susan Huang			
Alida Metcalf	I	Peter Loewen				
Donald Ray Morrison	I	Linda E. Neagley				
Deborah Nelson-Campbe	11					
Nanxiu Qian		Ass	istant Professors			
Paula Sanders	I	Niki	Clements			
Meredith Skura	(Clai	re Fanger			
Richard Smith	I	Emi	ly Houlik-Ritchey			
Edward Snow	I	May	a Soifer Irish			
John Stroup	I	Bria	n Ogren			
Diane Wolfthal						
John Zammito	I	Lec	turers			
		Ted	Somerville			
		Jare	ed Staller			
	Info Director and Advisor Diane Wolfthal Professors John Huston Michael Maas Joseph Manca Scott McGill Alida Metcalf Donald Ray Morrison Deborah Nelson-Campber Nanxiu Qian Paula Sanders Meredith Skura Richard Smith Edward Snow John Stroup Diane Wolfthal	Info Requirements Director and Advisor Diane Wolfthal Professors John Huston Michael Maas Joseph Manca Scott McGill Alida Metcalf Donald Ray Morrison Deborah Nelson-Campbell Nanxiu Qian Paula Sanders Meredith Skura Richard Smith Edward Snow John Stroup Diane Wolfthal John Zammito	InfoRequirementsDirector and AdvisorAssDiane WolfthalLisaGreeGreeProfessorsJosaJohn HustonDavMichael MaasSaraJoseph MancaJeffiScott McGillShihAlida MetcalfPetaDonald Ray MorrisonLindDeborah Nelson-CampbellNikiMarxiu QianAssPaula SandersNikiMeredith SkuraClaiRichard SmithEmiEdward SnowMayJohn StroupBriaDiane WolfthalLecJohn ZammitoLecTedTed	InfoRequirementsRequirementsDirector and AdvisorAssociate ProfessorsDiane WolfthalLisa BalabanlilarGreg BarnettGreg BarnettProfessorsJoseph CampanaJohn HustonDavid CookMichael MaasSarah EllenzweigJoseph MancaJeffrey FleisherScott McGillShih-Shan Susan HuangAlida MetcalfPeter LoewenDonald Ray MorrisonLinda E. NeagleyDeborah Nelson-CampbellNiki ClementsNanxiu QianAssistant ProfessorsPaula SandersNiki ClementsMeredith SkuraClaire FangerRichard SmithEmily Houlik-RitcheyEdward SnowMaya Soifer IrishJohn StroupBrian OgrenDiane WolfthalFinan Ogren	InfoRequirementsRequirementsDirector and AdvisorAssociate ProfessorsDiane WolfthalLisa BalabanlilarDiane WolfthalGreg BarnettProfessorsJoseph CampanaJohn HustonDavid CookMichael MaasSarah EllenzweigJoseph MancaJeffrey FleisherScott McGillShih-Shan Susan HuangAlida MetcalfPeter LoewenDonald Ray MorrisonLinda E. NeagleyDeborah Nelson-CampbellNiki ClementsMeredith SkuraClaire FangerRichard SmithEmily Houlik-RitcheyAgas Soifer IrishBrian OgrenJohn StroupBrian OgrenDiane WolfthalLecturersJohn ZammitoLecturersTed SomervilleTed Somerville	InfoRequirementsRequirementsListingsDirector and AdvisorAssociate ProfessorsDiane WolfthalLisa BalabanlilarGreg BarnettGreg BarnettProfessorsJoseph CampanaJohn HustonDavid CookMichael MaasSarah EllenzweigJoseph MancaJeffrey FleisherScott McGillShih-Shan Susan HuangAlida MetcalfPeter LoewenDonald Ray MorrisonLinda E. NeagleyDeborah Nelson-CampbellNiki ClementsNanxiu QianAssistant ProfessorsPaula SandersNiki ClementsMeredith SkuraClaire FangerRichard SmithEmily Houlik-RitcheyEdward SnowMaya Soifer IrishJohn StroupBrian OgrenDiane WolfthalLecturersJohn ZammitoLecturersTed SomervilleTed Somerville

Program (Undergraduate): BA degree

Program (Graduate): N/A

This interdisciplinary major enables students to study medieval and early modern cultures in the period between 500 and 1700 A.D.. The program combines a broad background in various aspects of medieval and early modern culture with more specialized study in a selected field. These fields of emphasis include medieval and early modern art history, history, literature (Arabic, Chinese, English, French, or Latin), music, philosophy, or religion.

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Web Services

University Calendar

Maps-Directions

Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Medieval and Early Modern Studies >

Un	dergr	aduate	Stud	ents
----	-------	--------	------	------

Medieval and Early Modern Studies

The School of Humanities

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Unde Department

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Course

Listings

Program Learning Outcomes for the BA Degree with a Major in Medieval and Early **Modern Studies**

Upon completing the BA degree, students majoring in Medieval and Early Modern Studies will be able to:

- 1. Be able to situate Medieval and Early Modern studies more broadly within several interdisciplinary fields, including history, art, philosophy, music, literature, and religion.
- 2. Be able to define and apply appropriate disciplinary and/or interdisciplinary methodologies, vocabularies, concepts, and theories to critically respond to questions within the field of Medieval and Early Modern Studies.
- 3. Demonstrate the ability to define and respond to research questions and scholarly debates within the field, including the ability to analyze primary and secondary sources, draw conclusions from the analysis of these sources, and cite evidence in support of conclusions.
- 4. Demonstrate a firm grasp of written, visual, and oral communication, including critical writing principles such as appropriate citation, use of evidence, clarity, and grammatical correctness.

Requirements for the BA Degree with a Major in Medieval and Early Modern Studies

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Medieval and Early Modern Studies (MDEM) must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements. .
- A minimum of 5 courses (15 credit hours) at the 300-level or above.

Students who are pursuing two majors (i.e., are double majors) and have declared MDEM must complete:

- A minimum of 8 courses (24 credit hours) to satisfy major requirements.
- A minimum of 5 courses (15 credit hours) at the 300-level or above.

Double majors who drop their second major are required to meet the requirements listed for single majors.

It is recommended, but not required, that students take two semesters at the college level in an appropriate language (or languages). 3 courses (6 credit hours), and preferably two at the 300-level or above, should be taken in the student's chosen field of emphasis. One of these may be a directed reading course. Students work out their programs of study in consultation with the program director. For students considering MDEM graduate work, it is recommended that they study at least one foreign language in some depth (as most graduate schools require a reading knowledge of French and German for the PhD).

COURSE REQUIREMENTS

Single majors must complete a total of 10 courses (30 credit hours), and double majors must complete a total of 8 courses (24 credit hours) from the following to fulfill the Course Requirements for the Medieval and Early Modern Studies major. A total of 5 courses (15 credit hours) must be taken at the 300-level or above. Please note that not all courses listed below will be offered during the academic year.

Anthropology

MDEM 311/ANTH 312 African Prehistory [3 credit hours]

Info Reau

Art History

- MDEM 108/HUMA 108/HART 240 Art in Context: Late Medieval and Renaissance Culture [3 credit hours]
- MDEM 111/CLAS 102/HART 101 Introduction to the History of Western Art I [4 credit hours]
- MDEM 330/HART 330 Early Medieval Art [3 credit hours]
- MDEM 331/HART 331 Gothic Art and Architecture in Northern Europe, 1140–1300 [3 credit hours]
- MDEM 332/HART 332 Art of the Courts [3 credit hours]
- MDEM 340/HART 340 Northern Renaissance Art [<u>3 credit hours</u>]
- MDEM 343/HART 343 Masters of the Baroque Era [<u>3 credit hours</u>]
- MDEM 363/HART 364 Capitalism and Art, 1300-1700 [3 credit hours]
- MDEM 373/ASIA 372/HART 372 Chinese Art and Visual Culture [3 credit hours]
- MDEM 376/ASIA 376/HART 376 East & West [3 credit hours]
- MDEM 378/HART 378 Age of Rembrandt [3 credit hours]
- MDEM 431/HART 431 Architecture of the Gothic Cathedral [3 credit hours]
- MDEM 434/HART 434/SWGS 434 Seeing Sex in European Art 1400-1700 [3 credit hours]
- MDEM 435/HART 435/HIST 443 Multicultural Europe, 1400-1700 [3 credit hours]

Asian Studies

- MDEM 370/ASIA 330/CHIN 330 Introduction to Traditional Chinese Poetry [3 credit hours]
- MDEM 375/ASIA 335/CHIN 335 Introduction to Chinese Literature [3 credit hours]
- MDEM 379/ASIA 399/SWGS 399 Women in Chinese Literature [<u>3 credit hours</u>]
- MDEM 395 Classical Chinese Novels [<u>3 credit hours</u>]

Classical Studies

- MDEM 101/LATI 101 Elementary Latin I [3 credit hours]
- MDEM 102/LATI 102 Elementary Latin II [<u>3 credit hours</u>]
- MDEM 211/LATI 201 Intermediate Latin I [<u>3 credit hours</u>]
- MDEM 212/LATI 202 Intermediate Latin II [3 credit hours]

English

- MDEM 312/ENGL 312 Topics in Old English [<u>3 credit hours</u>]
- MDEM 313/ENGL 313 Beowulf [<u>3 credit hours</u>]
- MDEM 315/ENGL 315 Medieval Cultures Through Film [4 credit hours]
- MDEM 316/ENGL 316/SWGS 305 Chaucer [3 credit hours]
- MDEM 317/ENGL 317/SWGS 301 Arthurian Literature [<u>3 credit hours</u>]
- MDEM 319/ENGL 314 Medieval Romance [3 credit hours]
- MDEM 412/ENGL 412 Introduction to Old English Language [3 credit hours]
- MDEM 413/ENGL 413 Beowulf in Old English [<u>3 credit hours</u>]

French Studies

- MDEM 404/FREN 404 Beginnings of Language and Literature of France [3 credit hours]
- MDEM 425/FREN 415 Courtly Love in Medieval France [<u>3 credit hours</u>]
- MDEM 436/FREN 416 Literature and Culture of the Middle Ages [3 credit hours]

German Studies

MDEM 402 Middle High German [<u>3 credit hours</u>]

History

- MDEM 281/HIST 281 Premodern Middle East History [3 credit hours]
- MDEM 308/HIST 308 The World of Late Antiquity [<u>3 credit hours</u>]
- MDEM 324/HIST 324 Coexistence in Medieval Spain [<u>3 credit hours</u>]
- MDEM 345/HIST 345 Renaissance Europe [3 credit hours]
- MDEM 357/HIST 357 Jews and Christians in Medieval Europe [3 credit hours]
- MDEM 364/HIST 364 Central Asian Conquest Empires [<u>3 credit hours</u>]
- MDEM 369/HIST 368 Medieval Frontiers [3 credit hours]

Medieval and Early Modern Studies

- MDEM 320 Directed Readings [<u>1-3 credit hours</u>]
- MDEM 411 The Literary and Historical Image of the Medieval Woman [3 credit hours]

Music

- MDEM 222/MUSI 222 Medieval and Renaissance Eras [3 credit hours]
- MDEM 427 Topics in Early Music [3 credit hours]
- MDEM 429/MUSI 429 Music of the Middle Ages [3 credit hours]
- MDEM 456/MUSI 436 Collegium [2 credit hours]

Philosophy

- MDEM 201/CLAS 201/PHIL 201 History of Philosophy I [3 credit hours]
- MDEM 301/CLAS 301/PHIL 301 Ancient and Medieval Philosophy [3 credit hours]
- MDEM 481 Seminar in Ancient and Medieval Philosophy [3 credit hours]

Religion

- MDEM 100/FSEM 100/RELI 100 Romancing Religion: Narratives of the Sacred [3 credit hours]
- MDEM 103/RELI 104 Introduction to Jewish Mysticism [3 credit hours]
- MDEM 105/RELI 105 Medieval Christian Thought [3 credit hours]
- MDEM 271/RELI 271 Medieval Popular Christianity [3 credit hours]
- MDEM 305/RELI 305 Ecstasy and Embodiment in Religious Experience [3 credit hours]
- MDEM 314/RELI 314/SWGS 314 Divine Sex: Gender and Divinity in the Middle Ages [3 credit hours]
- MDEM 391/RELI 391 The Reformation [3 credit hours]
- MDEM 462/RELI 462 English Spirituality after Henry VIII [3 credit hours]

Description and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Medieval and Early Modern Studies undergraduate degree and major. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: MDEM
- Department Description and Code
- Medieval and Early Modern Studies: MDEM
- Degree Description and Code
- Bachelor of Arts degree: BA
- Major Description and Code

- Major in Medieval and Early Modern Studies: MDEM

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-----------------------	-----------	--------------	---------------------	----------	-----------------	----------

RICE

618 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Medieval and Early Modern Studies >

Medie	Medieval and Early Modern Studies							
The Sc	The School of Humanities							
	Department	Undergraduate Requirements	Graduate	Course Listings				
Gradu	Graduate Requirements							
Medieva	I and Early Modern Studie	s does not offer an academic	program at the graduate level.					
Last Revise	ed : August 12, 2016							
	The Sc Gradu Medieva	The School of Humanitie Department Info Graduate Requirement	Department Info Undergraduate Requirements Graduate Requirements Medieval and Early Modern Studies does not offer an academic	Department Info Undergraduate Requirements Graduate Requirements Graduate Requirements Graduate Requirements Medieval and Early Modern Studies does not offer an academic program at the graduate level.				

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Medieval and Early Modern Studies >

Undergraduate Students	Medieval and Early Modern Studies								
Graduate Students	The School of Humanities								
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings				
▶ Faculty	Cours	se Listings	Requirements	Requirements	Listings				
Programs of Study	The official course listings, including course descriptions, for the courses listed in the Medieval and Early Modern								
Administration and Faculty	Studies I	Undergraduate Requireme	ents section can be found in R	ice's Course Catalog. 🗗					
Important Notices	To see course offerings during the 2016-2017 academic year, see Rice's Course Schedule.								
	Last Revise	ed : August 24, 2016							

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RICE

620 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Military Science >

Undergraduate Students	Military Science						
Graduate Students	Department	Undergraduate	Graduate	Course			
Non-Traditional Students	Info	Requirements	Requirements	Listings			
► Faculty	Chair and Professor		Assistant Professors				
Programs of Study	Lieutenant Colonel Kurt		Lieutenant Colonel Steven Lopez Captain McVay Chambers				
			Captain Jonathan Howard				
Administration and Faculty			Master Sergeant Al Frances				
N Important Nations			Sergeant First Class David Brise	eno			
Important Notices			Sergeant First Class Roland The	omas			
			Staff Sergeant John Russell				
	Program (Undergraduate): N/A, no degree program Program (Graduate): N/A 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 U.S. Army, the U.S. 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.						
	Last Revised : August 17, 2016						

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Web Services

University Calendar Rice A-Z

Maps-Directions Feedback

RICE

621 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Military Science >

Undergraduate Students	Military Science										
Graduate Students		Devertment		Oreducto	Courses						
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings						
▶ Faculty	Under	Jndergraduate Requirements									
Programs of Study			gree in military science. Howev courses in military science ma								
Administration and Faculty		Houston. The financial aid available to an ROTC student may be used for Rice courses as well as the University of Houston ROTC courses.									
Important Notices	-	For general university requirements, see Graduation Requirements. 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.									
	scholarsh	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.									
	Universit obligation	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. <i>No military obligation is incurred as a result of enrollment in these courses.</i> Junior- and senior-level courses are more restrictive and do require a military obligation. ROTC scholarship students also incur a military obligation.									
	students	during their freshman- and d course students attend a	r program is divided into two co sophomore years; and the adv six-week paid advanced camp	anced course, attended durin	g the junior and senior yea	ars.					
			rse consists of four semesters (- and sophomore-level classes			ILI					
	in the act student n minimum	tive army, the Army Reserv nust be a full-time student i a of two years of academic v	entering the advanced course i e, or the National Guard. To be n a course of instruction that le work remaining in a curriculum ass a physical and medical examples	e considered for contracting in ads to a degree in a recognize leading to a baccalaureate or	to the advanced course, the ad	he					
	eligible to Leader's <i>military c</i>	o enroll in the advanced cou Training Course during Ju	program is designed for studen urse. This program allows studen ne and July at Fort Knox, Kentu der's Training Course. The arm ek period.	ents completing their sophomo icky, in lieu of taking the first t	ore year to attend a four-w wo years of ROTC. <i>There</i>	veek e is no					
	202, MIL	I 301, MILI 302, MILI 401, a	ary science laboratory is requir and MILI 402. This laboratory p nmunications training, and othe	rovides hands-on opportunitie							
	program.	Although veterans are not	red on active duty or in the Arm required to take the basic cour 54 credit hours prior to enrolling	se, they are encouraged to do	-						

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, four-, three-, and two-year scholarships. The scholarships cover tuition 100%. 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 three years, based on prior active duty service.

Other Financial Aid—All students enrolled in the advanced course will receive a subsistence allowance of \$450 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.

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 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

RICE

623 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Military Science >

Undergraduate Students	Military Science					
Graduate Students		Department	Undergraduate	Graduate	Course	
Non-Traditional Students		Info	Requirements	Requirements	Listings	
► Faculty	Graduate Requirements					
Programs of Study	Military Science does not offer an academic program at the graduate level.					
Administration and Faculty	Last Revised : August 12, 2016					
Important Notices						

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RICE

624 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Military Science >

Undergraduate Students	Military Science					
Graduate Students		Department	Undergraduate	Graduate	Course	
Non-Traditional Students		Info	Requirements	Requirements	Listings	
► Faculty	Cours	Course Listings				
▶ Programs of Study						
Administration and Faculty	For the most recent course schedule, please see Rice's Course Schedule. 🗗 .					
Important Notices	Last Revise	d : August 24, 2016				

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SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2

RICE

2016-2017 > Programs of Study > Music >				
Undergraduate Students				
Graduate Students	The Shepherd School of Music			
Non-Traditional Students	Department Undergraduate Graduate Course			
► Faculty	Info	Requirements	Requirements	Listings
Programs of Study	Dean Robert Yekovich		Associate Professors Karim Al-Zand	
Administration and Faculty	Professors	V	Valter B. Bailey Gregory Barnett	
Important Notices	Robert Atherholt	A	Allen Barnhill	
	Richard Bado	Anthony K. Brandt		
	Richard Brown	В	Barbara Clark	
	Barbara Butler Kenneth Cowan			
	Leone Buyse	Leone Buyse David Ferris		
	Shih-Hui Chen	Shih-Hui Chen David E. Kirk		
	James Dunham	Т	homas LeGrand	
	Paul V. H. Ellison	P	Peter V. Loewen	
	Norman Fischer	P	Paula Page	
	Charles Geyer	J	anet Rarick	
	Kenneth Goldsmith	В	Brinton Averil Smith	
	Arthur Gottschalk	к	Kurt Stallmann	
	Richard Hawley	N	Aatthew Strauss	
	Desmond Hoebig			
	Thomas I. Jaber	A	Assistant Professors	
	Pierre Jalbert	D	Damian Blättler	
	Benjamin C. Kamins	A	Alexandra Kieffer	
	Paul Kantor			
	Stephen King	A	Artist Teachers	
	Richard Lavenda	В	Brian Connelly	
	Cho-Liang Lin	J	oan DerHovsepian	
	Jon Kimura Parker	D	Debra Dickinson	
	Timothy Pitts	S	Susan Dunn	
	Larry Rachleff	J	eanne Kierman Fischer	
	Robert Roux	C	Christopher French	
	Julie Simson	E	Eric Halen	
	lvo-Jan van der Werff	J	erry Hou	
	William VerMeulen	S	Sohyoung Park	
	Michael Webster	В	Bethany Self	
	Kathleen Winkler	C	C. Dean Shank Jr.	
		К	Karen Roethlisberger Verm	
		V	/irginia Weckstrom	
		1	ecturers	
			George C. Baker	
			Deolye C. Dakei	

Rachel Buchman Mary Greitzer Robert Simpson

Cornelia Watkins Chapman Welch

Adjunct Professors C. Richard Stasney

Programs (Undergraduate): BA degree, BMus degree

Programs (Graduate): MMus degree, AD, DMA degree

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 five-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 in 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, orchestral conducting, musicology, and performance; and a post-master's Artist Diploma (ARTM) in orchestral conducting and performance; and a DMA degree in composition and selected areas of performance.

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Web Services

University Calendar

Maps-Directions

Feedback

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

Music

2016-2017 > Programs of Study > Music >

۱.	Under	graduate	Students
----	-------	----------	----------

RICE

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

The Shepherd School of Music

Department Info

Undergraduate	Graduate	Course
Requirements	Requirements	Listings

Program Learning Outcomes for the BA Degree with a Major in Music

Upon completing the BA degree, students majoring in Music will be able to:

- 1. Demonstrate an intermediate level of technical and musical competence in performance.
- 2. Possess rudimentary skills in music theory and an understanding of how those skills are related to music performance.
- 3. Acquire a fundamental understanding and appreciation of the various historical periods of music literature.

Program Learning Outcomes for the BMus Degree

Upon completing the BMus degree, students will be able to:

- 1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
- 2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
- 3. Acquire a fundamental understanding of the relationship between music history and music performance.
- 4. Develop superior technical collaborative skills in the student's major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

For MMus program learning outcomes, please see Graduate Requirements tab.

Requirements for the BA Degree with a Major in Music

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Music must complete:

A minimum of 120 credit hours to satisfy degree requirements.

CORE REQUIREMENTS

All students must complete a total of (37 credit hours) as listed below to satisfy their major's Core Requirements.

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 2 courses (4 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 4 semesters from each of the following two requirements:

- MUSI (300 or 400-level) Individual Instrumental or Vocal Study
- MUSI 335 Rice Chorale
 - or MUSI 337 Undergraduate Orchestra

Requirements for the BMus Degree in Music

For general university requirements, see Graduation Requirements. Students pursuing the BMus degree must complete:

- A minimum of 120 credit hours to satisfy degree requirements.
- The requirements for one major offered by the BMus degree program (majors listed below).

The Bachelor of Music degree program (BMus) offers the following majors (click on major name to jump to major requirements):

- Bassoon Performance (MBSN)
- Cello Performance (MCEL)
- Clarinet Performance (MCLR)
- Composition (MCMP)
- Double Bass Performance (MDBS)
- Flute Performance (MFLT)
- Harp Performance (MHRP)
- Horn Performance (MHRN)
- Music History (MHIS)
- Oboe Performance (MOBO)
- Organ Performance (MORG)
- Percussion Performance (MPER)
- Piano Performance (MPIA)
- Music Theory (MTHE)
- Trombone Performance (MTRB)
- Trumpet Performance (MTRP)
- Tuba Performance (MTUB)
- Viola Performance (MVLA)
- Violin Performance (MVLN)
- Vocal Performance (MVOC)

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.

Requirements for the BMUS Degree with a Major in Bassoon Performance

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II

- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 4 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 457 Bassoon for Majors [minimum 8 semesters]
- MUSI 337 Undergraduate Orchestra [minimum 8 semesters]
- MUSI 338 Chamber Music [minimum 4 semesters]
- MUSI 339 Undergraduate Orchestral Repertoire [minimum 4 semesters]

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Bassoon Performance must complete and pass the Piano Proficiency Exam.

Recommended

It is recommended, though not required, for students to complete MUSI 723 Aesthetics in Music

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Cello Performance

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

1 Theory I

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 4 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 495 Violoncello for Majors [minimum 8 semesters]
- MUSI 337 Undergraduate Orchestra [minimum 8 semesters]
- MUSI 338 Chamber Music [minimum 6 semesters]
- MUSI 339 Undergraduate Orchestral Repertoire [minimum 3 semesters]

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Cello Performance must complete and pass the Piano Proficiency Exam.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Clarinet Performance

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Barogue and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 4 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 455 Clarinet for Majors [minimum 8 semesters]
- MUSI 337 Undergraduate Orchestra [minimum 8 semesters]
- MUSI 338 Chamber Music [minimum 4 semesters]
- MUSI 339 Undergraduate Orchestral Repertoire [minimum 4 semesters]

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Clarinet Performance must complete and pass the Piano Proficiency Exam.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Composition

MUSIC THEORY

Students must complete 7 courses as listed in the following:

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical III
- MUSI 312 Theoretical Studies IV
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- Plus 1 of the following:
- MUSI 416 Orchestration
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses:

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses:

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque & Early Classical
- MUSI 322 Classical and Romantic Eras
- MUSI 431 The Modern Era

COMPOSITION

Students must complete the following 2 courses as listed below:

- MUSI 401 Composition for Majors [minimum of 8 semesters]
- MUSI 303 Undergraduate Composition Seminar [minimum of 8 semesters]

PIANO STUDY/PIANO PROFICIENCY

Students must enroll in MUSI 281 Secondary Piano until the piano proficiency exam is passed, and then enroll in MUSI 381 Concentration Piano to complete a minimum of 8 semesters of piano study.

UNDERGRADUATE CHORUS OR ORCHESTRA

Students must complete a minimum of 5 semesters from 1 of the following:

- MUSI 335 Rice Chorale
- MUSI 337 Undergraduate Orchestra

SENIOR RECITAL

Students must complete MUSI 441 Senior Recital.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Double Bass Performance

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

Students must complete 4 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 497 Double Bass for Majors [minimum 8 semesters]
- MUSI 337 Undergraduate Orchestra [minimum 8 semesters]
- MUSI 338 Chamber Music [minimum 4 semesters]
- MUSI 339 Undergraduate Orchestral Repertoire [minimum 4 semesters]

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Double Bass Performance must complete and pass the Piano Proficiency Exam.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Flute Performance

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 4 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 451 Flute for Majors [minimum 8 semesters]
- MUSI 337 Undergraduate Orchestra [minimum 8 semesters]

MUSI 339 Undergraduate Orchestral Repertoire [minimum 4 semesters]

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Flute Performance must complete and pass the Piano Proficiency Exam.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Harp Performance

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 2 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 487 Harp for Majors [minimum 8 semesters]
- MUSI 337 Undergraduate Orchestra [minimum 8 semesters]

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Harp Performance must complete and pass the Piano Proficiency Exam.

Recommended

It is recommended, though not required, that students complete FREN 141 *First Year French I* and/or MUSI 338 *Chamber Music* in addition to the requirements listed above.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Horn Performance

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 3 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 461 Horn for Majors [minimum 8 semesters]
- MUSI 337 Undergraduate Orchestra [minimum 8 semesters]
- MUSI 338 Chamber Music [minimum 4 semesters]

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Horn Performance must complete and pass the Piano Proficiency Exam.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Music History

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INSTRUMENTAL OR VOCAL STUDY

Students must complete a minimum of 6 semesters from the *Concentration, Concentration Intensive, or Instrument for Majors* courses (between MUSI 351 and MUSI 397 or MUSI 451 and MUSI 497).

UNDERGRADUATE CHORUS OR ORCHESTRA

Students must complete a minimum of 5 semesters from 1 of the following:

- MUSI 335 Rice Chorale
- MUSI 337 Undergraduate Orchestra

FOREIGN LANGUAGE

Students must complete one year of a foreign language by completing course numbers 141 and 142 from language course offerings or equivalency as determined by university exam. German (GERM) is highly recommended.

ADVANCED MUSICOLOGY COURSES/SEMINARS

Students must complete 3 courses from Advance Musicology courses/seminars and either 1 additional advanced musicology course or 1 advanced theory course.

Advanced Musicology Courses

- MUSI 422 Renaissance Music (Recommended)
- MUSI 429/MDEM 429 Music of the Middle Ages (Recommended)
- MUSI 523 Bibliography and Research Methods
- MUSI 524 American Music
- MUSI 525 Performance Practices Seminar
- MUSI 526/SWGS 440 Women in Music

- MUSI 527 Topics in Early Music
- MUSI 528 Topics in 17th and 18th Centuries
- MUSI 529 Topics in 19th and 20th Centuries
- MUSI 551 Music of Richard Strauss
- MUSI 552 Words and Music
- MUSI 622 Early Opera
- MUSI 623 J.S. Bach: Career, Works and Critical Reception
- MUSI 624 Seminar on a Selected Composer
- MUSI 625 Mozart Operas
- MUSI 626 The Classical Style
- MUSI 627 Romantic Songs & Piano Pieces

Advanced Theory Courses

- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 514 Score Reading and Theory at the Keyboard
- MUSI 517 Early Modern Masters
- MUSI 613 Tonal Counterpoint
- MUSI 614 Special Topics in Music Theory and Music Theory Composition
- MUSI 615 Music of Ravel: Music Theory and Composition
- MUSI 617 Music Since 1950
- MUSI 711 Analytical Approaches
- MUSI 712 Seminar in Advanced Analysis
- MUSI 713 Special Topics in Advanced Analysis
- MUSI 723 Aesthetics of Music

SENIOR THESIS

Students must complete 2 semesters (3 credit hours each semester) of MUSI 449 Senior Thesis.

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Music History must complete and pass the Piano Proficiency Exam.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Oboe Performance

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 4 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 453 Oboe for Majors [minimum 8 semesters]
- MUSI 337 Undergraduate Orchestra [minimum 8 semesters]
- MUSI 338 Chamber Music [minimum 4 semesters]
- MUSI 339 Undergraduate Orchestral Repertoire [minimum of 4 semesters]

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Oboe Performance must complete and pass the Piano Proficiency Exam.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Organ Performance

MUSIC THEORY

Students must complete the following 5 courses (15 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 4 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 483 Organ for Majors [minimum 8 semesters]
- MUSI 335 Rice Chorale [minimum 6 semesters]

MUSI 285 Secondary Harpsichord [minimum 1 semester]

ADDITIONAL COURSES FOR ORGAN MAJORS

Students must complete the following 4 courses (8 credit hours):

- MUSI 545 Liturgical Organ Playing
- MUSI 546 Accompanying at the Organ
- MUSI 445 Keyboard Harmony and Figured Bass I
- MUSI 446 Keyboard Harmony and Figured Bass II

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Percussion Performance

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 3 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 471 Percussion for Majors [minimum 8 semesters]
- MUSI 337 Undergraduate Orchestra [minimum 8 semesters]
- MUSI 338 Chamber Music [minimum 8 semesters]

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Percussion Performance must complete and pass the Piano Proficiency Exam.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Piano Performance

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 3 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 481 Piano for Majors [minimum 8 semesters]
- MUSI 335 Rice Chorale [minimum 8 semesters]
- MUSI 338 Chamber Music [minimum 2 semesters]

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Music Theory

MUSIC THEORY

Students must complete the following 8 courses (24 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV
- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

MUSIC ACADEMIC ELECTIVE

Student must complete 1 additional academic course (3 credit hours).

UNDERGRADUATE CHORUS OR ORCHESTRA

Students must complete a minimum of 5 semesters from 1 of the following:

- MUSI 335 Rice Chorale
- MUSI 337 Undergraduate Orchestra

PIANO STUDY

Students must complete a minimum of 4 semesters of MUSI 381 Concentration Piano.

SENIOR PROJECT

Students must complete 2 semesters (3 credit hours each semester) of MUSI 449 Senior Project.

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Music Theory must complete and pass the Piano Proficiency Exam.

Recommended

It is recommended, though not required, that students complete MUSI 338 Chamber Music, in addition to the requirements listed above.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Trombone Performance

MUSIC THEORY Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 3 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 465 Trombone for Majors [minimum 8 semesters]
- MUSI 337 Undergraduate Orchestra [minimum 8 semesters]
- MUSI 338 Chamber Music [minimum 4 semesters]

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Trombone Performance must complete and pass the Piano Proficiency Exam.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Trumpet Performance

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 3 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 463 Trumpet for Majors [minimum 8 semesters]
- MUSI 337 Undergraduate Orchestra [minimum 8 semesters]
- MUSI 338 Chamber Music [minimum 4 semesters]

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Trumpet Performance must complete and pass the Piano Proficiency Exam.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Tuba Performance

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 3 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 467 Tuba for Majors [minimum 8 semesters]
- MUSI 337 Undergraduate Orchestra [minimum 8 semesters]
- MUSI 338 Chamber Music [minimum 4 semesters]

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Tuba Performance must complete and pass the Piano Proficiency Exam.

Recommended

It is recommended, though not required, that students complete MUSI 305 *Composition Elective* and MUSI 403 *Basic Electronic Music,* in addition to the requirements listed above.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Viola Performance

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 3 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 493 Viola for Majors [minimum 8 semesters]
- MUSI 337 Undergraduate Orchestra [minimum 8 semesters]
- MUSI 338 Chamber Music [minimum 6 semesters]

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Viola Performance must complete and pass the Piano Proficiency Exam.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Violin Performance

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 3 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 491 Violin for Majors [minimum 8 semesters]
- MUSI 337 Undergraduate Orchestra [minimum 8 semesters]
- MUSI 338 Chamber Music [minimum 6 semesters]

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Violin Performance must complete and pass the Piano Proficiency Exam.

Back to Graduation Requirements

Back to menu

Requirements for the BMUS Degree with a Major in Vocal Performance

MUSIC THEORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 211 Theory I
- MUSI 212 Theory II
- MUSI 311 Theoretical Studies III
- MUSI 312 Theoretical Studies IV

MUSIC THEORY ELECTIVE

Students must complete 1 course (3 credit hours) from the following:

- MUSI 416 Orchestration
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint
- MUSI 613 Tonal Counterpoint

AURAL SKILLS AND PERFORMANCE TECHNIQUES

Students must complete the following 5 courses (10 credit hours):

- MUSI 231 Aural Skills and Performance Technique I
- MUSI 232 Aural Skills and Performance Technique II
- MUSI 331 Aural Skills and Performance Techniques III
- MUSI 332 Aural Skills and Performance Techniques IV
- MUSI 431 Aural Skills and Performance Techniques V

MUSIC HISTORY

Students must complete the following 4 courses (12 credit hours):

- MUSI 222/MDEM 222 Medieval and Renaissance Eras
- MUSI 321 Baroque and Early Classical Eras
- MUSI 322 Classical and Romantic Eras
- MUSI 421 The Modern Era

INDIVIDUAL AND ENSEMBLE STUDY

Students must complete 4 courses as listed below. Note that the minimum number of semesters required for each course is listed next to the course.

- MUSI 473 Voice for Majors [minimum 8 semesters]
- MUSI 335 Rice Chorale [minimum 8 semesters]

DICTION

Students must complete the following 4 courses (12 credit hours):

- MUSI 573 Italian Diction
- MUSI 574 German Diction
- MUSI 577 English Diction
- MUSI 578 French Diction

VOCAL REPERTOIRE

Students must complete the following 2 courses (4 credit hours):

- MUSI 575 Vocal Repertoire I
- MUSI 576 Vocal Repertoire II

FOREIGN LANGUAGE

Students must complete the following 3 courses (9 credit hours):

- FREN 141 First Year French I
- GERM 141 First Year German I
- ITAL 141 First Year Italian I

Students must also complete 1 additional course (3 credit hours) from the following:

- FREN 142 First Year French II
- GERM 142 First Year German II
- ITAL 142 First Year Italian II

RECITALS

Students must complete the following 2 courses (0 credit hours):

- MUSI 341 Junior Recital
- MUSI 441 Senior Recital

PIANO PROFICIENCY EXAM

All students pursuing the BMUS degree in Vocal Performance must complete and pass the Piano Proficiency Exam.

Back to Graduation Requirements

Back to menu

Examinations

At the end of each semester, a jury examination in applied music may be 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 two 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.

Admission

An audition, in person, is required of each undergraduate applicant. A recorded audition may be considered in lieu of a live audition in extreme circumstances. 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, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce

BMus/MMus Honors Program

The same general university requirements apply, but students seeking the coordinated BMus/MMus degrees must complete a total of at least 150 semester hours by graduation. The number of required hours varies according to major area.

The first five 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*.

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—A minimum grade of "B-" is expected of all music students in their major applied area. A grade of "C+" or lower is considered unsatisfactory and will be evaluated in the following manner:

A music major who receives a grade of "C+" or lower in their major applied area will be placed on music probation. Music probation signifies that the student's work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.

If a student receives a second semester of "C+" or lower in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a BMUS major and merit scholarship from the Shepherd School will be discontinued.

NOTE: For music history and musicology majors a grade of "C+" or lower in any music history course is considered unsatisfactory and will be evaluated as above.

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 first 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 117/118 Fundamentals of Music I and II
- MUSI 141–197 for individual instruction in all instruments
- 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 340 Rice Symphonic Band
- MUSI 342 Rice Jazz Ensemble
- MUSI 345 Applied Studies in Jazz
- 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, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, 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.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate Music degrees and majors. The following is a quick reference:

Course Catalog/Schedule:

- Course offerings/subject code:	MUSI
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Department Code and Description:

- Music: MUSI

- Degree Code and Description:
- Bachelor of Arts Degrees: BA
- Bachelor of Music Degrees: BMUS

Major Codes and Description:

- Major in Music (attached to the BA Degree): MUSI
- For major codes attached to the BMUS Degree, see list referenced in the BMUS Degree Requirements section above.

Last Revised : August 12, 2016

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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650 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Music >

RICE

Undergraduate Students	Musi	C				
► Graduate Students	The Sh	epherd School of	Music			
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings	
▶ Faculty	Drogr		-			
Programs of Study		Program Learning Outcomes for the Master of Music Degree (MMUS) Upon completing the MMus degree program in Music, students will be able to:				
Administration and Faculty	1. De	monstrate technical and m	usical competence in perforn	nance, composition, or historio	al scholarship at a professio	nal
Important Notices	 Demonstrate technical and musical competence in performance, composition, or historical scholarship level. Develop advanced analytical skills in music theory and a deep understanding of how those skills inforr performance. Demonstrate a thorough understanding of the relationship between music history and music performance Develop career development skills that complement their professional-level performance skills. Demonstrate technical and musical competence in performance, composition, or historical scholarship level. 					
	Progr	am Learning Outo	omes for the Artist	t Diploma (AD)		
	Upon co	mpleting the Artist Diploma	program, students will be at	ble to:		
		monstrate the technical ma osen area of performance.	astery and musical expertise	requisite to having a significar	nt professional career in their	
		, ,	tic differences when performine to apply them in performant to apply them in performant to the second s	ing music of the Baroque, Cla nce.	ssical, Romantic, modern and	b
		cumulate a significantly exp equipped with multiple ext	banded and diverse list of rep ra-musical career skills.	pertoire.		
	Progr	am Learning Outo	omes for the Docto	or of Musical Arts D	egree (DMA)	
	Upon co	mpleting the DMA degree p	program in Music, students w	vill be able to:		
				nance or composition at a pro isic theory and a profound und		s

- 3. Demonstrate a thorough understanding of the relationship between music history and music performance with greater familiarity of a wide variety of historical and contemporary performance practices.
- 4. Develop career development skills that complement their professional-level performance skills.
- 5. Develop working knowledge of and have experience with both classroom teaching and studio teaching methods at the conservatory and university levels.

Requirements for the MMus Degree, Artist Diploma, and DMA Degree in Music

Jump-to:

Artist Diploma Doctor of Musical Arts

inform music performance.

Requirements for the MMus Degree in Music

For general university requirements, see Graduate Degrees. Students pursuing the MMus degree program in Music must complete:

A minimum of 44-51 credit hours depending on major to satisfy degree requirements.

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. Deficiencies in these areas will result in remedial coursework being added to a student's degree plan. Master of Music students in Organ Performance, Piano Performance, and Piano Chamber Music and Accompanying do not have to demonstrate piano proficiency.

The MMus degree program offers the following majors (click on major name to go directly to requirements):

- Bassoon Performance (MBSN)
- Cello Performance (MCEL)
- Clarinet Performance (MCLR)
- Composition (MCMP)
- Double Bass Performance (MDBS)
- Flute Performance (MFLT)
- Harp Performance (MHRP)
- Horn Performance (MHRN)
- Musicology (MMUC)
- Oboe Performance (MOBO)
- Orchestral Conducting (MOCO)
- Organ Performance (MORG)
- Percussion Performance (MPER)
- Piano Performance (MPIA)
- Piano Chamber Music and Accompanying (MPCM)
- String Quartet (MSQT)
- Trombone Performance (MTRB)
- Trumpet Performance (MTRP)
- Tuba Performance (MTUB)
- Viola Performance (MVLA)
- Violin Performance (MVLN)
- Vocal Performance (MVOC)

Requirements for the MMUS DEGREE with a Major in Bassoon Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 6 courses:

- MUSI 656 Advanced Bassoon for Majors [3 credit hours, minimum of 4 semesters]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 4 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, minimum of 4 semesters]
- MUSI 531 Graduate Orchestral Repertoire [<u>1 credit hour, minimum of 4 semesters</u>]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [0 credit]
 - or MUSI 631 Mock Audition [0 credit]

ACADEMIC COURSEWORK

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree with a Major in Cello Performance

PERFORMANCE REQUIREMENTS

- MUSI 695 Advanced Cello for Majors [<u>3 credit hours, minimum of 4 semesters</u>]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 4 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, minimum of 4 semesters]
- MUSI 531 Graduate Orchestral Repertoire [<u>1 credit hour, minimum of 4 semesters</u>]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [<u>0 credit</u>] or MUSI 631 Mock Audition [<u>0 credit</u>]

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree with a Major in Clarinet Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 6 courses:

- MUSI 655 Advanced Clarinet for Majors [3 credit hours, minimum of 4 semesters]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 4 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, minimum of 4 semesters]
- MUSI 531 Graduate Orchestral Repertoire [1 credit hour, minimum of 4 semesters]
- MUSI 641 Master's Recital / [0 credit]
- MUSI 741 Master's Recital II [<u>0 credit</u>] or MUSI 631 Mock Audition [<u>0 credit</u>]

ACADEMIC COURSEWORK

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree with a Major in Composition

MAJOR REQUIREMENTS

Students must complete the following 11 courses:

- MUSI 601 Composition for Majors Advanced and Graduates [3 credit hours, minimum of 4 semesters]
- MUSI 603 Graduate Composition Seminar [<u>1 credit hour, minimum of 4 semesters</u>]
- MUSI 512 Analytical Systems
- MUSI 513 Modal Counterpoint or MUSI 613 Tonal Counterpoint
- MUSI 516 Advanced Orchestration
- MUSI 517 Early Modern Masters
- MUSI 617 Music Since 1950

- MUSI 403 Basic Electronic Music*
 - or MUSI 606 Advanced Computer Sound Synthesis*
- MUSI 404 Electronic Music Composition or MUSI 606 Advanced Computer Sound Synthesis
- MUSI 641 Master's Recital I
- MUSI 647 Master's Thesis [3 credit hours, minimum of 1 semester] The thesis must be publicly defended.

*Courses chosen following faculty advisement.

OTHER REQUIREMENTS

- Electives (6 credit hours)
- Performance, which may be satisfied by any combination of private instrumental or vocal study classes in conducting or score reading, or performance ensembles or chamber music. Piano lessons are strongly recommended until proficiency is proven and will count towards the performance requirement (2 semesters).

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree with a Major in Double Bass Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 7 courses:

- MUSI 697 Advanced Double Bass for Majors [<u>3 credit hours, minimum of 4 semesters</u>]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 4 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, minimum of 2 semesters]
- MUSI 531 Graduate Orchestral Repertoire [1 credit hour, minimum of 4 semesters]
- MUSI 599 String Pedagogy [2 credit hours, minimum of 1 semester]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [<u>0 credit</u>] or MUSI 631 Mock Audition [<u>0 credit</u>]

ACADEMIC COURSEWORK

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree with a Major in Flute Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 6 courses:

- MUSI 651 Advanced Flute for Majors [<u>3 credit hours, minimum of 4 semesters</u>]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 4 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, minimum of 4 semesters]
- MUSI 531 Graduate Orchestral Repertoire [1 credit hour, minimum of 4 semesters]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [0 credit]

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic Course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree with a Major in Harp Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 6 courses:

- MUSI 687 Advanced Harp for Majors [<u>3 credit hours, minimum of 4 semesters</u>]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 4 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, minimum of 4 semesters]
- MUSI 531 Graduate Orchestral Repertoire [1 credit hour, minimum of 4 semesters]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [<u>0 credit</u>] or MUSI 631 Mock Audition [<u>0 credit</u>]

ACADEMIC COURSEWORK

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree with a Major in Horn Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 6 courses:

- MUSI 661 Advanced Horn for Majors [3 credit hours, minimum of 4 semesters]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 4 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, minimum of 4 semesters]
- MUSI 531 Graduate Orchestral Repertoire [1 credit hour, minimum of 4 semesters]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [0 credit]
 - or MUSI 631 Mock Audition [0 credit]

ACADEMIC COURSEWORK

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree with a Major in Musicology

MUSICOLOGY OR MUSIC THEORY

Students must complete the following 10 courses:

- MUSI 422 Renaissance Music
 - or MUSI 429/MDEM 429 Music of the Middle Ages
- MUSI 512 Analytical Systems (or approved graduate music theory course)
- MUSI 647 Master's Thesis [3 credit hours, minimum of 2 semesters] Students must publicly defend their thesis once completed.
- 7 Advanced Musicology Seminars (21 credit hours)

ELECTIVES

Students must complete 15 credit hours of electives. Elective options may include additional graduate-level musicology courses and music theory courses, foreign language, courses in conducting or score reading, Collegium, and performance lessons, but MAY NOT INCLUDE MUSI 281 Secondary Piano, MUSI 432 Graduate Aural Skills Review, MUSI 511 Graduate Theory Review, MUSI 521 Graduate Review of Music History I, MUSI 522 Graduate Review of Music History II; extra hours of required courses; undergraduate music theory and music history courses; more than 3 hours of MUSI 649 Independent Study; or any course taken pass/fail.

PERFORMANCE

Students must complete 2 semesters by any combination of private instrumental or vocal study, classes in conducting or score reading, ensembles such as Rice Chorale or Campanile Orchestra, chamber music, or Collegium.

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano
- Aural Skills
- German Language

Back to menu

Requirements for the MMUS Degree with a Major in Oboe Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 6 courses:

- MUSI 653 Advanced Oboe for Majors [<u>3 credit hours, minimum of 4 semesters</u>]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 4 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, minimum of 4 semesters]
- MUSI 531 Graduate Orchestral Repertoire [1 credit hour, minimum of 4 semesters]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [<u>0 credit</u>] or MUSI 631 Mock Audition [<u>0 credit</u>]

ACADEMIC COURSEWORK

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree with a Major in Orchestral Conducting

CONDUCTING REQUIREMENTS

Students must complete the following 3 courses:

- MUSI 637 Advanced Conducting [<u>3 credit hours, minimum of 4 semesters</u>]
- MUSI 533 Graduate Conducting Seminar [1 credit hour, minimum of 4 semesters]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 2 semesters]

PERFORMANCE TECHNIQUE COURSEWORK

Students must complete the following 5 courses:

- MUSI 475 Theory of Vocal Performance Techniques
- MUSI 531 001 Orchestral Repertoire Violin
- MUSI 531 005 Orchestral Repertoire Woodwind
- MUSI 531 006 Orchestral Repertoire Brass
- MUSI 531 007 Orchestral Repertoire Percussion

ACADEMIC COURSEWORK

Students must complete the following 3 courses:

- MUSI 512 Analytical Systems
- MUSI 514 Score Reading
- MUSI 516 Advanced Orchestration

OTHER REQUIREMENTS

Students must complete the following:

- Electives (6 credit hours)
- Concentration lessons, which are private instrument or vocal instruction (4 semesters).

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Orchestration (MUSI 416 Orchestration or equivalent)
- Piano proficiency
- Aural skills proficiency

Recitals-conducting experience with the orchestra replaces recital requirements. Recitals are optional.

Back to menu

Requirements for the MMUS Degree with a Major in Organ Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 6 courses:

- MUSI 683 Advanced Organ for Majors [3 credit hours, minimum of 4 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, minimum of 1 semester]
- MUSI 640 Rice Chorale [<u>1 credit hour, minimum of 2 semesters</u>]
- MUSI 285 Secondary Harpsichord [2 credit hours, minimum of 1 semester]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [0 credit]

DEPARTMENT SPECIFIC COURSEWORK

Students must complete the following 6 courses:

- MUSI 545 Liturgical Organ Playing [2 credit hours]
- MUSI 547 Church Music Seminar I [3 credit hours]

- MUSI 608 Improvisation at the Organ [2 credit hours, minimum of 2 semesters]
- MUSI 645 Organ Literature Before 1750 [3 credit hours]
- MUSI 646 Organ Literature Since 1750 [3 credit hours]

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiency:

Aural Skills

Back to menu

Requirements for the MMUS Degree with a Major in Percussion Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 7 courses:

- MUSI 671 Advanced Percussion for Majors [3 credit hours, minimum of 4 semesters]
- MUSI 472 General Percussion Studies [<u>1 credit hour, minimum of 4 semesters</u>]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 4 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, minimum of 4 semesters]
- MUSI 531 Graduate Orchestral Repertoire [<u>1 credit hour, minimum of 4 semesters</u>]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [<u>0 credit</u>] or MUSI 631 Mock Audition [<u>0 credit</u>]

ACADEMIC COURSEWORK

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree with a Major in Piano Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 5 courses:

- MUSI 681 Advanced Piano for Majors [<u>3 credit hours, minimum of 4 semesters</u>]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 2 semesters] or MUSI 640 Rice Chorale [1 credit hour, minimum of 2 semesters] or MUSI 642 Accompanying [1 credit hour, minimum of 2 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, minimum of 4 semesters]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [0 credit]

DEPARTMENT SPECIFIC COURSEWORK

Students must complete 4 courses as listed in the following:

- MUSI 426 Piano Literature [3 credit hours]
- MUSI 588 Piano Pedagogy [2 credit hours]
- 2 courses from the following:
- MUSI 414 Piano Chamber Music Literature [<u>3 credit hours</u>]
- MUSI 447 Introduction to Piano Technology [2 credit hours]
- MUSI 514 Score Reading and Theory at the Keyboard [<u>3 credit hours</u>]
- MUSI 619 History of the 20th Century Pianism [2 credit hours]
- MUSI 620 Historical Overview of Piano Technique [2 credit hours]

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiency:

Aural Skills

Back to menu

Requirements for the MMUS Degree with a Major in Piano Chamber Music and Accompanying

PERFORMANCE REQUIREMENTS

Students must complete the following 5 courses:

- MUSI 689 Piano Chamber Music and Accompanying [3 credit hours, minimum of 4 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, 4 semesters]
- MUSI 635 Advanced Orchestra [<u>2 credit hours, minimum of 4 semesters</u>] or MUSI 640 Rice Chorale [<u>1 credit hour, minimum of 4 semesters</u>] or MUSI 642 Accompanying [<u>1 credit hour, minimum of 4 semesters</u>]
- MUSI 641 Master's Recital [0 credit]
- MUSI 741 Master's Recital II [0 credit]

DEPARTMENT SPECIFIC COURSEWORK

Students must complete the following 5 courses:

- MUSI 414 Piano Chamber Music Literature [<u>3 credit hours</u>]
- MUSI 426 Piano Literature [<u>3 credit hours</u>]
- MUSI 514 Score Reading and Keyboard Playing [<u>3 credit hours</u>]
- MUSI 583 Instrumental Accompanying Techniques [2 credit hours]
- MUSI 584 Vocal Accompanying Techniques [<u>2 credit hours</u>]

ACADEMIC COURSEWORK

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiency:

Aural Skills

Back to menu

Requirements for the MMUS Degree with a Major in String Quartet Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 6 courses:

- Mool ooo Advanced offing Quarter [<u>o credit hours, himming in a schesters</u>]
- MUSI 690 Instrumental Coaching [<u>3 credit hours, minimum of 4 semesters</u>]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 2 semesters]
- MUSI 705 Apprenticeship (Artistic Outreach) [2 credit hours, minimum of 4 semesters]
- MUSI 742 Quartet Recitals [<u>0 credit, 3 recitals</u>]
- MUSI 741 Master's Solo Recital [<u>0 credit</u>]

Students must complete the following 3 courses:

- MUSI 405 Music Business and Law
- MUSI 407 Chamber Music in the Classical Period
- Non-remedial graduate-level Music History or Music Theory course or Independent Study in Music History/Theory

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree with a Major in Trombone Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 6 courses.

- MUSI 665 Advanced Trombone for Majors [3 credit hours, minimum of 4 semesters]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 4 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, minimum of 4 semesters]
- MUSI 531 Graduate Orchestral Repertoire [1 credit hour, minimum of 4 semesters]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [<u>0 credit</u>] or MUSI 631 Mock Audition [<u>0 credit</u>]

ACADEMIC COURSEWORK

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree with a Major in Trumpet Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 6 courses:

- MUSI 663 Advanced Trumpet for Majors [3 credit hours, minimum of 4 semesters]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 4 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, minimum of 4 semesters]
- MUSI 531 Graduate Orchestral Repertoire [1 credit hour, minimum of 4 semesters]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [0 credit] or MUSI 631 Mock Audition [0 credit]

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree with a Major in Tuba Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 6 courses:

- MUSI 667 Advanced Tuba for Majors [3 credit hours, minimum of 4 semesters]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 4 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, minimum of 4 semesters]
- MUSI 531 Graduate Orchestral Repertoire [1 credit hour, minimum of 4 semesters]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [0 credit] or MUSI 631 Mock Audition [0 credit]

ACADEMIC COURSEWORK

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree with a Major in Viola Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 6 courses.

- MUSI 693 Advanced Viola for Majors [<u>3 credit hours, minimum of 4 semesters</u>]
- MUSI 635 Advanced Orchestra [2 credit hours, minimum of 4 semesters]
- MUSI 636 Advanced Chamber Music [1 credit hour, minimum of 4 semesters]
- MUSI 531 Graduate Orchestral Repertoire [<u>1 credit hour, minimum of 4 semesters</u>]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [<u>0 credit</u>] or MUSI 631 Mock Audition [<u>0 credit</u>]

ACADEMIC COURSEWORK

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree a Major in Violin Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 6 courses:

- MUSI 691 Advanced Violin for Majors [3 credit hours, minimum of 4 semesters]
- MUSI 635 Advanced Orchestra [<u>2 credit hours, minimum of 4 semesters</u>]
- MUSI 636 Advanced Chamber Music [<u>1 credit hour, minimum of 4 semesters</u>]
- MUSI 531 Graduate Orchestral Repertoire [<u>1 credit hour, minimum of 4 semesters</u>]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [0 credit]
 - or MUSI 631 Mock Audition [0 credit]

ACADEMIC COURSEWORK

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from the Graduate Level Music Academic course offerings.
- 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) as Electives.

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the MMUS Degree with a Major in Vocal Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 10 courses:

- MUSI 673 Advanced Voice for Majors [3 credit hours, minimum of 4 semesters]
- MUSI 570 Advanced Opera Studies [<u>1 credit hour, minimum of 4 semesters</u>]
- MUSI 571 Vocal Coaching [<u>1 credit hours, minimum of 4 semesters</u>]
- MUSI 572 Graduate Opera Performance [1 credit hour, minimum of 4 semesters]
- MUSI 587 Graduate Diction for Singers [1 credit hour, minimum of 2 semesters]
- MUSI 549 Vocal Physiology [<u>2 credit hours</u>]
- MUSI 575 Vocal Repertoire I [<u>2 credit hours</u>]
- MUSI 576 Vocal Repertoire II [2 credit hours]
- MUSI 641 Master's Recital I [0 credit]
- MUSI 741 Master's Recital II [0 credit]

ACADEMIC COURSEWORK

Students must complete the following 6 courses:

- 2 courses (6 credit hours) from graduate-level music Academic course offerings.
- 2 courses (4 credit hours) from Music Career and Skills Enhancement course offerings.
- 2 courses (6 credit hours) from Electives.

ADDITIONAL COURSEWORK

Students must complete the following 4 courses (if not completed at the undergraduate level):

- FREN 141 First Year French I [3 credit hours]
- GERM 141 First Year German I [3 credit hours]
- ITAL 141 First Year Italian I [3 credit hours]

Choose 1 course from the following:

- FREN 142 First Year French II [3 credit hours]
- GERM 142 First Year German II [3 credit hours]
- ITAL 142 First Year Italian II [<u>3 credit hours</u>]

PROFICIENCIES

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Back to menu

Requirements for the Artist Diploma in Performance

For general university requirements, see Graduate Degrees. Students pursuing the Artist Diploma in Performance must complete:

• A minimum of 41 credit hours to satisfy degree requirements.

The Artist Diploma program offers the following majors:

- Bassoon Performance (MBSN)
- Cello Performance (MCEL)
- Clarinet Performance (MCLR)
- Double Bass Performance (MDBS)
- Flute Performance (MFLT)
- Harp Performance (MHRP)
- Horn Performance (MHRN)
- Oboe Performance (MOBO)
- Orchestral Performance (MOCO)
- Opera Performance (MOPR)
- Organ Performance (MORG)
- Percussion Performance (MPER)
- Piano Performance (MPIA)
- Trombone Performance (MTRB)
- Trumpet Performance (MTRP)
- Tuba Performance (MTUB)
- Viola Performance (MVLA)
- Violin Performance (MVLN)

PROGRAM REQUIREMENTS

Students must complete the following 5 courses:

- MUSI 760 Individual & Committee Instruction [4 credit hours, minimum of 4 semesters]
- MUSI 761 Recitals* [<u>0 credit hours, two total recitals</u>]
- MUSI 762 Artist Diploma Seminar [<u>3 credit hours, 1 semester</u>]
- MUSI 763 Special Projects [<u>3 credit hours, minimum of 2 semesters</u>]
- MUSI 764 Performance [<u>3 credit hours, minimum of 4 semesters</u>]

*Recitals-students in the Artist Diploma in Opera Performance program are not required to present recitals.

ACADEMIC COURSEWORK

Students must complete 2 2-credit hour courses from the Music Career and Skills Enhancement courses.

Back to menu

Requirements for the Doctor of Musical Arts Degree

For general university requirements, see Graduate Degrees. Students pursuing the DMA degree program must complete:

The DMA degree program offers the following majors (click on major name to go directly to the requirements):

- Cello Performance (MCEL)
- Clarinet Performance (MCLR)
- Composition (MCMP)
- Double Bass Performance (MDBS)
- Flute Performance (MFLT)
- Oboe Performance (MOBO)
- Organ Performance (MORG)
- Percussion Performance (MPER)
- Piano Performance (MPIA)
- Viola Performance (MVLA)
- Violin Performanc (MVLN)
- Vocal Performance (MVOC)

Back to menu

Requirements for the DMA Degree Program in Cello Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 32 credit hours:

- MUSI 695 Advanced Violoncello for Majors [minimum of 8 semesters, 6 taken as a DMA student]
- MUSI 635 Advanced Orchestra [minimum of 4 semesters taken while a DMA student]
- MUSI 751 Recitals [<u>5 performed while a DMA student</u>]
 - Two Solo
 - One Lecture
 - One Chamber Music
 - One Concerto with orchestra

DEGREE SPECIFIC REQUIREMENTS

Students must complete 2 credit hours of MUSI 492 String Technology.

DMA CORE REQUIREMENTS

Students must complete the following 21 credit hours:

- MUSI 611 Classroom Pedagogy
- MUSI 711 Analytic Techniques
- MUSI 733 Doctoral Seminar I: Career Skills
- MUSI 735 Doctoral Seminar II: Repertory
- MUSI 736 Solo Repertory for Doctoral Students
- MUSI 738 Individual Project
- MUSI 739 Pedagogy for Doctoral Students

ACADEMIC COURSEWORK

Students must complete the following 18 credit hours:

- Music History (12 credit hours)
- Music Theory (6 credit hours)

ELECTIVES

Students must complete 11 credit hours at the 300-level or above. Graduate academic courses taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required coursework may not count toward the elective requirement. However, up to three (3) credit hours of MUSI 649 *Graduate Independent Study* will count towards degree requirements.

CLASSROOM TEACHING

Students must complete the Classroom Teaching requirement.

EXAMINATIONS

Students must demonstrate the following proficiencies:

Piano proficiency

- Aural skills proficiency
- Written and oral qualifying examinations
- Reading competency in French, German, or Italian

DOCTORAL DOCUMENT

Students must complete 2 semesters of MUSI 750 *Doctoral Document* (6 credit hours total). The document must be publicly defended.

Back to menu

Requirements for the DMA Degree Program in Clarinet Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 32 credit hours:

- MUSI 655 Advanced Clarinet for Majors [minimum of 8 semesters, 6 taken as a DMA student]
- MUSI 635 Advanced Orchestra [minimum of 4 semesters taken while a DMA student]
- MUSI 751 Recitals [4 performed while a DMA student in any of the following combinations]
 - 3 solo and 1 lecture
 - 2 solo, 1 lecture, 1 mock audition

DMA CORE REQUIREMENTS

Students must complete the following 21 credit hours:

- MUSI 611 Classroom Pedagogy
- MUSI 711 Analytic Techniques
- MUSI 733 Doctoral Seminar I: Career Skills
- MUSI 735 Doctoral Seminar II: Repertory
- MUSI 736 Solo Repertory for Doctoral Students
- MUSI 738 Individual Project
- MUSI 739 Cello Pedagogy for Doctoral Students

ACADEMIC COURSEWORK

Students must complete the following 18 credit hours:

- Music History (12 credit hours)
- Music Theory (6 credit hours)

ELECTIVES

Students must complete 13 credit hours at the 300-level or above. Graduate academic courses taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required coursework may not count toward the elective requirement. However, up to three (3) credit hours of MUSI 649 *Graduate Independent Study* will count towards degree requirements.

CLASSROOM TEACHING

Students must complete the Classroom Teaching requirement.

EXAMINATIONS

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency
- Written and oral qualifying examinations
- Reading competency in French, German, or Italian

DOCTORAL DOCUMENT

Students must complete 2 semesters of MUSI 750 *Doctoral Document* (6 credit hours total). The document must be publicly defended.

Back to menu

Requirements for the DMA Degree Program in Composition

COMPOSITION REQUIREMENTS

Students must complete the following 30 credit hours:

- MUSI 603 Graduate Composition Seminar [6 semesters]
- MUSI 605 Advanced Electronic and Computer Music
- MUSI 606 Advanced Computer Sound Synthesis
- MUSI 751 Recitals of Original Compositions [2 total]

PERFORMANCE REQUIREMENTS

Students must complete 8 credit hours in Performance coursework. Performance hours may be satisfied by any combination of private instrumental or vocal study, classes in conducting or score reading, or performance in ensembles or chamber music. Piano lessons are strongly recommended.

DMA CORE REQUIREMENTS

Students must complete the following 15 credit hours:

- MUSI 611 Classroom Pedagogy
- MUSI 711 Analytic Techniques
- MUSI 733 Doctoral Seminar I: Career Skills
- MUSI 735 Doctoral Seminar II: Repertory
- MUSI 738 Individual Project

ACADEMIC COURSEWORK

Students must complete the following 30 credit hours:

- Music History (18 credit hours)
- Music Theory (12 credit hours)

ELECTIVES

Students must complete 7 credit hours at the 300-level or above. Graduate academic courses taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required coursework may not count toward the elective requirement. However, up to three (3) credit hours of MUSI 649 *Graduate Independent Study* will count towards degree requirements.

CLASSROOM TEACHING

Students must complete the Classroom Teaching requirement.

EXAMINATIONS

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency
- Written and oral qualifying examinations
- Reading competency in French, German, or Italian

DOCTORAL DOCUMENT

Students must complete 2 semesters of MUSI 800 *Doctoral Dissertation* (6 credit hours total). Students are required to submit an original composition of substantial dimensions. The dissertation must be publicly defended.

Back to menu

Requirements for the DMA Degree Program in Double Bass Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 32 credit hours:

- MUSI 697 Advanced Double Bass for Majors [minimum of 8 semesters, 6 taken as a DMA student]
- MUSI 635 Advanced Orchestra [minimum of 4 semesters taken while a DMA student]
- MUSI 751 Recitals [<u>4 performed while a DMA student</u>]
 - Two Solo
 - One Lecture
 - One Chamber Music
 - One Concerto with Orchestra

Students must complete 2 credit hours of MUSI 492 String Technology

DMA CORE REQUIREMENTS

Students must complete the following 21 credit hours:

- MUSI 611 Classroom Pedagogy
- MUSI 711 Analytic Techniques
- MUSI 733 Doctoral Seminar I: Career Skills
- MUSI 735 Doctoral Seminar II: Repertory
- MUSI 736 Solo Repertory for Doctoral Students
- MUSI 738 Individual Project
- MUSI 739 Pedagogy for Doctoral Students

ACADEMIC COURSEWORK

Students must complete the following 18 credit hours:

- Music History (12 credit hours)
- Music Theory (6 credit hours)

ELECTIVES

Students must complete 11 credit hours at the 300-level or above. Graduate academic courses taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required coursework may not count toward the elective requirement. However, up to three (3) credit hours of MUSI 649 *Graduate Independent Study* will count towards degree requirements.

CLASSROOM TEACHING

Students must complete the Classroom Teaching requirement.

EXAMINATIONS

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency
- Written and oral qualifying examinations
- Reading competency in French, German, or Italian

DOCTORAL DOCUMENT

Students must complete 2 semesters of MUSI 750 *Doctoral Document* (6 credit hours total). Students must also defend the document once completed. The document must be publicly defended.

Back to menu

Requirements for the DMA Degree Program in Flute Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 32 credit hours:

- MUSI 651 Advanced Flute for Majors [minimum of 8 semesters, 6 taken as a DMA student]
- MUSI 635 Advanced Orchestra [minimum of 4 semesters taken while a DMA student]
- MUSI 751 Recitals [4 performed while a DMA student in any of the following combinations]
 - 3 solo and 1 lecture
 - 2 solo, 1 lecture, 1 mock audition

DMA CORE REQUIREMENTS

Students must complete the following 21 credit hours:

- MUSI 611 Classroom Pedagogy
- MUSI 711 Analytic Techniques
- MUSI 733 Doctoral Seminar I: Career Skills
- MUSI 735 Doctoral Seminar II: Repertory
- MUSI 736 Solo Repertory for Doctoral Students
- MUSI 738 Individual Project
 - Pedagogy for Doctoral Students

Students must complete the following 18 credit hours:

- Music History (12 credit hours)
- Music Theory (6 credit hours)

ELECTIVES

Students must complete 13 credit hours at the 300-level or above. Graduate academic courses taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required coursework may not count toward the elective requirement. However, up to three (3) credit hours of MUSI 649 *Graduate Independent Study* will count towards degree requirements.

CLASSROOM TEACHING

Students must complete the Classroom Teaching requirement.

EXAMINATIONS

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency
- Written and oral gualifying examinations
- Reading competency in French, German, or Italian

DOCTORAL DOCUMENT

Students must complete 2 semesters of MUSI 750 *Doctoral Document* (6 credit hours total). The document must be publicly defended.

Back to menu

Requirements for the DMA Degree Program in Oboe Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 32 credit hours:

- MUSI 653 Advanced Oboe for Majors [minimum of 8 semesters, 6 taken as a DMA student]
- MUSI 635 Advanced Orchestra [minimum of 4 semesters taken while a DMA student]
- MUSI 751 Recitals [4_performed while a DMA student]
 - 2 solo
 - 1 lecture
 - 1 mock audition

DEGREE SPECIFIC REQUIREMENTS

Students must complete 2 credit hours of MUSI 454 Oboe Technology

DMA CORE REQUIREMENTS

Students must complete the following 21 credit hours:

- MUSI 611 Classroom Pedagogy
- MUSI 711 Analytic Techniques
- MUSI 733 Doctoral Seminar I: Career Skills
- MUSI 735 Doctoral Seminar II: Repertory
- MUSI 736 Solo Repertory for Doctoral Students
- MUSI 738 Individual Project
- MUSI 739 Pedagogy for Doctoral Students

ACADEMIC COURSEWORK

Students must complete the following 18 credit hours:

- Music History (12 credit hours)
- Music Theory (6 credit hours)

ELECTIVES

Students must complete 11 credit hours at the 300-level or above. Graduate academic courses taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required coursework may not count toward the elective requirement. However, up to three (3) credit hours of MUSI 649 *Graduate Independent Study* will count towards degree requirements.

CLASSROOM TEACHING

Students must complete the Classroom Teaching requirement.

EXAMINATIONS

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency
- Written and oral qualifying examinations
- Reading competency in French, German, or Italian

DOCTORAL DOCUMENT

Students must complete 2 semesters of MUSI 750 *Doctoral Document* (6 credit hours total). The document must be publicly defended.

Back to menu

Requirements for the DMA Degree Program in Organ Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 29 credit hours:

- MUSI 683 Advanced Organ for Majors [minimum of 8 semesters, 6 taken as a DMA student]
- MUSI 736 Solo Repertory for Doctoral Students [<u>1 semester beyond Core</u>]
- MUSI 285 Secondary Harpsichord [<u>1 semester</u>]
- MUSI 751 Recitals [4_performed while a DMA student]
 - 2 solo
 - 1 lecture
 - 1 chamber

DEPARTMENT SPECIFIC COURSEWORK

Students must complete the following 7 credit hours:

- MUSI 725 Organ Literature Seminar
- MUSI 608 Improvisation at the Organ [minimum of 2 semesters]

DMA CORE REQUIREMENTS

Students must complete the following 21 credit hours:

- MUSI 611 Classroom Pedagogy
- MUSI 711 Analytic Techniques
- MUSI 733 Doctoral Seminar I: Career Skills
- MUSI 735 Doctoral Seminar II: Repertory
- MUSI 736 Solo Repertory for Doctoral Students
- MUSI 738 Individual Project
- MUSI 739 Pedagogy for Doctoral Students

ACADEMIC COURSEWORK

Students must complete the following 18 credit hours:

- Music History (12 credit hours)
- Music Theory (6 credit hours)

ELECTIVES

Students must complete 11 credit hours at the 300-level or above. Graduate academic courses taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required coursework may not count toward the elective requirement. However, up to three (3) credit hours of MUSI 649 *Graduate Independent Study* will count towards degree requirements.

CLASSROOM TEACHING

Students must complete the Classroom Teaching requirement.

EXAMINATIONS

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency
- Written and oral qualifying examinations
- Reading competency in French, German, or Italian

DOCTORAL DOCUMENT

Students must complete 2 semesters of MUSI 750 *Doctoral Document* (6 credit hours total). The document must be publicly defended.

Back to menu

Requirements for the DMA Degree Program in Percussion Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 32 credit hours:

- MUSI 671 Advanced Percussion for Majors [minimum of 8 semesters, 6 taken as a DMA student]
- MUSI 635 Advanced Orchestra [minimum of 4 semesters taken while a DMA student]
- MUSI 751 Recitals [4 performed while a DMA student]
 - 2 solo
 - 1 chamber music
 - 1 lecture

DMA CORE REQUIREMENTS

Students must complete the following 21 credit hours:

- MUSI 611 Classroom Pedagogy
- MUSI 711 Analytic Techniques
- MUSI 733 Doctoral Seminar I: Career Skills
- MUSI 735 Doctoral Seminar II: Repertory
- MUSI 736 Solo Repertory for Doctoral Students
- MUSI 738 Individual Project
- MUSI 739 Pedagogy for Doctoral Students

ACADEMIC COURSEWORK

Students must complete the following 18 credit hours:

- Music History (12 credit hours)
- Music Theory (6 credit hours)

ELECTIVES

Students must complete 13 credit hours at the 300-level or above. Graduate academic courses taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required coursework may not count toward the elective requirement. However, up to three (3) credit hours of MUSI 649 *Graduate Independent Study* will count towards degree requirements.

CLASSROOM TEACHING

Students must complete the Classroom Teaching requirement.

EXAMINATIONS

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency
- Written and oral qualifying examinations
- Reading competency in French, German, or Italian

DOCTORAL DOCUMENT

Students must complete 2 semesters of MUSI 750 *Doctoral Document* (6 credit hours total). The document must be publicly defended.

Back to menu

Requirements for the DMA Degree Program in Piano Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 30 credit hours:

- MUSI 681 Advanced Piano for Majors [minimum of 8 semesters, 6 taken as a DMA student]
- MUSI 736 Solo Repertory for Doctoral Students [<u>2 semesters beyond Core</u>]
- MUSI 751 Recitals [<u>5 performed while a DMA student</u>]
 - 2 solo
 - 1 lecture
 - 1 chamber
 - 1 concerto with orchestra

DMA CORE REQUIREMENTS

Students must complete the following 21 credit hours:

- MUSI 611 Classroom Pedagogy
- MUSI 711 Analytic Techniques
- MUSI 733 Doctoral Seminar I: Career Skills
- MUSI 735 Doctoral Seminar II: Repertory
- MUSI 736 Solo Repertory for Doctoral Students
- MUSI 738 Individual Project
- MUSI 739 Pedagogy for Doctoral Students

ACADEMIC COURSEWORK

Students must complete the following 18 credit hours:

- Music History (12 credit hours)
- Music Theory (6 credit hours)

ELECTIVES

Students must complete 15 credit hours at the 300-level or above. Graduate academic courses taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required coursework may not count toward the elective requirement. However, up to three (3) credit hours of MUSI 649 *Graduate Independent Study* will count towards degree requirements.

CLASSROOM TEACHING

Students must complete the Classroom Teaching requirement.

EXAMINATIONS

Students must demonstrate the following proficiencies:

- Aural skills proficiency
- Written and oral qualifying examinations
- Reading competency in French, German, or Italian

DOCTORAL DOCUMENT

Students must complete 2 semesters of MUSI 750 *Doctoral Document* (6 credit hours total). The document must be publicly defended.

Back to menu

Requirements for the DMA Degree Program in Viola Performance

PERFORMANCE REQUIREMENTS

Students must complete 32 credit hours as listed below:

- MUSI 693 Advanced Viola for Majors [minimum of 8 semesters, 6 taken as a DMA student]
- MUSI 635 Advanced Orchestra [minimum of 4 semesters taken while a DMA student]

- MUSI 751 Recitals [5 performed while a DMA student and can be fulfilled in any of the following combinations]
 - 2 solo, 1 lecture, 1 chamber, and 1 concerto with orchestra
 - 3 solo, 1 lecture, 1 chamber
 - 2 solo, 1 lecture, 2 chamber

DEGREE SPECIFIC REQUIREMENTS

Students must complete 2 credit hours of MUSI 492 String Technology.

DMA CORE REQUIREMENTS

Students must complete the following 21 credit hours:

- MUSI 611 Classroom Pedagogy
- MUSI 711 Analytic Techniques
- MUSI 733 Doctoral Seminar I: Career Skills
- MUSI 735 Doctoral Seminar II: Repertory
- MUSI 736 Solo Repertory for Doctoral Students
- MUSI 738 Individual Project
- MUSI 739 Pedagogy for Doctoral Students

ACADEMIC COURSEWORK

Students must complete the following 18 credit hours:

- Music History (12 credit hours)
- Music Theory (6 credit hours).

ELECTIVES

Students must complete 11 credit hours at the 300-level or above. Graduate academic courses taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required coursework may not count toward the elective requirement. However, up to three (3) credit hours of MUSI 649 *Graduate Independent Study* will count towards degree requirements.

CLASSROOM TEACHING

Students must complete the Classroom Teaching requirement.

EXAMINATIONS

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency
- Written and oral qualifying examinations
- Reading competency in French, German, or Italian

DOCTORAL DOCUMENT

Students must complete 2 semesters of MUSI 750 *Doctoral Document* (6 credit hours total). The document must be publicly defended.

Back to menu

Requirements for the DMA Degree Program in Violin Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 32 credit hours:

- MUSI 691 Advanced Violin for Majors [minimum of 8 semesters, 6 taken as a DMA student]
- MUSI 635 Advanced Orchestra [minimum of 4 semesters taken while a DMA student]
- MUSI 751 Recitals [<u>5 performed while a DMA student</u>]
 - 2 Solo
 - 1 Lecture
 - 1 Chamber Music
 - 1 Concerto with orchestra

DEGREE SPECIFIC REQUIREMENTS

Students must complete 2 credit hours of MUSI 492 String Technology.

DMA CORE REQUIREMENTS

Students must complete the following 21 credit hours:

- MUSI 711 Analytic Techniques
- MUSI 733 Doctoral Seminar I: Career Skills
- MUSI 735 Doctoral Seminar II: Repertory
- MUSI 736 Solo Repertory for Doctoral Students
- MUSI 738 Individual Project
- MUSI 739 Pedagogy for Doctoral Students

ACADEMIC COURSEWORK

Students must complete the following 18 credit hours:

- Music History (12 credit hours)
- Music Theory (6 credit hours)

ELECTIVES

Students must complete 11 credit hours at the 300-level or above. Graduate academic courses taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required coursework may not count toward the elective requirement. However, up to three (3) credit hours of MUSI 649 *Graduate Independent Study* will count towards degree requirements.

CLASSROOM TEACHING

Students must complete the Classroom Teaching requirement.

EXAMINATIONS

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency
- Written and oral qualifying examinations
- Reading competency in French, German, or Italian

DOCTORAL DOCUMENT

Students must complete 2 semesters of MUSI 750 *Doctoral Document* (6 credit hours total). The document must be publicly defended.

Back to menu

Requirements for the DMA Degree Program in Vocal Performance

PERFORMANCE REQUIREMENTS

Students must complete the following 24 credit hours:

- MUSI 673 Advanced Voice for Majors [minimum of 8 semesters, 6 taken as a DMA student]
- MUSI 751 Recitals [<u>4 performed while a DMA student</u>]
 - 2 Solo
 - 1 Lecture
 - 1 Chamber

DEGREE SPECIFIC REQUIREMENTS

Students must complete 4-6 credit hours as listed below:

- MUSI 570 Advanced Opera Studies [minimum of 2 semesters]
- MUSI 572 Graduate Opera Performance [minimum of 2 semesters]

DMA CORE REQUIREMENTS

Students must complete the following 21 credit hours:

- MUSI 611 Classroom Pedagogy
- MUSI 711 Analytic Techniques
- MUSI 733 Doctoral Seminar I: Career Skills
- MUSI 735 Doctoral Seminar II: Repertory

- MUSI 738 Individual Project
- MUSI 739 Pedagogy for Doctoral Students

Students must complete the following 18 credit hours:

- Music History (12 credit hours)
- Music Theory (6 credit hours)

ELECTIVES

Students must complete 15 credit hours at the 300-level or above. Graduate academic courses taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required coursework may not count toward the elective requirement. However, up to three (3) credit hours of MUSI 649 *Graduate Independent Study* will count towards degree requirements.

CLASSROOM TEACHING

Students must complete the Classroom Teaching requirement.

EXAMINATIONS

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency
- Written and oral qualifying examinations
- Reading competency in 2 of the following languages:
 - French
 - German
 - Italian

DOCTORAL DOCUMENT

Students must complete 2 semesters of MUSI 750 *Doctoral Document* (6 credit hours total). The document must be publicly defended.

Back to menu

Additional Information regarding Degree Requirements

Electives—With the exception of MMus Musicology students, Master of Music elective courses may INCLUDE university courses at the 300-level or above, foreign language courses at the 100-level or above, Independent Study up to a total of 3 credit hours, secondary lessons (fee) and Jazz Ensemble. They MAY NOT INCLUDE MUSI 281 *Secondary Piano*, MUSI 432 *Graduate Aural Skills Review*, MUSI 511 *Graduate Theory Review*, MUSI 521 *Graduate Review of Music History I*, MUSI 522 *Graduate Review of Music History II*, extra hours of required courses, undergraduate music theory and music history courses, more than 3 hours of MUSI 649 *Graduate Independent Study*, or any course taken pass/fail.

Academic Courses—Academic Courses refers to any Music Theory or History course at the 400-level or higher.

Music and Career Skills Enhancement Courses—For the MMUS degree, courses that satisfy the Music and Career Skills Enhancement requirement include: MUSI 413, MUSI 500, MUSI 501, MUSI 502, MUSI 503, MUSI 507, MUSI 508, MUSI 510, MUSI 515, MUSI 518, MUSI 519, MUSI 532, MUSI 540, and LPCR 200.

Performance—Students are expected to perform frequently during their residence at Rice. Master of Music performance majors must present at least two 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.

Admission—For instrumental, voice, and conducting applicants, an audition is required. Composition applicants must submit portfolios, and musicology must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

Requirements—For general university requirements, see Graduate Degrees. For the MMus degree, candidates must complete at least four semesters of full–time study at Rice. Semester hour minimums for the MMus degree vary according to major area. For the post-master's Artist Diploma, students must complete a two-year residency at Rice and a minimum of 41 semester hours. For the DMA, candidates must complete a total of 90 hours beyond the bachelor's degree, attending Rice full time for at

least six semesters after receiving their MMus degree.

Thesis—A thesis is required for musicology majors. In lieu of a thesis, composition majors must produce an original work of extended scope.

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—A minimum grade of "B-" is expected of all music students in their major applied area. A grade of "C+" or lower is considered unsatisfactory and will be evaluated in the following manner:

A music major who receives a grade of "C+" or lower in their major applied area will be placed on music probation. Music probation signifies that the student's work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.

If a student receives a second semester of "C+" or lower in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

NOTE: For music history and musicology majors a grade of "C+" or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a grade point average of 2.67 is necessary for graduation.

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 first 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

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, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, 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.

Rice A-Z

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University Calendar

Maps-Directions

Feedback

675 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Music >

RICE

Undergraduate Students	Music					
Graduate Students	The Shepherd School of Music					
Non-Traditional Students		Department Info	Undergraduate	Graduate	Course	
▶ Faculty	Cours	se Listings	Requirements	Requirements	Listings	
Programs of Study	The official course listings, including course descriptions, for Music can be found in Rice's Course Catalog.					
Administration and Faculty	To see c	ourse offerings during the	2016-2017 academic year, se	e Rice's Course Schedule.	₽	
Important Notices	For additional information regarding the Shepherd School of Music, see the school's website: http://music.rice.edu/.					
	Last Revise	ed : August 24, 2016				

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RICE

676 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Nanoscale Science >

Undergraduate Students	Nanoscale Science				
Graduate Students	The Wiess School of Natu	ral Sciences			
Non-Traditional Students	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings	
▶ Faculty	into	Requirements	Requirements	Listings	
Programs of Study	Director F. Barry Dunning		r ofessors ndrew R. Barron		
Administration and Faculty		Ru	ui-Rui Du		
			ason H. Hafner		
Important Notices			nomas C. Killian ouglas A. Natelson		
			rank R. Toffoletto		
		As	ssistant Professors		
		lsa	abell Thomann		
	Program (Undergraduate): N/A Program (Graduate): MSNS degree Rice University introduced this degree program in fall 2002. This program combines a strong compone which governs the behavior of systems at the nanoscale, with the study of practical nano- and mesosc provides the student with the knowledge required to successfully navigate the emerging field of nanote cover cutting-edge areas such as quantum behavior of nanostructures, quantum nanotechnology, nand fabrication of nanostructures. In addition, a year-long course in methods of experimental physics ensure the advanced practical skills valuable to industry. The degree in Nanoscale Science is one of five tracks in the Professional Master's Program at Rice ho of Natural Sciences. These master's degrees are designed for students seeking to gain further scientific the bachelor's level and creates the cross-functional aptitudes needed in modern industry. This will allo easily into management careers in consulting or research and development, design, and marketing of products. A coordinated MBA/MSNS degree is offered in conjunction with the Jesse H. Jones Graduate School of the straket is August 17, 2016.				

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University Calendar

Rice A-Z

Maps-Directions

677 of 923

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Nanoscale Science >

Undergraduate Students	Nanoscale Science							
► Graduate Students	The W	The Wiess School of Natural Sciences						
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings			
► Faculty	Undergraduate Requirements							
Programs of Study		Nanoscale Science does not offer an academic program at the undergraduate level.						
Administration and Faculty								
Important Notices	Last Revise	ed : August 12, 2016						

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678 of 923

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Nanoscale Science >

Underg	raduate	Students
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Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Nanoscale Science

Ρ

The Wiess School of Natural Sciences

	Department	Undergraduate	Graduate	Course			
	Info	Requirements	Requirements	Listings			
Program Learning Outcomes for the MS in Nanoscale Science Degree (MSNS)							

Upon completing the MS degree program in Nanoscale Science, students will be able to:

- 1. Develop knowledge of quantum theory and its application to nano- and mesoscale devices.
- 2. Have advanced practical skills valuable to nanotechnology- related industries.
- 3. Demonstrate written, oral and visual communication skills to bridge the gaps between science and business.
- 4. Progress business and management skills and professional ethics to be effective in a business environment.

Requirements for the MS in Nanoscale Science Degree (MSNS)

For general university requirements, see Graduate Degrees. Students pursuing the MS Nanoscale Science Degree (MSNS) must complete:

- A minimum of 14 courses (40 credit hours) to satisfy degree requirements.
- A 3-6 month internship. 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.
- A minimum of 30 credit hours at the 500-level or above.

In addition to the core science courses, students are required to complete a three to six month internship and take a set of cohort courses focusing on business and communication.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.

CORE REQUIREMENTS

Students must complete a total of 8 courses (22-23 credit hours) to satisfy the MS in Nanoscale Science Degree's Core Requirements.

Core Science Courses

Students must complete 4 courses (13-14 credit hours depending on course selection) as listed below.

- PHYS 533 Nanostructures and Nanotechnology I [3 credit hours]
- PHYS 534 Nanostructures and Nanotechnology II [3 credit hours]
- PHYS 537 Methods of Experimental Physics I [4 credit hours]
- One course from the following:
 - PHYS 538 Methods of Experimental Physics II [4 credit hours]
 - PHYS 539 Characterization and Fabrication at the Nanoscale [3 credit hours] (offered every other year)
 - PHYS 416 Computational Physics [<u>3 credit hours</u>]
 - PHYS 605/ELEC 605 Computational Electrodynamics & Nano-Photonics [3 credit hours]
 - ELEC 571 Imaging at the Nanoscale [3 credit hours]

Cohort Courses

Students must complete the following 4 courses (9 credit hours):

- NSCI 610/ENGI 610 Management in Science and Engineering [3 credit hours]
- NSCI 501 Professional Master's Seminar (required for two semesters) [2 credit hours]
- NSCI 511 Science Policy and Ethics [<u>3 credit hours</u>]

NSCI 512 Professional Master's Project [<u>1 credit hour</u>]

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.

RECOMMENDED ELECTIVES

To fulfill the remaining requirements for the Nanoscale Science degree program, students must complete a total of 6 additional courses (18 credit hours) as elective coursework from areas of specialization listed below, of which at least 6 credit hours must be science/engineering courses at the 500-level or above. Examples of courses and specializations that may be used as electives in this program include:

Nano-Materials

- PHYS 517 Computational Physics [3 credit hours]
- PHYS 539 Characterization and Fabrication at the Nanoscale [3 credit hours]
- MSNE 535/PHYS 535 Crystallography and Diffraction [3 credit hours]
- MSNE 580 Microscopy Methods in Material Science [3 credit hours]
- MSNE 614 Special Topics II [<u>1-9 credit hours</u>]
- MSNE 650 Nanomaterials and Nanomechanics [<u>3 credit hours</u>]

Nano-Optics and Nano-Photonics

- ELEC 568 Laser Spectroscopy [3 credit hours]
- ELEC 585/BIOE 591 Fundamentals of Medical Imaging [3 credit hours]
- ELEC 571 Imaging at the Nanoscale [3 credit hours]
- ELEC 603 Topics in Nanophotonics [2 credit hours]
- PHYS 569/ELEC 569 Ultrafast Optical Phenomena [3 credit hours]

Nano-Bio

- BIOE 442 Tissue Engineering [1 credit hour]
- CHEM 547 Supramolecular Chemistry [<u>3 credit hours</u>]
- ELEC 568 Laser Spectroscopy [<u>3 credit hours</u>]
- ELEC 571 Imaging at the Nanoscale [3 credit hours]
- PHYS 539 Characterization and Fabrication at the Nanoscale [3 credit hours]

Management and Entrepreneurship

- MGMT 629 Business Plan Development [<u>1.5 credit hours</u>]
- MGMT 625 Creative Entrepreneurship [<u>1.5 credit hours</u>]
- MGMT 670 Operations Strategy [<u>1.5 credit hours</u>]
- MGMT 676 Social Enterprise [<u>1.5 credit hours</u>]
- MGMT 734 Tech Entrepreneurship [3 credit hours]
- BUSI 463 Entrepreneurship: Strategy and Funding [3 credit hours]
- MGMT 724 Social Entrepreneurship [<u>1.5 credit hours</u>]

Other Electives

- CEVE 505/ENGI 505 Engineering Project Management and Economics [3 credit hours]
- MGMT 609 Managing Energy Transitions [<u>1.5 credit hours</u>]
- MGMT 661 International Business Law [3 credit hours]
- MGMT 669 Business Strategy in Energy Industry [<u>1.5 credit hours</u>]
- MGMT 674 Production and Operations Management [<u>1.5 credit hours</u>]
- MGMT 670 Operations Strategy [<u>1.5 credit hours</u>]

Note: Each of these electives is not offered every year, and some courses may have prerequisites or require instructor permission. Most courses with the MGMT dedication carry 1.5 credit hours and last half of a semester.

Admission

Admission to graduate study in nanoscale science 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.

Professional Science Master's 5th Year Degree Option for Rice Undergraduates

Rice students have an option to achieve the MS in Nanoscale Science by adding an additional fifth year to the four undergraduate years of science studies. Advanced Rice students in good standing may apply during their junior year to the graduate program. Upon acceptance, depending on course load, financial aid status, and other variables they may then start taking required core courses of the nanoscale science program during their senior year. A plan of study based on their particular focus area will need to be approved by the program director and the PSM director. Students should be aware there could be financial aid implications, if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time (12 credit hours) status.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Nanoscale Science graduate degree program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses from other department apply towards the degree in Nanoscale Science.

Rice A-Z

- Department Description and Code:
- Physics: PHYS Degree Description and Code
 - Master of Science in Nanoscale Science degree: MSNS

Degree Program Description and Code

- Degree Program in Nanoscale Science: NSSC

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Maps-Directions Feedback

681 of 923

SEARCH GA

RICE

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Nanoscale Science >

Undergraduate Students	Nanoscale Science						
► Graduate Students	The Wiess School of Natu	The Wiess School of Natural Sciences					
Non-Traditional Students	Department	Undergraduate	Graduate	Course			
▶ Faculty	Info Course Listings	Requirements	Requirements	Listings			
Programs of Study	The official course listings, including	course descriptions, for the	courses listed in the Nanoscal	le Science Graduate			
Administration and Faculty	Requirements section can be found i	Requirements section can be found in Rice's Course Catalog.					
Important Notices	To see course offerings during the 2016-2017 academic year, see Rice's Course Schedule.						
	For additional information regarding I	Nanoscale Science, see the	e department's website: https://	profms.rice.edu/Nanoscale.aspx.			
	Last Revised : August 24, 2016						

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RICE

682 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Naval Science >

Undergraduate Students	Naval Science					
Graduate Students	Department	Undergraduate	Graduate	Course		
Non-Traditional Students	Info	Requirements	Requirements	Listings		
▶ Faculty	Chair and Professor		Assistant Professors			
Programs of Study	Michael A. Carambas, USN		Joshua E. Langham, USMC Gerald C. Sellars, USN			
• Administration and Faculty	Associate Professor Matthew G. Roberts, US		Patrick Snow, USN			
Important Notices			Undergraduate Advisors for Matthew G. Roberts, USMC	Minor		
			Gerald C. Sellars, USN			
	Program (Undergraduate): Minor					
	Program (Graduate): N/A					
	Students may enroll in the Naval Reserve Officers' Training Corps (ROTC) program as scholarship or non-scholarship students. A minor in Naval Science is also open and available to all degree-seeking Rice students. The faculty of the Department of Naval Science consists of active-duty military officers.					
	Last Revised : August 17, 2016					

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University Calendar

Rice A-Z

Maps-Directions

Feedback

RICE

683 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Naval Science >

Undergraduate Students	Nava	I Science						
Graduate Students		Department	Undergraduate	Graduate	Course			
Non-Traditional Students		Info	Requirements	Requirements	Listings			
▶ Faculty	Prog	ram Learning Outo	omes for Minor in N	aval Science				
Programs of Study	Upon co	ompleting the Naval Science	e minor, students will be able to):				
Administration and Faculty	m	issions, and national securit	y importance.	Marine Corps to include their cu				
Important Notices	sh	 Become familiar through the historical process with the major events, attitudes, personalities, and circumstances that have shaped the naval service and their relative impact on American history. Develop an understanding of Western moral traditions and ethical philosophy as they relate to military leadership and the 						
	СС	onduct of warfare, to include	Aristotle, Bentham, Mill, Kant,	, ,				
	Requ	irements for the N	linor in Naval Scienc	e				
			Science (NAVA) must comple					
	A	minimum of 6 courses (18 c	credit hours) to satisfy the mino	r requirements.				
		 A minimum of 3 courses (9 credit hours) at the 300-level or higher 						
	= No	o more than 2 courses (6 cr	edit hours) from study abroad o	or transfer credit.				
	The mir	nor in Naval Science (NAVA) is available to all students ma	ijoring in other fields.				
	CORE	REQUIREMENTS						
	Student	s must complete the following	ng 4 courses (12 credit hours)	to satisfy the Naval Science mi	nor's Core Requirements.			
	■ N/	AVA 101 Naval Orientation						
		AVA 103 Sea Power and Ma						
		AVA 203 Leadership Manag						
	■ N/	AVA 402 Leadership and Et	nics					
	ELECT	IVES						
	To com	plete the NAVA minor, stude	ents must complete a total of 2	courses (6 credit hours) from the	he following:			

- NAVA 301 Navigation
- NAVA 302 Naval Operations and Seamanship
- NAVA 303 Evolution of Warfare
- NAVA 403 Naval Engineering
- NAVA 410 Amphibious Warfare

All naval science courses are offered once every academic year with the exception of NAVA 303 and NAVA 410. These two courses are offered every other academic year.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate minor in Naval Science. The following is a quick reference:

Course Catalog/Schedule

Course offerings/subject code: NAVA
 <u>Department Description and Code</u>
 Naval Science: NAVA

Minor Description and Code

- Minor in Naval Science: NAVA

Last Revised : August 12, 2016

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685 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Naval Science >

Undergraduate Students	Nava	Naval Science					
Graduate Students		Department	Undergraduate	Graduate	Course		
Non-Traditional Students		Info	Requirements	Requirements	Listings		
► Faculty	Graduate Requirements						
Programs of Study	Naval Sc	cience does not offer an ac	ademic program at the gradua	ate level.			
Administration and Faculty	Last Revise	ed : August 12, 2016					
Important Notices							

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686 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Naval Science >

Undergraduate Students	Naval Science					
Graduate Students		Department	Undergraduate	Graduate	Course	
Non-Traditional Students		Info	Requirements	Requirements	Listings	
▶ Faculty	Course Listings					
Programs of Study	The official course listings, including course descriptions, for the courses that can be applied towards the Naval Science minor can be found in Rice's Course Catalog.					
Administration and Faculty	To see course offerings during the 2016-2017 academic year, see Rice's Course Schedule.					
Important Notices	For additional information regarding Naval Science, see the department's website: http://nrotc.rice.edu/Naval Science Courses/.					
	Last Revise	ed : August 24, 2016				

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Web Services

University Calendar Rice A-Z

Maps-Directions Feedback

687 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Neuroscience >

s Ne	- School of Social Scien				
ts	e School of Social Scier	ices			
I Students	Department	Undergraduate	Graduate	Course	
	Info	Requirements	Requirements	Listings	
udy	Co-Directors	A	ssociate Professors		
	J. David Dickman	Pe	eter Lwigale		
d Faculty	James McNew	R	obert Raphael		
es	Advisors	A	ssistant Professors		
	Behnaam Aazhang	G	enevera Allen		
	J. David Dickman	Si	mon Fischer-Baum		
	Simon Fischer-Baum	Ca	aleb Kemere		
	James McNew	Je	essica M. Logan		
		AI	exander Morgan		
	Professors	Ai	mina Qutub		
	Behnaam Aazhang	Ja	Jacob Robinson		
	Richard Baraniuk	Ju	Julia Saltz		
	Kathleen Beckingham	W	eiwei Zhong		
	Janet Braam				
	John W. Clarke		eaching Professor		
	Steven J. Cox	Da	avid Caprette		
	James L. Dannemiller				
	J. David Dickman		djunct Professors		
	Don H. Johnson		ora Angelaki		
	Suzanne Kemmer		abrizio Gabbiani		
	Herbert Levine		nkit Patel		
	Randi C. Martin		aq Pitkow		
	James McNew		nne Sereno		
	James R. Pomerantz	Ha	arel Shoval		
	Timothy Schroeder		and an Ealland		
	Charles Siewert				
	Michael Stern Devika Subramanian	K	elly Weinersmith		
	Devika Subramanian Marina Vannucci				
	Moshe Y. Vardi				
	Rick K. Wilson				

Program (Undergraduate): Minor

Program (Graduate): N/A

The neuroscience minor is an interdisciplinary program offered by the Department of Biosciences. Neuroscience uses very diverse methodologies to investigate the human mind and brain and the relation between them. Its subject ranges from the study of cognitive processes and representations via the empirical study of behavior, to investigations of the biochemical processes that occur in brain functions, and all of the interactions and correlations between brain, behavior, and biology that can be

2016-2017 General Announcements

688 of 923

observed and/or modeled. The primary aim of neuroscience is to provide an understanding of how the cognition and behavior of organisms are embodied in neural processes. Such an understanding of mind and brain, bringing to bear many types of knowledge, is necessary as a basis for understanding and solving many practical problems: understanding the neurophysiology of disease; devising treatment for many pathologies related to aging, stroke, autism, and hearing and other impairments; improved understanding of human behavior relating to risk, addiction, and social pathologies; addressing practical problems in memory, learning, and acquisition of literacy; understanding the neural basis of emotion and its relation to human perception and behavior; and many other applications.

Last Revised : August 17, 2016

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Previous Editions

Course

GENERAL ANNOUNCEMENTS 2016-2017

The School of Social Sciences

Department

Neuroscience

2016-2017 > Programs of Study > Neuroscience >

Undergraduate Stude	nts
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Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Info Requirements Requirements Listings Program Learning Outcomes for the Interdisciplinary Minor in Neuroscience Upon completing the minor in Neuroscience, students will be able to:

Graduate

- 1. Demonstrate knowledge of the key issues, questions, and perspectives that define contemporary neuroscience.
- Understand neuroscience as an interdisciplinary field and demonstrate the ability to draw on, and synthesize, key findings and concepts in the sciences, humanities and/or engineering in both the evaluation of existing theories and in the formulation and solution of new problems in neuroscience.

Requirements for the Interdisciplinary Minor in Neuroscience

Undergraduate

Students pursuing a minor in Neuroscience (NEUR) must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 3 courses (9 credit hours) at the 300-level or above.
- No more than 2 courses (6 credit hours) from study abroad or transfer credits.
- One area of specialization (see below for specializations).

No more than 2 courses applied towards the minor requirements can be used to fulfill a student's major requirements.

Depending on a student's interest, those wishing to minor in neuroscience may choose from one of two unique tracks:

- Humanities and Social Science (HS) specialization: HS represents cognitive and behavioral approaches to neuroscience.
- Natural Sciences and Engineering (SE) specialization: SE represents genetics, cellular/molecular, bioengineering, computation, and systems-level investigations.

CORE REQUIREMENT

Students must complete the following course to satisfy the Neuroscience minor's Core Requirement.

NEUR 380/PYSC 380/BIOC 380 Fundamental Neuroscience Systems [3 credit hours]

HUMANITIES AND SOCIAL SCIENCES TRACK

Students must complete a total of 5 courses (15 credit hours total) as listed below to satisfy the requirements for the Humanities and Social Sciences track.

Required Course

Students must complete the following course:

NEUR 362/PSYC 362 Cognitive Neuroscience: Exploring the Living Brain [3 credit hours]

Electives

To fulfill the requirements for the Humanities and Social Sciences track, students must complete 4 courses (12 credit hours) as listed below:

At least 3 courses (9 credit hours total) from the Humanities and Social Science track electives listed below.

At least 1 course (3 credit hours total) from the Natural Sciences and Engineering track electives listed below, to provide breadth of the field of Neuroscience.

NATURAL SCIENCES AND ENGINEERING TRACK

Students must complete a total of 5 courses (15 credit hours total) as listed below to satisfy the requirements for the Natural Sciences and Engineering track.

Required Course

NEUR 385/BIOC 385 Fundamentals of Cellular and Molecular Neuroscience [3 credit hours]

Electives

To fulfill the requirements for the Humanities and Social Sciences track, students must complete 4 courses (12 credit hours) as listed below:

- At least 3 courses (9 credit hours total) from the Natural Science and Engineering track electives listed below.
- At least 1 course (3 credit hours total) from the Humanities and Social Science track electives listed below, to provide breadth of the field of Neuroscience.

Humanities and Social Science Electives

- LING 306 Language, Thought, and Mind [3 credit hours]
- LING 397 Speech and Hearing Sciences [<u>3 credit hours</u>]
- LING 411/ANTH 411 Neurolinguistics [3 credit hours]
- NEUR 111 Science and Art in Dialogue [<u>1 credit hour</u>]
- NEUR 301 Advanced Cognitive Neuroscience: Attention and Perception [3 credit hours]
- NEUR 302 Advanced Cognitive Neuroscience: Higher Mental Function [3 credit hours]
- NEUR 308 Introduction to Cognitive Neuroscience* [3 credit hours]
- NEUR 362/PSYC 362 Cognitive Neuroscience: Exploring the Living Brain [3 credit hours]
- NEUR 416/CAAM 416/ELEC 489 Theoretical Neuroscience II: Networks and Learning [3 credit hours]
- NEUR 517 Mechanisms of Memory [<u>3 credit hours</u>]
- NEUR 530 Theory, Content, and Execution in Cognitive Neuroscience* [3 credit hours]
- PHIL 103 Philosophical Aspects of Cognitive Science [<u>3 credit hours</u>]
- PHIL 312 Philosophy of Mind [3 credit hours]
- PHIL 352 Philosophy of Psychology [<u>3 credit hours</u>]
- PHIL 353 Philosophy of Language [3 credit hours]
- PHIL 358 Philosophy of Neuroscience [<u>3 credit hours</u>]
- PSYC 308 Memory [<u>3 credit hours</u>]
- PSYC 309/LING 309 Psychology of Language [3 credit hours]
- PSYC 351 Psychology of Perception [<u>3 credit hours</u>]
- PSYC 353 Psychology of Emotion and Motivation [3 credit hours]
- PSYC 430 Computational Modeling of Cognitive Processes [3 credit hours]
- PSYC 432 Brain and Behavior [3 credit hours]

Natural Sciences and Engineering Electives

- BIOC 318 Lab Module in Microbiology [1 credit hour]
- BIOC 415 Experimental Physiology [<u>1 credit hour</u>]
- BIOE 381/ELEC 381 Fundamentals of Nerve and Muscle Electrophysiology [3 credit hours]
- BIOE 480/ELEC 480 Introduction to Neuroengineering [3 credit hours]
- BIOE 485/COMP 485/ELEC 485 Fundamentals of Medical Imaging I [3 credit hours]
- BIOE 486/COMP 486/ELEC 486 Fundamentals of Medical Imaging II [3 credit hours]
- BIOE 492 Sensory Neuroengineering [<u>3 credit hours</u>]
- BIOE 548/ELEC 548 Machine Learning and Signal Processing for Neuro Engineering [3 credit hours]
- EBIO 321 Animal Behavior [3 credit hours]
- PHIL 359 Animal Minds [3 credit hours]
- NEUR 304/504 Cellular Neurophysiology I & II** [3 credit hours]
- NEUR 306/506 Concepts of Learning and Memory** [3 credit hours]
- NEUR 310 Neuroscience Research [<u>1-3 credit hours</u>]
- NEUR 318/518 Introduction to Neuroscience Methods** [3 credit hours]
- NEUR 321/521 Analysis of Neuronal Function ** [3 credit hours]
- NEUR 322/522 Brain Cell Biology and Development** [<u>3 credit hours</u>]
- NEUR 323/523 Genetics for Neuroscience** [3 credit hours]
- NEUR 331/531 Computational Cellular Neuroscience Laboratory [<u>1 credit hour</u>] Computational Systems Neuroscience Laboratory

NEUR 332/532	[1 credit hour]
 NEUR 335/535 Cellular Neurophysi 	ology**[<u>3 credit hours</u>]
 NEUR 350/550 Molecular Neurobio 	logy**[<u>3 credit hours</u>]
 NEUR 376/576 Neurobiology of Dis 	ease**[<u>3 credit hours</u>]
 NEUR 379/579 Neurobiology of Ser 	nsation and Movement** [<u>3 credit hours</u>]
 NEUR 381/581 Physiology of the Vi 	sual System [<u>3 credit hours</u>]
 NEUR 401 Undergraduate Honors I 	Research [<u>5 credit hours</u>] and NEUR 402 Undergraduate Honors Research [<u>5 credit</u>
hours] and NEUR 412 Undergradu	ate Research Seminar [<u>1 credit hour</u>]
NEUR 415/CAAM 415/ELEC 488 The second sec	neoret. Neuroscience I: From Cells to Learning Systems [3 credit hours]
NEUR 416/CAAM 416/ELEC 489 Tr	heoret. Neuroscience II: Networks and Learning [<u>3 credit hours</u>]
 NEUR 430 Fundamentals of Humar 	Neuroimaging I**
 NEUR 431 Fundamental of Human 	Neuroimaging II**
 NEUR 485 Neuroscience Research 	[<u>1-3 credit hours</u>]
 NEUR 510 Neuropharmacology [<u>3</u> 	credit hours]
 NEUR 540 Graduate Neuroanatomy 	/** [<u>3 credit hours</u>]
* Indicates course is taught at UT-Health	Science Center
** Indicates course is taught at Baylor Col	lege of Medicine
Descriptions and Codes Legen	d
Note: Internally, the university uses the for	Ilowing abbreviations (4-digit codes) to identify the undergraduate minor in
Neuroscience. The following is a quick re-	
Course Catalog/Schedule	
- Course offerings/subject code: NEUR	
Department Description and Code	
- Neuroscience: NEUR	
Minor Description and Code	
- Minor in Neuroscience: NEUR	

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692 of 923

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Neuroscience >

Undergraduate Students	Neuro	Neuroscience					
Graduate Students	The Sc	The School of Social Sciences					
Non-Traditional Students		Department Info	Undergraduate	Graduate	Course		
▶ Faculty	Gradu	late Requirement	Requirements	Requirements	Listings		
Programs of Study	Neurosci	ence does not offer an ac	ademic program at the gradua	ate level.			
Administration and Faculty							
Important Notices	Last Revise	d : August 12, 2016					

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Neuroscience >

Undergraduate Students	Neuroscience	Neuroscience					
Graduate Students	The School of Socia	The School of Social Sciences					
Non-Traditional Students	Departmen	-	Graduate	Course			
▶ Faculty	Course Listings	Requirements	Requirements	Listings			
Programs of Study		ncluding course descriptions, for th	e courses listed in the Neurosc	ience Undergraduate			
Administration and Faculty	Requirements can be found	in Rice's Course Catalog.					
Important Notices	To see course offerings durin	ing the 2016-2017 academic year,	see Rice's Course Schedule. 🙆]			
	For additional information reg	garding Neuroscience, see the dep	partment's website: http://neuro	science.rice.edu/. 🗗			
	Last Revised : August 24, 2016						

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Philosophy >

RICE

Undergraduate Students	Philosophy			
Graduate Students	The School of Humanities			
Non-Traditional Students	Department	Undergraduate	Graduate	Course
► Faculty	Info	Requirements	Requirements	Listings
Programs of Study	Chair Donald Ray Morrison		ssistant Professors wendolyn Bradford	
Administration and Faculty		AI	lexander Morgan	
Important Notices	Baruch Brody	VI	ida Yao	
	Steven Crowell Hugo Tristram Engelhard Richard Grandy		isiting Lecturer rian Miller	
	Timothy Schroeder	A	djunct Professor	

Program (Undergraduate): BA degree

George Sher

Charles Siewert

Programs (Graduate): MA degree, PhD degree

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.

Jennifer Blumenthal-Barby

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, core portions of analytic philosophy (especially philosophy of mind), history of philosophy, and continental philosophy.

Last Revised : August 18, 2016

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University Calendar

Rice A-Z

Maps-Directions Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Philosophy >

Under	graduate	Students
-------	----------	----------

RICE

The School of Humanities

Philosophy

۲	Non-Traditional	Students

Graduate Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department Undergraduate Graduate Course Info Requirements Requirements Listings

Program Learning Outcomes for the BA Degree with a Major in Philosophy

Upon completing the BA degree, students majoring in Philosophy will be able to:

- 1. Demonstrate an understanding of the general historical development of philosophy and develop an in depth understanding of at least one historical period or movement.
- 2. Demonstrate an understanding of some of the main contemporary issues and arguments in value theory.
- 3. Demonstrate an understanding of some of the main contemporary issues and arguments in epistemology and metaphysics broadly construed.
- 4. Demonstrate the ability to read philosophical texts critically and with understanding of the problems and contexts.
- 5. Demonstrate the cognitive and formal abilities to critically evaluate the arguments of others as well as their own.
- Demonstrate the ability to communicate clearly and logically their own views on a range of important philosophical problems.

Requirements for the BA Degree with a Major in Philosophy

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Philosophy (PHIL) must complete:

- A minimum of 10 courses (30 credit hours) from departmental (PHIL) course offerings to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 6 courses (18 credit hours) at the 300-level or above.

Students who are pursuing two majors (i.e., are double majors) and have declared PHIL must complete a minimum of 9 courses (27 credit hours) to satisfy major requirements. Double majors who drop their second major are required to meet the requirements listed for single majors.

CORE REQUIREMENTS

Students must complete a total of 6 courses (18 credit hours) to satisfy the Philosophy major's Core Requirements.

Core Courses

Students must complete a total of 3 courses (9 credit hours) as listed below.

- PHIL 201/CLAS 201/MDEM 201 History of Philosophy I [3 credit hours]
- PHIL 202 History of Philosophy II [<u>3 credit hours</u>]
- PHIL 106 Logic [3 credit hours]

or PHIL 305 Mathematical Logic [3 credit hours]

Areas

Students must complete at least 1 course (3 credit hours) from each of the following Area course lists for a total of 3 courses (9 credit hours):

History

Students must complete 1 course (3 credit hours) from the following:

- PHIL 301/CLAS 301/MDEM 301 Ancient and Medieval Philosophy [3 credit hours]
- PHIL 302 Modern Philosophy [<u>3 credit hours</u>]

- PHIL 308 Continental Philosophy [3 credit hours]
- PHIL 321 Kant and 19th Century Philosophy [3 credit hours]

Core Analytic

Students must complete 1 course (3 credit hours) from the following:

- PHIL 303 Theory of Knowledge [3 credit hours]
- PHIL 304 Metaphysics [<u>3 credit hours</u>]
- PHIL 312 Philosophy of Mind [<u>3 credit hours</u>]
- PHIL 313 Philosophy of Science [3 credit hours]
- PHIL 353 Philosophy of Language [3 credit hours]

Value Theory

Students must complete 1 course (3 credit hours) from the following:

- PHIL 306 Ethics [3 credit hours]
- PHIL 307 Social and Political Philosophy [3 credit hours]
- PHIL 316 Philosophy of Law [3 credit hours]
- PHIL 326 History of Ethics [<u>3 credit hours</u>]
- PHIL 327 History of Social and Political Philosophy [3 credit hours]

ELECTIVES

To fulfill the remaining Philosophy major requirements, single majors must complete a total of 4 additional courses (12 credit hours) from PHIL courses at the 300-level or above. Double majors may satisfy this requirement by completing a total of 3 courses (9 credit hours) from PHIL courses at the 300-level or above.

Senior Thesis and Honors in Philosophy

Qualified majors may apply before their senior year for directed research leading to a senior thesis, carried out during both semesters of the senior year. Each semester will require three credit hours; these six hours are in addition to the course hours required for the major.

To qualify for the program, students must have an approved research proposal and the agreement of a faculty member to serve as advisor for that project. Applicants will normally be required to have a GPA of 3.75 in philosophy courses and to have completed at least two 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 write a senior thesis 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 PHIL 411 and 412. Students accepted into the Rice Undergraduate Scholars Program should enroll in HONS 470 and 471 and will be awarded 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.

To be considered for honors, the senior thesis must be completed by April 1. The thesis will be read and evaluated by the advisor and a second reader chosen by the department, and the final decision on honors will be made by the entire faculty. A student will receive honors if he or she receives a grade of A+, A, or A- in PHIL 412. Completion of the major with at least a 3.5 GPA in all philosophy courses is required for departmental honors. Students who miss the April 1 deadline for thesis submission but meet the university deadline for the semester will receive a grade and credit for completed work but will not be considered for honors. Students whose thesis is not awarded honors will receive a grade and credit for completed work.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Philosophy undergraduate degree and major. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: PHIL

- Department Description and Code
 - Philosophy : PHIL
- Degree Description and Code
- Bachelor of Arts degree: BA Major Description and Code

	- Major in Philosophy: PHIL	
	Last Revised : August 18, 2016	
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Web Services

University Calendar

Rice A-Z

Maps-Directions

Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Philosophy >

Und	ergraduate	Students
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Graduate Students

Programs of Study

Important Notices

Faculty

RICE

Philosophy

The School of Humanities

- Non-Traditional Students Department Undergraduate Graduate Course Info **Requirements** Requirements Listings Program Learning Outcomes for the PhD Degree in Philosophy Upon completing the PhD degree program in Philosophy, students will be able to: Administration and Faculty 1. Demonstrate advanced skills of reading philosophical texts critically and with understanding of the problems and contexts. 2. Demonstrate the cognitive and formal abilities to critically evaluate the arguments of others as well as their own. 3. Demonstrate knowledge of the strengths and limitations of formal methods. 4. Demonstrate the ability to communicate clearly and logically their own views on a range of important philosophical problems at an advanced level.
 - 5. Demonstrate an understanding in depth of the content and context of one of the main areas of departmental focus: history of philosophy, value theory, epistemology, and metaphysics broadly construed.
 - 6. Propose, evaluate, and defend original views in at least one of the main areas of departmental focus.

Requirements for the MA and PhD Degrees in Philosophy

For general university requirements, see Graduate Degrees.

Students pursuing the non-thesis MA must satisfy the following requirements:

- Complete at least two semesters in residence at Rice University.
- Complete 42 credit hours of courses approved for graduate credit in philosophy at Rice University with B- or better.
- Accumulate an overall GPA of at least 3.0.
- Complete at least 30 credit hours in philosophy at the 500-level or higher.
- Satisfy the departmental logic requirement (PHIL 505 or examination).
- Complete at least 5 courses in an area of concentration.
- Satisfactorily complete departmental duties.
- File a petition for certification of the non-thesis master's degree. This petition can be obtained from the graduate administrator and must be approved and signed by the department chair and submitted to the Office of Graduate and Postdoctoral Studies according to the deadlines posted in the Academic Calendar deadlines

Students pursuing the thesis MA must satisfy the following requirements:

- Complete with high standing at least 30 credit 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).

Students pursuing the PhD must satisfy the following requirements:

- Complete with high standing 42 credit 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 one 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)

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Philosophy graduate degree program. The following is a quick reference:
<u>Course Catalog/Schedule</u>

- Course offerings/subject code: PHIL

Department Description and Code

- Philosophy: PHIL
- Degree Descriptions and Codes
 - Master of Arts degree: MA
 - Doctor of Philosophy degree: PhD

Degree Program Description and Code

- Degree Program in Philosophy: PHIL

Last Revised : August 18, 2016

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Philosophy >

RICE

Undergraduate Students	Philosophy	Philosophy							
► Graduate Students	The School of Humani	The School of Humanities							
Non-Traditional Students	Department	Undergraduate	Graduate	Course					
▶ Faculty	Info Course Listings	Requirements	Requirements	Listings					
Programs of Study		The official course offerings, including course descriptions, for Philosophy can be found in Rice's Course Catalog.							
Administration and Faculty	To view the most recent course	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.							
Important Notices	For additional information regard	For additional information regarding Philosophy, see the department's website: http://philosophy.rice.edu/.							
	-								
	Last Revised : August 24, 2016	Last Revised : August 24, 2016							

 General Announcements
 6100 Main MS-10, Houston, Texas 77005-1827
 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Physics and Astronomy >

Physics and Astronomy

The Wiess School of Natural Sciences

Graduate Students	
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RICE

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

5	Department	Undergraduate		Graduate	Course	
	Info	Requirements		Requirements	Listings	
	.					
	Chair			sistant Professors		
	Douglas Natelson			stafa Amin		
ty				phen J. Bradshaw		
	Professors			thew S. Foster		
	David Alexander			len Hazzard		
	Matthew G. Baring			Irea Isella		
	Anthony A. Chan		We			
	Marjorie D. Corcoran		And	Iriy Nevidomskyy		
	Pengcheng Dai		_			
	Michael W. Deem			fessors Emeriti		
	Rui-Rui Du			II A. Cloutier		
	F. Barry Dunning			ginald J. Dufour		
	Jason H. Hafner			omas W. Hill		
	Naomi J. Halas			II M. Stevenson		
	Patrick M. Hartigan		Ric	hard A. Wolf		
	Huey W. Huang					
	Randall G. Hulet		Ins	tructors		
	Christopher Johns-Krull		Rol	pert Beaird		
	Thomas C. Killian		Mic	hael Cone		
	Junichiro Kono		Jar	ed Stenson		
	Neal Lane		Lar	n Yu		
	Herbert Levine					
	Eugene H. Levy		As	sociate Research Profess	ors	
	Edison P. Liang		Wil	iam J. Llope		
	Frederick C. Mackintosh		Sta	nislav Sazykin		
	Emilia Morosan		lan	A. Smith		
	Peter Nordlander		Pat	lo P. Yepes		
	Jose Onuchic					
	B. Paul Padley			sistant Research Professo	or	
	Han Pu		Pet	r Chaguine		
	Carl Rau					
	Patricia H. Reiff			unct Faculty		
	Jabus B. Roberts Jr.		Jan	nes L. Burch		
	Gustavo E. Scuseria			nklin R. Chang-Diaz		
	Qimiao Si		Ser	gio Kapusta		
	Frank R. Toffoletto		Ste	fan Kirchner		
	Peter Wolynes		Hui	Li		
			Ga	y A. Morris		
	Associate Professors		Jan	nes H. Newman		
	Stanley A. Dodds		Car	olyn Sumners		
	Karl M. Ecklund		J. H	lunter Waite		
	Franciscus J. M. Geurts		Jon	C. Weisheit		

Programs (Undergraduate): BA degree, BS degree, Minor

Programs (Graduate): MST degree, MS degree, PhD degree

The Department of Physics and Astronomy offers undergraduate and graduate programs for a wide range of interests. The bachelor of arts degree in physics and astronomy is suitable for students who wish to obtain a broad liberal education with a concentration in physical science. The bachelor of science degree in physics, astrophysics, and chemical physics provides preparation for employment or further study in physics and related fields. Students in the professional non-thesis master's program, the Master of Science Teaching, 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.

Rice A-Z

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me Web Services

University Calendar

Maps-Directions

Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Physics and Astronomy >

Undergraduate Students

Non-Traditional Students

Administration and Faculty

Graduate Students

Programs of Study

Important Notices

Faculty

Physics and Astronomy

The Wiess School of Natural Sciences

Departi Info		Undergraduate Requirements	Graduate Requirements	Course Listings
Jump to:				
Physics				
BS in Physics				
BA in Physics				
Minor in Physics				
Astrophysics				
BS in Astrophysics				
Astronomy				
BA in Astronomy				
Chemical Physics				
BS Chemical Physic	e			

Program Learning Outcomes for the BS Degree with a Major in Physics or Astrophysics

Upon completing the BS degree, a student majoring in Physics or Astrophysics will be able to:

- 1. Acquire and demonstrate a solid foundation of knowledge in physics and/or astrophysics and deeper knowledge of subdivisions of the field related to their interests.
- 2. Develop the ability to identify, formulate, and solve challenging scientific and technical problems as encountered in physics and astronomy.
- 3. Learn basic skills in reading scientific literature. They will also be able to communicate scientific results orally and in writing with scientists and the general public.
- 4. Be able to conduct directed research.

Requirements for the BS Degree with a Major in Physics

For general university requirements, see Graduation Requirements. Students pursuing the BS degree with a major in Physics (PHYS) must complete:

- A minimum of 27-31 courses (between 74-76 credit hours) depending on course selection to satisfy major requirements.
- A minimum of 134-136 credit hours (depending on course selection) to satisfy degree requirements.
- The requirements of a major concentration. When students declare the major in Physics, students must additionally identify and declare one of the major concentrations, either in a.) General Physics or b.) Applied Physics or c.) Biological Physics or d.) Computational Physics.

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.

CORE REQUIREMENTS

All students, regardless of option selected below, must complete a total of 16-18 courses (43 credit hours) to satisfy the Physics major's Core Requirements:

- PHYS 101 Mechanics (with Lab) [4 credit hours] and PHYS 103 Mechanics Discussion [0 credit] or PHYS 111 Mechanics (with lab) [4 credit hours]
- PHYS 102 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>] and PHYS 104 E & M Discussion [<u>0 credit</u>] or PHYS 112 Electricity and Magnetism (with lab) [<u>4 credit hours</u>]

- PHYS 201 Waves and Optics [3 credit hours]
 - PHYS 202 Modern Physics [3 credit hours]
- PHYS 231 Elementary Physics Laboratory [1 credit hour]
- PHYS 301 Intermediate Mechanics [4 credit hours]
- PHYS 311 Introduction to Quantum Physics I [3 credit hours]
- PHYS 425 Statistical and Thermal Physics [3 credit hours]
- PHYS 491 UG Research [2 credit hours] and PHYS 493 UG Research Seminar [1 credit hour] (PHYS 491 and PHYS 493 must be taken concurrently)
- PHYS 492 UG [2 credit hours] and PHYS 494 UG Research Seminar [1 credit hour] (PHYS 492 and PHYS 494 must be taken concurrently)
- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [3 credit hours]
- MATH 211 Ordinary Differential Equations and Linear Algebra [<u>3 credit hours</u>] or MATH 221 Honors Calculus III [<u>3 credit hours</u>]
- MATH 212 Multivariable Calculus [<u>3 credit hours</u>] or MATH 222 Honors Calculus IV [<u>3 credit hours</u>]

MAJOR CONCENTRATION: GENERAL PHYSICS

Students must complete a total of 12 courses (31 credit hours) to satisfy the major concentration in General Physics requirements.

- PHYS 302 Intermediate Electrodynamics [<u>4 credit hours</u>]
- PHYS 312 Introduction to Quantum Physics II [<u>3 credit hours</u>]
- PHYS 331 Junior Physics Laboratory I [2 credit hours] and PHYS 332 Junior Physics Laboratory II [2 credit hours]
- PHYS 411 Introduction to Nuclear and Particle Physics [3 credit hours]
- PHYS 412 Solid State Physics [3 credit hours]
- Choose 2 courses from either the MATH or CAAM course groups as listed below:
 - MATH 381 Partial Differential Equations [<u>3 credit hours</u>] and MATH 382 Complex Analysis [<u>3 credit hours</u>]
 - CAAM 335 Matrix Analysis [3 credit hours] and CAAM 336 Differential Equations in Sci. and Eng. [3 credit hours]
- CHEM 121 General Chemistry / [<u>3 credit hours</u>] and CHEM 123 General Chemistry Lab / [<u>1 credit hour</u>]
- CHEM 122 General Chemistry II [3 credit hours] and CHEM 124 General Chemistry Lab II [1 credit hour]

Note: CHEM 121 and CHEM 123 can be satisfied by completing CHEM *151 Honors Chemistry I* and CHEM 153 *Honors Chemistry Laboratory I.* CHEM 122 and CHEM 124 can be satisfied by completing CHEM 152 *Honors Chemistry II* and CHEM 154 *Honors Chemistry Laboratory II.*

MAJOR CONCENTRATION: APPLIED PHYSICS

Students must complete a total of 12 courses (31-33 credit hours depending on course selection) to satisfy the major concentration in Applied Physics requirements.

- PHYS 302 Intermediate Electrodynamics [<u>4 credit hours</u>] or ELEC 306 Applied Electromagnetics [<u>3 credit hours</u>]
- PHYS 312 Introduction to Quantum Physics II [3 credit hours]
 - or ELEC 361 Quantum Mechanics for Engineers [3 credit hours]
- Choose 2 courses from the following:
 - PHYS 331 Junior Physics Lab I [<u>2 credit hours</u>]
 - PHYS 332 Junior Physics Lab II [2 credit hours]
 - ELEC 364 Photonics Measurements [<u>3 credit hours</u>]
- PHYS 412 Solid State Physics (or approved substitute in applied physics) [<u>3 credit hours</u>]
- ELEC 242 Fundamentals of Electrical Engineering II [<u>3 credit hours</u>] and ELEC 244 Fundamentals of Electrical Engineering II Lab [<u>1 credit hour</u>]
 - or ELEC 243 Electronic Measurement Systems [4 credit hours]
- ELEC 305 Introduction to Physical Electronics [<u>3 credit hours</u>]
- MATH 381 Introduction to Partial Differential Equations [<u>3 credit hours</u>]
 or CAAM 336 Differential Equations in Science and Engineering [<u>3 credit hours</u>]
- CHEM 121 General Chemistry / [3 credit hours] and CHEM 123 General Chemistry Lab / [1 credit hour]
- CHEM 122 General Chemistry II [3 credit hours] and CHEM 124 General Chemistry Lab II [1 credit hour]

Note: CHEM 121 and CHEM 123 can be satisfied by completing CHEM 151 Honors Chemistry I and CHEM 153 Honors Chemistry Laboratory I. CHEM 122 and CHEM 124 can be satisfied by completing CHEM 152 Honors Chemistry II and CHEM 154 Honors Chemistry Laboratory II.

MAJOR CONCENTRATION: BIOLOGICAL PHYSICS

Students must complete a total of 13 courses (32 credit hours) to satisfy the major concentration in Biological Physics requirements.

- PHYS 302 Intermediate Electrodynamics [4 credit hours]
- PHYS 312 Introduction to Quantum Physics II [3 credit hours]
- PHYS 355 Introduction to Biological Physics [3 credit hours]
- BIOC 201 Introductory Biology [3 credit hours]
- BIOC 211 Intermediate Experimental Biosciences [2 credit hours]
- BIOC 301 Biochemistry I [<u>3 credit hours</u>] or BIOC 341 Cell Biology [<u>3 credit hours</u>]
- CHEM 121 General Chemistry / [3 credit hours] and CHEM 123 General Chemistry Lab / [1 credit hour]
- CHEM 122 General Chemistry II [3 credit hours] and CHEM 124 General Chemistry Lab II [1 credit hour]
- CHEM 211 Organic Chemistry / [3 credit hours] and CHEM 213 Organic Chemistry Discussion [0 credit]
- MATH 381 Introduction to Partial Differential Equations [<u>3 credit hours</u>]
 or CAAM 336 Differential Equations in Science and Engineering [<u>3 credit hours</u>]

Note: CHEM 121 and CHEM 123 can be satisfied by completing CHEM *151 Honors Chemistry I* and CHEM 153 *Honors Chemistry Laboratory I.* CHEM 122 and CHEM 124 can be satisfied by completing CHEM 152 *Honors Chemistry II* and CHEM 154 *Honors Chemistry Laboratory II.*

MAJOR CONCENTRATION: COMPUTATIONAL PHYSICS

Students must complete a total of 11 courses (32 credit hours) to satisfy the major concentration in Computational Physics requirements.

- PHYS 302 Intermediate Electrodynamics [4 credit hours]
- PHYS 312 Introduction to Quantum Physics II [3 credit hours]
- PHYS 416 Computational Physics [3 credit hours]
- CAAM 335 Matrix Analysis [3 credit hours]
- CAAM 336 Differential Equations in Science and Engineering [3 credit hours]
- CAAM 210 Introduction to Engineering Computation [3 credit hours]
- Choose 1 course from the following:
 - CAAM 435/MATH 435 Dynamical Systems [<u>3 credit hours</u>]
 - CAAM 454 Numerical Analysis II [<u>3 credit hours</u>]
 - CAAM 520 Computational Science II [3 credit hours]
 - CAAM 536/CEVE 555 Numerical Methods for Partial Differential Equations [3 credit hours]
- CAAM 453 Numerical Analysis I [3 credit hours]
- CAAM 519 Computational Science I [3 credit hours]
- CHEM 121 General Chemistry / [3 credit hours] and CHEM 123 General Chemistry Lab / [1 credit hour]

Note: CHEM 121 and CHEM 123 can be satisfied by completing CHEM 151 *Honors Chemistry I* and CHEM 153 *Honors Chemistry Laboratory I.* CHEM 122 and CHEM 124 can be satisfied by completing CHEM 152 *Honors Chemistry II* and CHEM 154 *Honors Chemistry Laboratory II.*

Requirements for the BS Degree with a Major in Astrophysics

For general university requirements, see Graduation Requirements. Students pursuing the BS degree with a major in Astrophysics (ASTR) must complete:

- A minimum of 27-31 courses (76 credit hours) to satisfy major requirements.
- A minimum of 136 credit hours to satisfy degree requirements.

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.

REQUIRED COURSES

- PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>] or PHYS 111 Mechanics (with lab) [<u>4 credit hours</u>]
 - PHYS 102 *Electricity and Magnetism (with Lab)* [<u>4 credit hours</u>] and PHYS 104 *E* & *M Discussion* [<u>0 credit</u>] or PHYS 112 *Electricity and Magnetism (with lab)* [<u>4 credit hours</u>]
- PHYS 201 Waves and Optics [<u>3 credit hours</u>]
- PHYS 202 Modern Physics [<u>3 credit hours</u>]
- PHYS 231 Elementary Physics Laboratory II [1 credit hour]
- PHYS 301 Intermediate Mechanics [4 credit hours]
- PHYS 302 Intermediate Electrodynamics [4 credit hours]
- PHYS 311 Introduction to Quantum Physics I [3 credit hours]

PHYS 425 Statistical and Thermal Physics [3 credit hours]

- PHYS 491 Undergraduate Research [2 credit hours] and PHYS 493 Undergraduate Research Seminar [1 credit hour] (PHYS 491 and PHYS 493 must be completed concurrently)
- PHYS 492 Undergraduate Research [2 credit hours] and PHYS 494 Undergraduate Research Seminar [1 credit hour] (PHYS 492 and PHYS 494 must be completed concurrently)
- ASTR 230 Astronomy Lab [<u>3 credit hours</u>]
- ASTR 350 Introduction to Astrophysics Stars [<u>3 credit hours</u>]
- ASTR 360 Introduction to Astrophysics Galaxy & Cosmos [3 credit hours]
- ASTR 400 Undergraduate Research Seminar [a minimum of 2 credit hours]
- Choose 3 courses (9 credit hours) from the following:
 - ASTR 451 Astrophysics I Sun and Stars [<u>3 credit hours</u>]
 - ASTR 452 Astrophysics II Galaxies and Cosmology [<u>3 credit hours</u>]
 - ASTR 470 Solar System Physics [3 credit hours]
 - PHYS 312 Introduction to Quantum Physics II [3 credit hours]
 - PHYS 480 Introduction to Plasma Physics [3 credit hours]
- MATH 101 Single Variable Calculus I [<u>3 credit hours</u>]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- MATH 211 Ordinary Differential Equations and Linear Algebra [<u>3 credit hours</u>] or MATH 221 Honors Calculus [<u>3 credit hours</u>]
- MATH 212 Multivariable Calculus [<u>3 credit hours</u>]
- or MATH 222 Honors Calculus IV [3 credit hours]
- CAAM 336 Differential Equations in Science and Engineering [<u>3 credit hours</u>]
- NSCI 230/COMP 110 Computation in Science and Engineering [<u>3 credit hours</u>] or CAAM 210 Introduction to Engineering Computation [<u>3 credit hours</u>]
- MECH 200 Classical Thermodynamics [<u>3 credit hours</u>]

PROGRAM RESTRICTIONS AND EXCLUSIONS

Students pursuing the BS degree with a major in Astrophysics should be aware of the following program restriction:

Students who have declared the major in Astrophysics may not additionally declare the minor in Physics.

Program Learning Outcomes for the BA Degree with a Major in Physics or Astronomy

Upon completing the BA degree, a student majoring in Physics or Astronomy will be able to:

1. Acquire and demonstrate a solid foundation of knowledge in physics and/or astronomy.

Requirements for the BA Degree with a Major in Physics

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Physics (PHYS) must complete:

- A minimum of 16-18 courses (49 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.

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.

REQUIRED COURSES

- PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>] or PHYS 111 Mechanics (with lab) [<u>4 credit hours</u>]
- PHYS 102 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>] and PHYS 104 E & M Discussion [<u>0 credit</u>] or PHYS 112 Electricity and Magnetism (with lab) [<u>4 credit hours</u>]
- PHYS 201 Waves and Optics [3 credit hours]
- PHYS 202 Modern Physics [3 credit hours]
- PHYS 231 Elementary Physics Laboratory [1 credit hour]
- PHYS 301 Intermediate Mechanics [<u>4 credit hours</u>]
- PHYS 302 Intermediate Electrodynamics [<u>4 credit hours</u>]
- PHYS 311 Introduction to Quantum Physics I [3 credit hours]
- PHYS 331 Junior Physics Laboratory I [2 credit hours]
- PHYS 425 Statistical and Thermal Physics [3 credit hours]
- Choose 1 additional Physics (PHYS) or (ASTR) course at the 400-level or above [3 credit hours]

- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours] or MATH 221 Honors Calculus III [3 credit hours]
- MATH 212 Multivariable Calculus [<u>3 credit hours</u>]
 or MATH 222 Honors Calculus IV [<u>3 credit hours</u>]
- Choose 1 course from the following:
 - NSCI 230/COMP 110 Computation in Science and Engineering [3 credit hours]
 - CAAM 210 Introduction to Engineering Computation [3 credit hours]
 - One MATH or CAAM (Computational and Applied Mathematics) course at the 300-level or above [3 credit hours]

Requirements for the BA Degree with a Major in Astronomy

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Astronomy (ASBA) must complete:

- A minimum of 18-20 courses (54-55 credit hours) depending on course selection to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.

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.

REQUIRED COURSES

- PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>] or PHYS 111 Mechanics (with Lab) [<u>4 credit hours</u>]
- PHYS 102 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>] and PHYS 104 E & M Discussion [<u>0 credit</u>] or PHYS 112 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>]
- PHYS 201 Waves and Optics [3 credit hours]
- PHYS 202 Modern Physics [3 credit hours]
- PHYS 231 Elementary Physics Laboratory [<u>1 credit hour</u>]
- PHYS 301 Intermediate Mechanics [4 credit hours]
- PHYS 302 Intermediate Electrodynamics [<u>4 credit hours</u>]
- ASTR 230 Astronomy Lab [3 credit hours]
- ASTR 350 Introduction to Astrophysics Stars [3 credit hours]
- ASTR 360 Introduction to Astrophysics Galaxy & Cosmos [3 credit hours]
- ASTR 400 Undergraduate Research Seminar [a minimum of 2 credit hours]
- Choose 1 course from the following:
 - ASTR 451 Astrophysics I Sun and Stars [<u>3 credit hours</u>]
 - ASTR 452 Astrophysics II Galaxies and Cosmology [<u>3 credit hours</u>]
 - ASTR 470 Solar System Physics [3 credit hours]
 - PHYS 480 Introduction to Plasma Physics [3 credit hours]
- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [<u>3 credit hours</u>]
- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours]
- or MATH 221 Honors Calculus III [3 credit hours]
- MATH 212 Multivariable Calculus IV [<u>3 credit hours</u>]
 - or MATH 222 Honors Calculus IV [3 credit hours]
- MECH 200 Classical Thermodynamics [<u>3 credit hours</u>]
- Choose 1 course from the following:
- PHYS 331 Junior Physics Laboratory [<u>2 credit hours</u>]
- NSCI 230/COMP 110 Computation in Science and Engineering [3 credit hours]
- CAAM 210 Introduction to Engineering Computation [<u>3 credit hours</u>]

PROGRAM RESTRICTIONS AND EXCLUSIONS

Students pursuing the BA degree with a major in Astronomy should be aware of the following program restriction:

Students who have declared the major in Astronomy may not additionally declare the minor in Physics.

Program Learning Outcomes for the Minor in Physics

Upon completing the minor in Physics, students will:

1. Acquire and demonstrate a solid foundation of knowledge in physics. This includes: basic mechanics, basic

electromagnetism, Maxwell's equations in differential form, waves, inteference and diffraction, special relativity, the Schroedinger equation and the wave formulation of quantum mechanics.

2. Acquire and demonstrate knowledge in a number of advanced physics topics of their choosing.

Requirements for the Minor in Physics

Students pursuing the minor in Physics must complete:

 A minimum of 35 credit hours, comprising 26 credit hours under the Core Requirements (8-10 courses depending on course selection), and an additional 9 credit hours (3 courses minimum) from departmental (PHYS) course offerings at the 300-level or above.

The minor in Physics is not available to students who are pursuing majors in Astronomy or Astrophysics.

REQUIRED COURSES

- PHYS 101 Mechanics (with Lab) [<u>4 credit hours</u>] and PHYS 103 Mechanics Discussion [<u>0 credit</u>] or PHYS 111 Mechanics (with lab) [<u>4 credit hours</u>]
- PHYS 102 Electricity and Magnetism (with Lab) [<u>4 credit hours</u>] and PHYS 104 E & M Discussion [<u>0 credit</u>] or PHYS 112 Electricity and Magnetism (with lab) [<u>4 credit hours</u>]
- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [3 credit hours]
- MATH 211 Ordinary Differential Equations and Linear Algebra [<u>3 credit hours</u>] or MATH 221 Honors Calculus [<u>3 credit hours</u>]
- MATH 212 Multivariable Calculus [3 credit hours]
 - or MATH 222 Honors Calculus IV [3 credit hours]
- PHYS 201 Waves and Optics [3 credit hours]
- PHYS 202 Modern Physics [3 credit hours]

ELECTIVES

To fulfill the remaining Physics minor requirements, students must complete a total of 9 additional credit hours (a minimum of 3 courses) from departmental (PHYS) coursework at the 300-level or above.

Requirements for the BS Degree with a Major in Chemical Physics

This degree is jointly managed by the Department of Chemistry and the Department of Physics and Astronomy. For more information, see Chemical Physics.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate Physics and Astronomy degrees, majors, major concentrations, and minor. The following is a quick reference:

Course Catalog/Schedule:

- Physics course offerings/subject code: PHYS
- Astronomy course offerings/subject code: ASTR

Department Description and Code

- Physics and Astronomy: PHYS

- Degree Descriptions and Codes
 - Bachelor of Arts degree: BA
 - Bachelor of Science degree: BS

Major Descriptions and Codes

- Major in Physics (attached to BA and BS degrees): PHYS
- Major in Astronomy (attached to BA degree): ASBA
- Major in Astrophysics (attached to BS degree): ASTR

Major Concentration Descriptions and Codes

- Major Concentration in General Physics (attached to BS degree for PHYS majors): GEPS
- Major Concentration in Applied Physics (attached to BS degree for PHYS majors): APPS
- Major Concentration in Biological Physics (attached to BS degree for PHYS majors): BIPS

- Major Concentration in Computational Physics (attached to BS degree for PHYS majors): COPS Minor Description and Code

- Minor in Physics: PHYM

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Physics and Astronomy >

Undergraduate Students	Physics and Astronomy The Wiess School of Natural Sciences							
Graduate Students								
Non-Traditional Students		Department Info	Undergraduate	Graduate	Course Listings			
▶ Faculty	Progr		Requirements comes for the PhD I	Requirements Degree in Physics	Listings			
Programs of Study	Students graduating from this program will:							
Administration and Faculty	1. Acquire and demonstrate advanced knowledge in foundational areas of physics and astronomy, and a mastery of their							
Important Notices	selected subfield. 2. Develop the skills necessary to conduct independent research in physics and astronomy and become leaders in their							
 chosen careers. 3. Develop the ability to identify, formulate, and solve challenging scientific and technical problems as encountered in and astronomy. 						hysics		
	4. Become proficient in reading the scientific literature and in oral and written communication of scientific results.5. Make an original and significant contribution to knowledge in their discipline.							
	Requ	irements for the F	PhD Degree in Physi	ics				
	Ū	eral university requirement Department of Physics ar		re detailed information on cour	ses and requirements is av	ailable		
		a	•	onstrate to the department their	o .			

the ability to engage in advanced research. This normally is accomplished by: successfully completing required coursework for the MS; presenting a research progress report and proposal to a faculty committee: and passing an oral candidacy exam. Students must complete a total of 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.

Requirements for the Master of Science Teaching Degree (MST)

For more information about the Master of Science Teaching degree, please visit the Science Teaching page.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Physics and Astronomy graduate degree program. The following is a quick reference.

Course Catalog/Schedule

Course offerings/subject code: PHYS and ASTR

Department Description and Code

- Physics and Astronomy: PHYS
- Degree Descriptions and Codes
- Master of Science degree: MS
- Doctor of Philosophy degree: PhD
- <u>Degree Program Description and Code</u> - Degree Program in Physics: PHYS

Last Revised : August 17, 2016

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Physics and Astronomy >

Undergraduate Students	Physics and Astronomy							
Graduate Students	The Wiess School of Natural Sciences							
Non-Traditional Students	Department	Undergraduate	Graduate	Course				
Faculty	Info	Requirements	Requirements	Listings				
Programs of Study	Course Listings The official course offerings, include	ding course descriptions, for P	hysics and Astronomy, can be	e found in Rice's Course Catalo				
Administration and Faculty	Physics 🗗 and Astronomy 🗗.							
Important Notices	To see course offerings during the	2016-2017 academic year, se	ee Rice's Course Schedule. 🗗	I				
important Notices	For additional information regardin	ng Physics and Astronomy, see	e the department's website: ht	tp://www.physics.rice.edu/. 🗗				
	Last Deviaed - Averation 04, 2040							
	Last Revised : August 24, 2016							

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712 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Policy Studies >

Undergraduate Students		y Studies			
Graduate Students	The So	chool of Social Scie	ences		
Non-Traditional Students		Department	Undergraduate	Graduate	Course
Faculty		Info	Requirements	Requirements	Listings
Programs of Study		Director			
Administration and Faculty		Donald Ostdiek			
Important Notices	Progra	am (Undergraduate):	BA degree		
		am (Graduate): N/A	C C		
	Studies	major evaluate and analyze	najor focuses on policy issues t both the determinants and the eoretical issues as well as appli	effects of policy decisions, g	gaining an understanding of the
	enginee innovati	ring or science majors who a	ly as a second major. It comple are contemplating careers in bu ed and implemented as matters articularly valuable.	siness or government can ir	nvestigate how technical
	Washing	gton Semester Program at A nent. Students may also part	ate research opportunities with merican University, which inclu icipate in the Rice Policy Studie London. See the policy studies	des both course work and a es Abroad program in Londo	n internship in the federal on for course credit, which
	Last Revis	ed : August 17, 2016			

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Web Services

University Calendar Rice A-Z

Maps-Directions

Feedback

713 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Policy Studies >

Undergraduate Students	Polic	y Studies						
Graduate Students	The Sc	hool of Social So	ie	nces				
Non-Traditional Students		Department Info		Undergraduate Requirements		Graduate Requirements	Course Listings	
▶ Faculty	Progr		со	mes for the BA Deg	ar	•		
Programs of Study		-		udent majoring in Policy Studi		-	· · · · · · · · · · · · · · · · · · ·	
Administration and Faculty	1. De	velop a basic understandi	ing	of the policy world, including i	ins	stitutional structures of the	policymaking environment.	
Important Notices	adv	vanced language proficier	ncy.	essary for entry into the policy pasic principles and ideas of r	-			
	will 5. Dev pop 6. Dev sim For gene Studies (• A n • A n • The • An • The • The	also be able to synthesiz velop knowledge of the so pulations. velop an understanding o nilar structured experience rements for the E eral university requirement (POST) must complete: ninimum of 10 courses (3) ninimum of 120 hours to s e requirements for one arr approved capstone requi e requirements for a seco as of specialization availat vironmental policy	e ic ocia f the es o BA ts, s 0 cr satis ea c irem	ms with multi-disciplinary met leas from multiple disciplines. I and cultural aspects of the ir e application of their knowledg r through major research proj Degree with a Majo see Graduation Requirements edit hours) to satisfy the majo sfy the degree requirements. of specialization (see below for ent. departmental or interdepartmet to students pursuing the POS	imp lge ojec or s. (plications and outcomes of e in the outside world throug cts. r in Policy Studies Students pursuing the BA of requirements. areas of specialization).	policy decisions for differer gh participation in internship	nt os or
		vironmental policy althcare management						

- International affairs
- Law and justice
- Urban and social change
- Energy Policy Studies

CORE REQUIREMENTS

Students must complete 4 courses (12 credit hours) from the list below to satisfy the Policy Studies major's Core Requirements. The Policy Studies major's Core Requirements introduces students to the fundamental concepts and tools needed to understand and study policy, regardless of the policy area on which they choose to focus. The four courses ensure that all Policy Studies majors have a common professional vocabulary and conceptual frame of reference.

- ECON 100 Principles of Economics [<u>3 credit hours</u>]
 - or ECON 101 Introduction to Microeconomics [3 credit hours]
 - or ECON 103 Introduction to Macroeconomics [3 credit hours]
 - or ECON 111 AP/Oth Credit in Microeconomics [3 credit hours]
 - or ECON 113 AP/Oth Credit in Macroeconomics [3 credit hours]

- ECON 200 Microeconomics [3 credit hours]
- ECON 203 Macroeconomics [3 credit hours]
- ECON 210 Behavioral Economics [3 credit hours]
- ECON 239 Law and Economics [<u>3 credit hours</u>]
 - or ECON 260 Microeconomics and Public Policy [3 credit hours]
 - or ECON 265 Microeconomics and Public Policy Towards Business [3 credit hours]
 - or ECON 270 Macroeconomics and Public Policy [3 credit hours]
 - or ECON 275 International Macroeconomics and Public Policy [3 credit hours]
- POLI 337 Public Policy & Bureaucracy [3 credit hours]
 or POLI 336 Politics of Regulation [3 credit hours]
 or SOCI 348 Organizational Sociology [3 credit hours]
- POLI 317 The Congress [<u>3 credit hours</u>] or POLI 318 The Presidency [<u>3 credit hours</u>]
 - or POLI 321 American Constitutional Law [<u>3 credit hours</u>] or POLI 342 Politics of the Judiciary [<u>3 credit hours</u>]
- POLI 338/POST 338/SOSC 301 Policy Analysis [3 credit hours]
- POST 200 Baker Institute Introduction to Public Policy Issues [<u>3 credit hours</u>] or POST 201 Baker Institute Introduction to Public Policy [<u>3 credit hours</u>]
- POST 300 Public Policy Planning, Management and Advocacy [3 credit hours]
- POST 350 Global Urban Lab [3 credit hours]
- One Advanced Analysis or Methods course approved by the Policy Studies director
 - or ECON 209 Applied Econometrics [4 credit hours]
 - or ECON 307/STAT 310 Probability and Statistics [3 credit hours]
 - or ECON 309 Applied Econometrics [4 credit hours]
 - or ECON 310/STAT 376 Econometrics [3 credit hours]
 - or POLI 395 Introduction to Statistics [3 credit hours]
 - or SOCI 341/ASIA 385 Qualitative Research Methods [3 credit hours]
 - or SOCI 381 Research Methods [3 credit hours]
 - or SOCI 405 Ethnographic Research [3 credit hours]
 - or SOCI 406 Basic Demographic Techniques [3 credit hours]
 - or SOCI 408 Ethnographic Research II [3 credit hours]

AREAS OF SPECIALIZATION

Students must complete 6 courses (18 credit hours) from one of the following six groups to satisfy the Areas of Specialization requirement. The courses listed are illustrative and not all-inclusive; students should review with current course offerings and discuss course substitutions with the policy studies director, who approves substitutions. The Policy Studies major's Areas of Specialization requirement provides specialized training that builds on students' work in the Core Requirements of the major.

Environmental Policy

- CEVE 302/ENGI 302 Sustainable Design [3 credit hours]
- CEVE 307/ENST 307/ESCI 307 Energy and the Environment [3 credit hours]
- CEVE 406/ENST 406 Introduction to Environmental Law [3 credit hours]
- ECON 480/ENST 480 Environmental Economics [3 credit hours]
- ENGL 368/ENST 368 Literature and the Environment [3 credit hours]
- ENST 302/SOCI 304 Environmental Issues: Rice into the Future [3 credit hours]
- POLI 331 Environmental Politics and Policy [<u>3 credit hours</u>]
- POLI 336 Politics of Regulation [<u>3 credit hours</u>]
- SOCI 304/ENST 302 Environmental Issues [3 credit hours]
- SOCI 342 Sociology of Globalization [<u>3 credit hours</u>]
- SOCI 350 Urban Transportation [<u>3 credit hours</u>]
- SOCI 367/ENST 367 Environmental Sociology [3 credit hours]
- SOCI 415/ENST 415 The Environmental Movement [3 credit hours]
- SOCI 422 Social Autopsies: How Society Kills Us [3 credit hours]
- SOCI 423 Sociology of Food [3 credit hours]

Healthcare Policy and Management

- ANTH 381 Medical Anthropology [3 credit hours]
- ANTH 386 Medical Anthropology of Food and Health [3 credit hours]
- ANTH 388/SWGS 335 Life Cycle: A Biocultural View [3 credit hours]
- HEAL 212 Consumer Health and the Media [3 credit hours]
- HEAL 222 Principles of Public and Community Health [3 credit hours]
- HEAL 313 Foundations of Health Promotion [3 credit hours]
- HEAL 350 Understanding Cancer [3 credit hours]

- HEAL 360 Violence in America [<u>3 credit hours</u>]
 - HEAL 407 Epidemiology [<u>3 credit hours</u>]
- PHIL 310 Philosophy of Biology [<u>3 credit hours</u>]
- PHIL 313 Philosophy of Science [<u>3 credit hours</u>]
- PHIL 314 Philosophy of Medicine [3 credit hours]
- PHIL 315 Ethics, Medicine, and Public Policy [3 credit hours]
- PHIL 337 Research and Ethics [3 credit hours]
- PHIL 339 Death and Dying [<u>3 credit hours</u>]
- POST 430/SOSC 430 The Shaping of Health Policy [<u>3 credit hours</u>]
- SOCI 334/SWGS 325 Sociology of the Family [3 credit hours]
- SOCI 345 Medical Sociology [<u>3 credit hours</u>]
- SOCI 422 Social Autopsies: How Society Kills Us [3 credit hours]
- SOCI 423 Sociology of Food [<u>3 credit hours</u>]
- SOCI 425 Population Health Seminar [3 credit hours]
- SOCI 451 Immigration in a Global World [3 credit hours]
- SOCI 465/SWGS 465 Gender and Health [3 credit hours]
- SOSC 330 Healthcare Reform in the 50 States [3 credit hours]

International Affairs

- ECON 420 International Trade [<u>3 credit hours</u>]
- ECON 421 International Finance [3 credit hours]
- HIST 386 Carter, Reagan, and the End of the Cold War [3 credit hours]
- POLI 354 Latin American Politics [3 credit hours]
- POLI 355 Government and Politics of the Middle East [3 credit hours]
- POLI 357 Democracy and Democratization [3 credit hours]
- POLI 360 Western European Democracies [3 credit hours]
- POLI 372 American Foreign Policy [3 credit hours]
- POLI 373 War and Politics [3 credit hours]
- POLI 378 Politics of American National Security [<u>3 credit hours</u>]
- POLI 462 Comparative Public Policy [3 credit hours]
- POST 351 Ethics in the Media [<u>3 credit hours</u>]
- POST 352 International Economics [<u>3 credit hours</u>]
- POST 354 Understanding Britain Today [<u>3 credit hours</u>]
- POST 355 European Government & Politics [<u>3 credit hours</u>]
- POST 356 Politics, Democracy, and Islam: Apartism and Alienation in London's East End [3 credit hours]
- POST 357 International Finance [<u>3 credit hours</u>]
- POST 358 International Marketing [<u>3 credit hours</u>]
- POST 359 Analyzing & Exploring the Global City: London- Modernity, Empire, and Globalization [3 credit hours]
- POST 401 Energy Policy [<u>3 credit hours</u>]
- POST 455 United States Middle East Policy [<u>3 credit hours</u>]

Law and Justice

- CEVE 406/ENST 406 Introduction to Environmental Law [3 credit hours]
- ECON 239 Law, and Economics [3 credit hours]
- ECON 439 Advanced Topics in Law and Economics [3 credit hours]
- HIST 398/SWGS 398 The Ten Most Important Supreme Court Decisions in U.S. History [3 credit hours]
- PHIL 306 Ethics [3 credit hours]
- PHIL 307 Social and Political Philosophy [<u>3 credit hours</u>]
- PHIL 315 Ethics, Medicine, and Public Policy [3 credit hours]
- PHIL 316 Philosophy of Law [3 credit hours]
- PHIL 319/SWGS 319 Feminist Philosophy [<u>3 credit hours</u>]
- PHIL 331 Moral Psychology [<u>3 credit hours</u>]
- POLI 330 Minority Politics [<u>3 credit hours</u>]
- POLI 438 Race and Public Policy [3 credit hours]
- POST 351 Ethics in the Media [3 credit hours]
- POST 354 Understanding Britain Today [<u>3 credit hours</u>]
- POST 356 Politics, Democracy, and Islam: Apartism and Alienation in London's East End [3 credit hours]
- SOCI 301 Social Inequality [<u>3 credit hours</u>]
- SOCI 309 Race and Ethnic Relations [<u>3 credit hours</u>]
- SOCI 321 Criminology [<u>3 credit hours</u>]
- SOCI 325 Sociology of Law [3 credit hours]
- SOCI 329 Multiracial America [<u>3 credit hours</u>]
- SOCI 338 Social Problems [3 credit hours]

- SOCI 349 Deviance, Justice, and Popular Culture [3 credit hours]
- UNIV 310 Rice Legal Lab [2 credit hours]

Urban and Social Change

- ANTH 344 City/Culture [3 credit hours]
- ARCH 311 Houston Architecture [<u>3 credit hours</u>]
- ARCH 313/ENST 313 Case Studies in Sustainable Design [<u>3 credit hours</u>]
- ARCH 455 Housing and Urban Programs: Issues in Policy [3 credit hours]
- ECON 450 Economic Development [3 credit hours]
- ECON 480/ENST 480 Environmental Economics [3 credit hours]
- ECON 481 Health Economics [3 credit hours]
- ECON 483 Public Finance [3 credit hours]
- ECON 484 Public Economics [<u>3 credit hours</u>]
- PHIL 307 Social and Political Philosophy [3 credit hours]
- POLI 332 Urban Politics [<u>3 credit hours</u>]
- POLI 438 Race and Public Policy [<u>3 credit hours</u>]
- POST 351 Ethics in the Media [3 credit hours]
- POST 354 Understanding Britain Today [3 credit hours]
- POST 356 Politics, Democracy, and Islam: Apartism and Alienation in London's East End [3 credit hours]
- POST 359 Analyzing & Exploring the Global City: London-Modernity, Empire, and Globalization [3 credit hours]
- SOCI 301 Social Inequality [<u>3 credit hours</u>]
- SOCI 308 Houston: The Sociology of a City [3 credit hours]
- SOCI 309 Race and Ethnic Relations [<u>3 credit hours</u>]
- SOCI 310 Urban Sociology [3 credit hours]
- SOCI 313 Demography [<u>3 credit hours</u>]
- SOCI 342 Sociology of Globalization [<u>3 credit hours</u>]
- SOCI 350 Urban Transportation [<u>3 credit hours</u>]
- SOCI 437 Sociology of Education [<u>3 credit hours</u>]
- SOCI 451 Immigration in a Global World [3 credit hours]
- SOCI 470 Inequality and Urban Life [<u>3 credit hours</u>]

Energy Policy Studies

- CEVE 307/ENST 307/ESCI 307 Energy and the Environment [3 credit hours]
- CEVE 406/ENST 406 Introduction to Environmental Law [3 credit hours]
- CHBE 281/ENST 281 Engineering Sustainable Communities [3 credit hours]
- ECON 437/ENST 437 Energy Economics [3 credit hours]
- ECON 447 Advanced Topics in Energy Economics [3 credit hours]
- ESCI 107 Oceans and Global Change [3 credit hours]
- ESCI 415 Economic Geology–Petroleum [3 credit hours]
- POST 352 International Economics [<u>3 credit hours</u>]
- POST 355 European Government & Politics [3 credit hours]
- POST 357 International Finance [<u>3 credit hours</u>]
- POST 359 Analyzing & Exploring the Global City: London- Modernity, Empire, and Globalization [3 credit hours]
- POST 401 Energy Policy [<u>3 credit hours</u>]
- POST 411/GLHT 411 Integrated Approaches to Sustainable Development [3 credit hours]
- POST 455 United States Middle East Policy [3 credit hours]

CAPSTONE REQUIREMENT

In consultation with the policy studies director, each student also must complete an approved capstone requirement. This requirement may be met by participating in an approved Rice University study abroad program, a School of Social Sciences Gateway experience, or another approved internship or research opportunity.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate Policy Studies degree and major. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: POST
- Department Description and Code

- Policy Studies: POST

- Degree Description and Code
 - Bachelor of Arts degree: BA

Major Description and Code - Major in Policy Studies: POST

Last Revised : August 17, 2016

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Maps-Directions Feedback

718 of 923

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Policy Studies >

Undergraduate Students	Polic	y Studies			
Graduate Students	The Sc	hool of Social Sc	iences		
Non-Traditional Students		Department	Undergraduate	Graduate	Course
▶ Faculty	Gradu	Info Jate Requirements	Requirements s	Requirements	Listings
Programs of Study		1	ademic program at the gradua	ate level.	
Administration and Faculty					
Important Notices	Last Revise	ed : August 12, 2016			

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2016-2017 > Programs of Study > Policy Studies >

Undergraduate Students	Policy Studies				
Graduate Students	The School of Social	Sciences			
Non-Traditional Students	Department	Undergraduate	Graduate	Course	
▶ Faculty	Info	Requirements	Requirements	Listings	
Programs of Study	Course Listings The official course offerings, inc	cluding course descriptions, lister	d in the Policy Studies Underg	raduate Requirements section	on car
Administration and Faculty	be found in Rice's Course Cata	log. 🗗			
Important Notices	To view the most recent course	schedule for the 2016-2017 aca	ademic year, see Rice's Course	e Schedule. 🗗	
•	For additional information regar	ding Policy Studies, see the dep	partment's website: http://policy	vstudies.rice.edu/. 🗗	
	Last Revised : August 24, 2016				
	Last Revised : August 24, 2016				

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720 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

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		Paul Brace Gilbert Morris Cuthberts	on	Justin Esarey Sara Polo				
		Keith Edward Hamm						
		William P. Hobby Mark P. Jones		Professors Emeriti John S. Ambler				
		David W. Leebron		Earl Black				
		Brett Ashley Leeds		Chandler Davidson				
		Melissa J. Marschall		Fred R. von der Mehden				
		Lanny W. Martin						
		T. Clifton Morgan		Lecturers				
		Lyn Ragsdale		C. M. Hudspeth				
		Jerrold G. Rusk						
		Robert M. Stein						
		Randolph T. Stevenson						
		Richard J. Stoll						
		Rick K. Wilson						
	Progra	am (Undergraduate): E	3A degree					
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	knowled	ge of one or more aspects of onal relations. Graduate stud	political science, including	e both a broad understanding of American politics, comparative of American politics, comparativ	politics, and politics and			
	Last Revise	ed : August 17, 2016						

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01/03/2017

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Political Science >

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Political Science

The School of Social Sciences

•	Graduate	Students	
•	Graduate	Students	

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department Undergraduate		Graduate	Course			
	Info	Requirements	Requirements	Listings		
rogram Learning Outcomes for the BA Degree with a Major in Political Science						

Program Learning Outcomes for the BA Degree with a Major in Political Science

Upon completing the BA degree, students majoring in Political Science will be able to:

- 1. Demonstrate a basic understanding of American Politics including governing institutions and branches, political actors and organizations, political behavior and the operation of government at both the national and sub-national levels.
- 2. Understand government and politics in a comparative perspective.
- 3. Understand government and politics in a global context.
- 4. Study a range of methods, theory, research and models essential to understanding the scope of the discipline's scholarship, research questions, and research activities.
- Use critical thinking skills to apply methodological, theoretical, and research knowledge to political science issues in order to begin producing independent research in the field, including completion of research projects, research papers, articles, and poster sessions.

Requirements for the BA Degree with a Major in Political Science

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Political Science (POLI) must complete:

- A minimum of 12 courses (36 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 2 courses (6 credit hours) at the 300-level or above from course offerings in any of the following six fields: ANTH, ECON, HIST, PHIL, PSYC, SOCI.
- A minimum of 1 course (3 credit hours) from each of the following fields: American Politics, Comparative Politics, and International Relations.
- A minimum of 1 Statistics course offered by the Department of Political Science. The undergraduate statistics course is POLI 395.
- A minimum of 2 seminars taught by different instructors. Note: seminars are courses numbered at the 400-level.
- One area of specialization.

Areas of Specialization offered in the Political Science major are as follows:

- American Politics
- Comparative Politics
- International Relations

CORE REQUIREMENTS

Students must complete a total of 5 courses (15 credit hours) as listed below to satisfy the Political Science major's Core Requirements. Note that students must complete one required introductory course depending on which area of specialization they are pursuing.

Introductory Courses

Students must complete a total of 2 courses (6 credit hours) from the following. The required introductory course for each area of specialization is noted below for each course. The second introductory course completed can be included in the requirement for courses taken in the fields outside the area of specialization selected.

POLI 209 Introduction to Constitutionalism and Modern Political Thought [3 credit hours]

- POLI 210 American Government and Politics (required for the American Politics specialization) [3 credit hours]
- POLI 211 Introduction to International Relations (required for the International Relations specialization) [3 credit hours]
- POLI 212 Introduction to Comparative Politics (required for the Comparative Politics specialization) [3 credit hours]

Introduction to Statistics

Students must complete the following course (3 credit hours):

POLI 395 Introduction to Statistics [3 credit hours]

Upper-Level Courses in Approved Fields Outside Political Science

Students must complete a total of 2 courses (6 credit hours) from the following departmental course offerings at the 300-level or above:

- Anthropology (ANTH)
- Economics (ECON)
- History (HIST)
- Philosophy (PHIL)
- Psychology (PSYC)
- Sociology (SOCI)

AREAS OF SPECIALIZATION

Students must complete the requirements as listed for one of the following areas of specialization offered by the Political Science major. Note that a course taken for the Introductory Courses requirement can be used to satisfy the requirements listed below. All courses referenced in the requirements lised under each specialization can be found in the course lists below the specialization requirements.

American Politics Specialization

To fulfill the remaining Political Science major requirements students pursuing the American Politics area of specialization must complete a total of 7 additional courses (21 credit hours) to satisfy the following requirements.

Breadth

Students must complete a minimum of 1 course (3 credit hours) from the fields below. Note that Introductory Courses in these fields can be used to satisfy the Breadth requirement.

- Comparative Politics field
- International Relations field

Electives

Students must complete a total of 2 courses (6 credit hours) from the American Politics field.

Seminar

Students must complete a toal of 2 courses (6 credit hours) from Seminar courses. At least 1 course (3 credit hours) must be from the American Politics seminar courses. Seminar courses are identified by any course at the 400-level or above in the Field course lists below. Both Seminar courses cannot be taught by the same instructor.

Comparative Politics Specialization

To fulfill the remaining Political Science major requirements students pursuing the Comparative Politics area of specialization must complete a total of 7 additional courses (21 credit hours) to satisfy the following requirements.

Breadth

Students must complete a minimum of 1 course (3 credit hours) from the fields below. Note that Introductory Courses in these fields and can be used to satisfy the Breadth requirement.

- American Politics field
- International Relations field

Electives

Students must complete a total of 2 courses (6 credit hours) from the Comparative Politics field.

Seminar

Students must complete a total of 2 courses (6 credit hours) from Seminar courses. At least 1 course (3 credit hours) must be from the Comparative Politics seminar courses. Seminar courses are identified by any course at the 400-level or above in the Field course lists below. Both Seminar courses cannot be taught by the same instructor.

To fulfill the remaining Political Science major requirements students pursuing the International Relations area of specialization must complete a total of 7 additional courses (21 credit hours) to satisfy the following requirements.

Breadth

Students must complete a minimum of 1 course (3 credit hours) from the fields below. Note that Introductory Courses in these fields and can be used to satisfy the Breadth requirement.

- American Politics field
- Comparative Politics field

Electives

Students must complete a total of 2 courses (6 credit hours) from the International Relations field.

Seminar

Students must complete a total of 2 courses (6 credit hours) from Seminar courses. At least 1 course (3 credit hours) must be from the International Relations seminar courses. Seminar courses are identified by any course at the 400-level or above in the Field course lists below. Both Seminar courses cannot be taught by the same instructor.

FIELD COURSES

To satisfy the requirements listed above, students can find the field course lists below.

Jump to: American Politics Comparative Politics International Relations Theory and Methods

American Politics Field Courses

American Politics Seminar courses can be selected from any course listed below at the 400-level or above.

- POLI 210 American Government and Politics [3 credit hours]
- POLI 301 State Politics [<u>3 credit hours</u>]
- POLI 315 Elections and Voting Behavior [<u>3 credit hours</u>]
- POLI 317 The Congress [<u>3 credit hours</u>]
- POLI 318 The Presidency [3 credit hours]
- POLI 320/RELI 320 The Legal Framework of Religious Tolerance [2 credit hours]
- POLI 321 American Constitutional Law [<u>3 credit hours</u>]
- POLI 322 Politics of Influence in the United States [3 credit hours]
- POLI 328 Latino Politics in the United States [3 credit hours]
- POLI 330 Minority Politics [3 credit hours]
- POLI 332 Urban Politics [<u>3 credit hours</u>]
- POLI 334 American Political Parties [<u>3 credit hours</u>]
- POLI 335 Political Environment of Business [<u>3 credit hours</u>]
- POLI 336 Politics of Regulation [<u>3 credit hours</u>]
- POLI 337 Public Policy and Bureaucracy [<u>3 credit hours</u>]
- POLI 338/POST 338/SOSC 301 Policy Analysis [3 credit hours]
- POLI 339 Southern Politics [<u>3 credit hours</u>]
- POLI 342 Politics of the Judiciary [<u>3 credit hours</u>]
- POLI 343 Media and Politics [3 credit hours]
- POLI 350 Urban Lab Houston [1 credit hour]
- POLI 380 Political Behavior [3 credit hours]
- POLI 401 State Politics Research Seminar [<u>3 credit hours</u>]
- POLI 418 Seminar on the Presidency [<u>3 credit hours</u>]
- POLI 420/COMP 435/PSYC 420 Election Systems [3 credit hours]
- POLI 430 Seminar in Texas Politics [3 credit hours]
- POLI 431 Electoral Campaigns [3 credit hours]
- POLI 432 Urban Politics [<u>3 credit hours</u>]
- POLI 434 Public Policy & Metro Area Government [3 credit hours]
- POLI 435 Seminar on Money and Politics [3 credit hours]
- POLI 436 Politics of Regulation [<u>3 credit hours</u>]
- POLI 437 Education Policy [3 credit hours]
- POLI 438 Race and Public Policy [3 credit hours]
- POLI 439 Research Seminar on Southern Politics [<u>3 credit hours</u>]
- POLI 473 The Craft of Intelligence Analysis, Prediction and Connecting the Dots [3 credit hours]

- POLI 530 Approaches to American Government [<u>3 credit hours</u>]
- POLI 531 State Politics [<u>3 credit hours</u>]
- POLI 533 Advanced Topics in Political Behavior [3 credit hours]
- POLI 534 Interest Groups and Poltical Parties [<u>3 credit hours</u>]
- POLI 535 Race, Ethnicity, and American Politics [<u>3 credit hours</u>]
- POLI 537 Public Policy and Bureaucracy [<u>3 credit hours</u>]
- POLI 538 Political Economy of Policy Change [<u>3 credit hours</u>]
- POLI 542 Subnational Politics [<u>3 credit hours</u>]
- POLI 580 Seminar in American Politics [3 credit hours]
- POLI 593 Directed Reading American Politics [3 credit hours]
- POLI 594 Directed Reading American Politics [3 credit hours]

Comparative Politics Field Courses

Comparative Politics Seminar courses can be selected from any course listed below at the 400-level or above.

- POLI 212 Introduction to Comparative Politics [3 credit hours]
- POLI 250/ASIA 251/SWGS 250 International Political Economy of Gender [3 credit hours]
- POLI 324/FREN 324/RELI 476 From Decolonization to Globalization [3 credit hours]
- POLI 333 Comparative Legislatures [<u>3 credit hours</u>]
- POLI 347/ASIA 347 Urban Lab Shanghai [1 credit hour]
- POLI 348 Urban Lab Buenos Aires [<u>1 credit hour</u>]
- POLI 349/ASIA 349 Urban Lab Instanbul [1 credit hour]
- POLI 352 The Politics and Culture of Mexico [<u>3 credit hours</u>]
- POLI 353/ASIA 353 East Asian Democracies [3 credit hours]
- POLI 354 Latin American Politics [3 credit hours]
- POLI 355 Government and Politics of the Middle East [3 credit hours]
- POLI 356 Representation and Policy Making [<u>3 credit hours</u>]
- POLI 357 Democracy and Democratization [<u>3 credit hours</u>]
- POLI 358 Comparative Political Behavior [3 credit hours]
- POLI 360 Western European Democracies [3 credit hours]
- POLI 362 Comparative Urban Politics and Policy [3 credit hours]
- POLI 365 British Politics [3 credit hours]
- POLI 367 Transitions to Democracy [3 credit hours]
- POLI 433 Comparative Legislatures [3 credit hours]
- POLI 444 Practicum in Legislative Research [3 credit hours]
- POLI 450 Elections in the Americas [<u>3 credit hours</u>]
- POLI 454 Research Practicum in Comparative Politics [3 credit hours]
- POLI 457 Conditions of Democracy [<u>3 credit hours</u>]
- POLI 458 Gender and Politics in the Middle East [3 credit hours]
- POLI 460 Seminar in Comparative Government [3 credit hours]
- POLI 462 Comparative Public Policy [3 credit hours]
- POLI 463 Comparative Political Economy [3 credit hours]
- POLI 464 Research Seminar on Comparative Urban Politics and Policy [3 credit hours]
- POLI 466 Political Parties and Voting Behavior in Western Democracies [3 credit hours]
- POLI 483 U.S.: Mexico Border Issues in Comparative Perspective [3 credit hours]
- POLI 489/POLI 489 Chinese Politics in Comparative Perspective [3 credit hours]
- POLI 520 Approaches to Comparative Government [3 credit hours]
- POLI 532 Comparative Legislatures [3 credit hours]
- POLI 544 Legislative Research [3 credit hours]
- POLI 564 Political Economy of Development [<u>3 credit hours</u>]
- POLI 565 Political Protest [3 credit hours]
- POLI 566 Political Parties [<u>3 credit hours</u>]
- POLI 567 Comparative Political Behavior [3 credit hours]
- POLI 568 Comparative Political Institutions [3 credit hours]
- POLI 581 Seminar in Comparative Politics [<u>3 credit hours</u>]
- POLI 597 Directed Reading Comparative Politics [3 credit hours]
- POLI 598 Directed Reading Comparative Politics [3 credit hours]

International Relations Field Courses

International Relations Seminar courses can be selected from any course listed below at the 400-level or above.

- POLI 211 Introduction to International Relations [3 credit hours]
- POLI 371 Civil Wars [3 credit hours]

- POLI 372 American Foreign Policy [3 credit hours]
 - POLI 373 International Conflict [<u>3 credit hours</u>]
 - POLI 374 Strategic Interactions in International Relations [<u>3 credit hours</u>]
- POLI 375 International Organization [<u>3 credit hours</u>]
- POLI 378 Politics of American National Security [3 credit hours]
- POLI 379 Problems in International Relations [<u>3 credit hours</u>]
- POLI 470 International Relations [<u>3 credit hours</u>]
- POLI 471 Politics of the United Nations [3 credit hours]
- POLI 472 American Foreign Policy [<u>3 credit hours</u>]
- POLI 473 The Craft of Intelligence Analysis, Prediction and Connecting the Dots [<u>3 credit hours</u>]
- POLI 474 International Organizations: Theories and Practice [3 credit hours]
- POLI 475 International Cooperation [<u>3 credit hours</u>]
- POLI 476 International Political Economy [<u>3 credit hours</u>]
- POLI 478 US China: Conflict and Cooperation [3 credit hours]
- POLI 479 Seminar in Quantitative International Relations [3 credit hours]
- POLI 540 International Relations [<u>3 credit hours</u>]
- POLI 541 International Cooperation [3 credit hours]
- POLI 570 Seminar in International Conflict [3 credit hours]
- POLI 572 Foreign Policy Decision Making [3 credit hours]
- POLI 576 International Political Economy [3 credit hours]
- POLI 577 Domestic Politics and International Relations [3 credit hours]
- POLI 595 Directed Reading International Relations [3 credit hours]
- POLI 596 Directed Reading International Relations [3 credit hours]

Theory and Methods Field Courses

Theory and Methods Seminar courses can be selected from any course listed below at the 400-level or above.

- POLI 209 Introduction to Constitutionalism and Modern Political Thought [3 credit hours]
- POLI 340 Ancient and Medieval Political Theory [3 credit hours]
- POLI 395 Introduction to Statistics [<u>3 credit hours</u>]
- POLI 429 Biological Foundations of Politics [3 credit hours]
- POLI 441/ENST 441 Common Property Resources [3 credit hours]
- POLI 461 Politics, Risk and Energy [<u>3 credit hours</u>]
- POLI 490 Politics and the Arts [3 credit hours]
- POLI 500 Social Scientific Thinking I [<u>3 credit hours</u>]
- POLI 501 Social Scientific Thinking II [<u>3 credit hours</u>]
- POLI 502 Introduction to Statistics [<u>3 credit hours</u>]
- POLI 503/STAT 503 Topics in Methods and Data Analysis [3 credit hours]
- POLI 504 Introduction to Maximum Likelihood Estimation [<u>3 credit hours</u>]
- POLI 505 Advanced Maximum Likelihood Estimation [3 credit hours]
- POLI 511 Measurement and Research Design [3 credit hours]
- POLI 574 Collective Social Choice [3 credit hours]
- POLI 575 Game Theory [3 credit hours]
- POLI 591 Directed Reading Methodology [3 credit hours]
- POLI 592 Directed Reading Methodology [3 credit hours]

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 in the Department of Political Science. The student may not take more than one readings course from him or her. Students should submit a brief, one-page description of the work to be conducted in the readings course (including the name of the faculty supervisor) to the department's Director of Undergraduate Studies no later than two 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's Director of Undergraduate Studies. The faculty member supervising the thesis must have a full-time appointment in the Department of Political Science. During the first semester of the two-semester program, students take one reading course that provides them with a basis for drawing up a thesis prospectus. During the second semester, students write their honors thesis. An electronic copy of the thesis must be sent to the Director of Undergraduate Studies. Students may not combine the two honors courses into one semester. Those who successfully complete the honors program may substitute it for one of the seminars required for the major. Failure to complete the second semester of the honors program will result in loss of credit for the first semester of the honors program.

Work for the Honors Program must be original. It cannot be taken from other courses at Rice or other institutions. This includes using the same work for another honors program (i.e. using the same work for honors in political science and another discipline). If a student has a question about what is permitted, the student should consult the Director of Undergraduate Studies. This consultation should take place early in the first semester of the honors program.

Alternatively, students may earn honors in political science by successfully completing the Rice University Honors Program (RUSP), HONS 470/471. In addition to successfully completing this program, the student must complete a research project in political science, and the student must be supervised by a full-time faculty member in the political science department. See also Honors Programs.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate Political Science degree and major. The following is a quick reference:

Course Catalog/Schedule: - Course offerings/subject code: POLI Department Description and Code - Political Science: POLI Degree Description and Code - Bachelor of Arts degree: BA Major Description and Code - Major in Political Science: POLI

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Political Science >

Unc	lergrad	luate 3	Stud	ents
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RICE

Political Science

Pro

Upon

The School of Social Sciences

- Non-Traditional Students
- Faculty
- Programs of Study

Graduate Students

- Administration and Faculty
- Important Notices

	Department	Undergraduate	Graduate	Course			
Info Requirements		Requirements	Listings				
ogr	gram Learning Outcomes for the MA and PhD Degrees in Political Science						
n co	a completing the MA and PhD degree programs in Political Science, students will be able to:						

- 1. Demonstrate advanced knowledge of theoretical and empirical research in two of the following three sub-fields of Political Science: American politics, comparative politics, and international relations.
- 2. Learn and apply social science research design and methodologies, including advanced statistical techniques.
- Demonstrate the ability to communicate their research effectively through multiple mediums including scholarly writing, oral presentation, and poster sessions.
- 4. Demonstrate their competence as political scientists through research, teaching, and professional development activities.

Requirements for the MA and PhD Degrees in Political Science

For general university requirements, see Graduate Degrees.

Requirements for the PhD:

Coursework. A student must complete successfully 54 credit hours of advanced coursework. This must include the core courses in each of three fields, three courses beyond the core in the major field, two courses beyond the core in the minor field, POLI 500, POLI 501, and three additional courses that meet the advanced research tools requirement.

Exams. A student must pass three Preliminary Examinations (a general exam in the major field, a subfield exam in the major field, and a general exam in the minor field), a dissertation prospectus defense, and a dissertation defense.

Maintenance of Good Standing. A student must remain in good standing with the university and with the department. Remaining in good standing with the department requires a GPA of at least 3.33, satisfactory evaluations for work as a research and/or teaching mentee, and satisfactory participation in professional development activities.

For more details on these requirements see the department website details of the sector of the secto

Requirements for the MA:

The Master of Arts degree requires 30 semester hours of course work, all of which must be taken at the graduate level (500 level or above except with permission of the Director of Graduate Studies), and the completion of two research papers in seminars taken over the course of study. A minimum GPA of 3.0 is required for awarding the M.A.

The Political Science Department requires that not more than three years elapse between the time the student is admitted to the graduate program and the completion of the M.A. degree, unless an extension is approved by the Graduate Studies Committee.

Requirements for the Coordinated PhD/MA Degree Program in Political Science and Statistics

The coordinated PhD/MA requires that a student fulfill all requirements for the PhD program in Political Science and satisfy the general university requirements for residency and total hours to receive a second non-thesis MA degree. The Statistics MA degree shall not be conferred prior to conferral of the PhD in Political Science. No course may count of credit for both MA degrees; however, POLI 504, POLI 505, POLI 506, and POLI 507 will continue to count toward the hours required for a PhD degree in Political Science when used to fulfill the requirements for an MA in Statistics.

To earn a non-thesis MA in Statistics, students in the PhD program in Political Science must additionally:

- Obtain written approval from the head of the Methods field and the Director of Graduate Studies in the Political Science department.
- Have their plan of study for the MA in Statistics pre-approved by the Director of Graduate Studies in the Department of Statistics (or another person designated by the chairperson of the Statistics department). Note: A maximum of ten Political Science PhD will be allowed to enroll in the MA in Statistics program at one time.
- Earn a grade of 'B+' or better in four courses in statistical methodology in the Political Science department, which must include POLI 504, POLI 505, POLI 506, and POLI 507.
- Earn a grade of 'B' or better in each of six courses from the Department of Statistics. Four of these courses must be STAT 605, STAT 518, STAT 519, and STAT 615. Other acceptable courses are STAT 616 and courses at the 500-level and above, subject to the approval by the Director of Graduate studies in the Department of Statistics (or another person designated by the chairperson of the Statistics department). Courses that are joint listed between two departments are counted as a course in the home department. Note: completion of POLI 504 and POLI 505 will be considered as meeting the prerequisite requirements for STAT 519.
- Complete a major project that has strong statistical content. The project may be directed by faculty in Political Science, but must be pre-approved by the Director of Graduate Studies in the Department of Statistics (or another person designated by the chairperson of the Statistics department). The doctoral proposal in Political Science may satisfy this requirement, but must be successfully defended.

For more details on these requirements, see the department website.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Political Science graduate degree program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: POLI
- Department Description and Code
- Political Science: POLI
- Degree Descriptions and Codes
 - Master of Arts degree: MA
- Doctor of Philosophy degree: PhD
- Degree Program Description and Code
 - Degree Program in Political Science: POLI

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University Calendar Rice A-Z

Maps-Directions

Feedback

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Political Science >

The School of Social Sciences				
aduate Graduate	Course			
ments Requirements	Listings			
Course Listings The official course offerings, including course descriptions, for Political Science can be found in Rice's Course Catalog.				
16-2017 academic year, see Rice's Co	urse Schedule. 🗗			
e, see the department's website: https	://politicalscience.rice.edu/. 🗗			

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Politics, Law and Social Thought >

Politics, Law and Social Thought Undergraduate Students The School of Humanities Graduate Students Non-Traditional Students **Department** Undergraduate Graduate Course Info Requirements Requirements Listings Faculty Directors Professors Programs of Study Peter C. Caldwell, HIST Dominic Boyer, ANTH Christian J. Emden, CLEU Steven G. Crowell, PHIL Administration and Faculty James D. Faubion, ANTH David Leebron, POLI Important Notices Melissa Marschall, POLI Donald Morrison, PHIL George Sher, PHIL Lora Wildenthal, HIST Harvey Yunis, CLEU Associate Professors Luis Duno-Gottberg, SPLA Julie Fette, CLEU **Assistant Professors** Gwendolyn Bradford, PHIL Aysha Pollnitz, HIST Program (Undergraduate): Minor Program (Graduate): N/A Politics, Law and Social Thought (PLST) is a transdisciplinary minor and is open to all undergraduate students at Rice from all backgrounds. Its task is the study of political ideas in their philosophical and historical contexts as well as with regard to their

backgrounds. Its task is the study of political ideas in their philosophical and historical contexts as well as with regard to their effects on constitutional law and social and political practices. The central focus of the minor is political theory, taken in a wide sense to mean the theory and philosophy of how polities form, function, and fail. The minor has a strong orientation toward works of political, legal, and social philosophy, understood in their historical context. Politics, Law and Social Thought is a program of study that enables Rice students to successfully engage with the "big" political liberty? What is political contemporary society in a global setting: Why democracy? What are the foundations of law? What is political liberty? What is political citizenship? Are states necessary? How do normative political and social orders come into existence? Is there a philosophical justification for human rights?

Rice A-Z

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Web Services U

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University Calendar
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Maps-Directions

Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Politics, Law and Social Thought >

Unde	rgraduate	Students
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RICE

Politics, Law and Social Thought

The School of Humanities

Non-Traditional Students

Graduate Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

	Department	Undergraduate	Graduate	Course		
	Info	Requirements	Requirements	Listings		
Program Learning Outcomes for the Interdisciplinary Minor in Politics. Law and						

Program Learning Outcomes for the Interdisciplinary Minor in Politics, Law and Social Thought

Upon completing the Politics, Law and Social Thought minor, students will be able to:

- 1. Have an understanding of the main lines of political, legal, and social thought in their historical context through original sources.
- 2. Have skills in analyzing and evaluating complex texts in political, legal, and social thought through a close reading and critical interpretation of arguments, metaphors, images, and the emotions that drive political arguments.
- 3. Have developed the ability to compare different authors and texts and formulate complex arguments across different traditions in the history of political thought.
- 4. Develop and communicate their own arguments about politics, law and society in research papers, class presentations, and discussions.

Requirements for the Interdisciplinary Minor in Politics, Law and Social Thought

Students pursuing a minor in Politics, Law and Social Thought (PLST) must complete:

- A minimum of 6 courses (18 credit hours) to satisfy the minor requirements.
- A minimum of 4 courses (12 credit hours) at the 300-level or above.
- No more than 2 courses (6 credit hours) from the same department.
- A minimum of 4 courses (12 credit hours) taken at Rice University. Students may apply up to 2 courses (6 credit hours) from coursework taken outside Rice, if those transfer credit hours come from U.S. or international universities of similar standing. Requests for the application of transfer credit toward PLST minor requirements will be considered by the PLST director on an individual basis. Transfer credit coursework received via the articulation of AP, IB or A-level credit will not be considered. Additionally, transfer credit from online-only courses cannot be used to count toward the minor.

INTERNSHIPS

Students may count one internship with 3 credit hours toward the requirements for the minor, as long as the activities related to the internship relate in a substantive way to political, legal, or social thought. Proposed internships should be submitted to the director for approval before the internship itself begins, and the student should submit to the director a short reflective essay on the content of the internship within a month after it is completed.

CORE REQUIREMENT

Students must complete 1 course (3 credit hours) from the following to satisfy the Politics, Law, and Social Thought minor's Core Requirement.

- PLST 301 Modern Political Thought: From Machiavelli to Rawls [3 credit hours]
- PLST 302 Contemporary Political Theory [<u>3 credit hours</u>]
- PLST 316/CLAS 316 Democracy and Political Theory in Ancient Greece [3 credit hours]
- HIST 373 19th-Century Social and Political Thought [3 credit hours]

ELECTIVES

To complete the Politics, Law, and Social Thought minor, students must complete a total of 5 courses (15 credit hours) from the following Rice departmental course offerings. If a student took more than one course from the Core Requirement list, that course may be used toward the elective requirements. No more than 2 courses (6 credit hours) from the same department may be used to fulfill the minor requirements.

Anthropology

- ANTH 309 Global Cultures [3 credit hours]
- ANTH 317 Revolution and Utopias [3 credit hours]
- ANTH 319 Symbolism and Power [3 credit hours]
- ANTH 322 Cultures and Identities: Race, Ethnicity, and Nationalism [3 credit hours]
- ANTH 340 Neoliberalism and Globalization [3 credit hours]
- ANTH 372 Cultures of Capitalism [<u>3 credit hours</u>]
- ANTH 429 Activism and Social Movements [3 credit hours]

Classical and European Studies

- CLAS 201/PHIL 201/MDEM 201 History of Philosophy I [3 credit hours]
- CLAS 236/HART 214 Art and Politics in Ancient Rome [3 credit hours]
- CLAS 316/PLST 316 Democracy and Political Theory in Ancient Greece [3 credit hours]
- FREN 324/POLI 324/RELI 476 From Decolonization to Globalization [3 credit hours]
- FREN 453 Immigration and Citizenship in Contemporary France [3-4 credit hours]
- GERM 128/FSEM 128 The Culture of War: Violence, Conflict and Representation [3 credit hours]
- GERM 333 Nietzsche: Philosophy, Politics, History [<u>3 credit hours</u>]
- GERM 334 Nationalism and Citizenship [3 credit hours]
- GERM 349 German Political Thought [<u>3 credit hours</u>]

History

- HIST 340/SWGS 345 History of Feminism [3 credit hours]
- HIST 398/SWGS 398 Topics in Legal History [3 credit hours]
- HIST 423 American Radicals and Reformers [3 credit hours]
- HIST 448 Western Europe Welfare State, 1880-1980: Origins, Consolidations, Crisis [3 credit hours]
- HIST 455 History of Human Rights [3 credit hours]
- HIST 457 Four Modern Revolutions: 1776, 1789, 1917, 1989 [3 credit hours]

Philosophy

- PHIL 111/SWGS 111 Introduction to Feminist Philosophy [3 credit hours]
- PHIL 116 Introduction to the Philosophy of Law [3 credit hours]
- PHIL 201/CLAS 201/MDEM 201 History of Philosophy I [3 credit hours]
- PHIL 202 History of Philosophy II [3 credit hours]
- PHIL 307 Social and Political Philosophy [3 credit hours]
- PHIL 308 Continental Philosophy [<u>3 credit hours</u>]
- PHIL 316 Philosophy of Law [3 credit hours]
- PHIL 319/SWGS 319 Feminist Philosophy [3 credit hours]
- PHIL 327 History of Social and Political Philosophy [3 credit hours]

Political Science

- POLI 209 Introduction to Constitutionalism and Modern Political Thought [3 credit hours]
- POLI 210 American Government and Politics [<u>3 credit hours</u>]
- POLI 211 Introduction to International Relations [3 credit hours]
- POLI 321 American Constitutional Law [3 credit hours]
- POLI 333 Comparative Legislatures [3 credit hours]
- POLI 340 Ancient and Medieval Political Theory [3 credit hours]
- POLI 357 Democracy and Democratization [<u>3 credit hours</u>]
- POLI 457 Conditions of Democracy [3 credit hours]
- POLI 490 Politics and the Arts [<u>3 credit hours</u>]

Sociology

- SOCI 380 Social Theory [<u>3 credit hours</u>]
- SOCI 426 Contemporary Theory [3 credit hours]

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate minor in Politics,

Law, and Social Thought. The following is a quick reference:	
Course Catalog/Schedule - Course offerings/subject code: PLST. Courses offered by other departments apply towards the minor in Politics, Law, and Social Thought. Department Description and Code - Classical and European Studies: CLEU Minor Description and Code - Minor in Politics, Law, and Social Thought: PLST	
Last Revised : August 12, 2016	

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RICE

734 of 923

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Politics, Law and Social Thought >

Undergraduate Students	Politics, Law and Social Thought							
Graduate Students	The Sc	The School of Humanities						
Non-Traditional Students		Department Info	Undergraduate	Graduate	Course			
▶ Faculty	Gradu	Info Requirements Requirements Listings Graduate Requirements Image: Comparison of the second secon						
Programs of Study	Politics,	Politics, Law, and Social Thought does not offer an academic program at the graduate level.						
Administration and Faculty								
Important Notices	Last Revise	ed : August 12, 2016						

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Politics, Law and Social Thought >

Undergraduate Students	Politics, Law and Social Thought						
Graduate Students	The So	The School of Humanities					
Non-Traditional Students		Department	Undergraduate	Graduate	Course		
▶ Faculty		Info	Requirements	Requirements	Listings		
	Cours	se Listings					
Programs of Study		0	ing course descriptions, listed		cial Thought Undergraduate		
Administration and Faculty	Require	ments section can be found	d in Rice's Course Catalog. 🗗				
Important Notices	To view	the most recent course sch	nedule for the 2016-2017 acad	demic year, see Rice's Cours	se Schedule. 🗗		
	For addi	For additional information regarding Politics, Law, and Social Thought, see the department's website: http://politics.rice.edu/. 🗗					
	Last Revise	ed : August 24, 2016					

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Web Services

University Calendar Rice A-Z

```
Maps-Directions Feedback
```

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Poverty, Justice and Human Capabilities >

Undergraduate Students

Graduate Students

RICE

Poverty, Justice and Human Capabilities

The School of Humanities, The School of Social Sciences, and the George R. Brown School of Engineering

Non-Traditional Students			
▶ Faculty	Department Underg	raduate Graduate ements Requirements	Course Listings
Programs of Study			
	Director	Undergraduate Advisors	
Administration and Faculty	Diana Strassmann	Elias Bongmba	
		Moramay López-Alonso	
Important Notices	Steering Committee	Diana Strassmann	
	Elias Bongmba		
	Alexander X. Byrd		
	Vivian Ho		
	Moramay López-Alonso		
	Anthony B. Pinn		
	Elora Shehabuddin		

Program (Undergraduate): Minor

Program (Graduate): N/A

The Program in Poverty, Justice and Human Capabilities (PJHC), provides students with a multifaceted understanding of human well-being, both in the U.S. and internationally. This unique interdisciplinary minor emphasizes a "capabilities approach," which considers what people are able to do and be—for example, live to old age and engage in economic and political activities— rather than strictly what material goods they possess. The program also acknowledges the central importance of a variety of additional influences on well-being beyond income, such as gender, racial, and ethnic disparities; health status; education; human rights; political freedoms; and material necessities like food and shelter. A key goal of the PJHC is to enrich students' understanding of poverty and inequality, so that, regardless of their choice of occupation, they will maintain a longstanding commitment to enhancing the well-being of all people. More generally, the program aims to train Rice students to be future leaders in solving global problems in human well-being.

The PJHC minor combines high-caliber undergraduate courses with service learning experiences with agencies that help disadvantaged communities and people. Students are placed with organizations where they work directly with clients and gain experiential knowledge that broadens their perspective on human lives and capabilities. Through these academic and experiential learning opportunities, students explore deeper understandings of the structural factors underlying poverty and human well-being and potential policy solutions. The program further aims to promote dialogue among all disciplines about how to address issues of poverty alleviation and human well-being with a sophisticated understanding of the challenges and sound strategies for moving forward.

Although impediments to human well-being take many forms, barriers to the capabilities of women and girls persist across societies; women and girls are therefore disproportionately represented among the poor and those unable to attain their full capabilities. Acknowledging gender inequality as a powerful influence on disparities in human well-being, the academic component of the program, including the content of core and required courses, recognizes gender as a central analytic category.

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Poverty, Justice and Human Capabilities >

۲	Un	der	gra	adu	ate	Stu	ıder	nts
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Graduate Students

RICE

Poverty, Justice and Human Capabilities

The School of Humanities, The School of Social Sciences, and the George R. Brown School of Engineering

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- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department	Undergraduate	Graduate	Course
Info	Requirements	Requirements	Listings
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Program Learning Outcomes for the Interdisciplinary Minor in Poverty, Justice and Human Capabilities

Upon completing the Poverty, Justice and Human Capabilities minor, students will be able to:

- 1. Understand theoretical approaches to poverty and justice, drawing from the capabilities framework, economics, history, sociology, philosophy, and other fields. Students will have in-depth knowledge of approaches to enhancing human flourishing and will understand the social, institutional and political contexts that underlie deprivations and inequities.
- 2. Demonstrate a sophisticated understanding of the multiple influences on well-being beyond income and material wealth, including gender, racial, and ethnic disparities and the impact of colonialism on the Global South. Students will be able to provide examples from different geographical regions and not exclusively from one country or region and be able to apply the capabilities approach when evaluating these disparities.
- 3. Gain experiential knowledge of the challenges faced in disadvantaged communities through direct service.
- 4. Achieve an interdisciplinary knowledge of approaches to enhancing human well-being and mitigating human deprivations. Students will be able to apply this knowledge in evaluating potential policy solutions.
- 5. Demonstrate the oral, written, and visual communication skills essential for sophisticated and successful advocacy.
- 6. Become a global citizen by understanding the role that advocacy and service play in addressing poverty, strengthening justice, and improving well-being.

Requirements for the Interdisciplinary Minor in Poverty, Justice and Human Capabilities

Students pursuing the minor in Poverty, Justice and Human Capabilities (PJHC) must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 3 PJHC Service Credits from the Direct Service Learning Experiences.

PJHC minor courses are open to all Rice students, including those not pursuing the Poverty, Justice and Human Capabilities minor; however, in courses with limited space, preference will be given to declared minors.

CORE REQUIREMENTS

Students must complete the following 2 courses (6 credit hours) to satisfy the Poverty, Justice, and Human Capabilities minor's Core Requirements. Students must submit a brief questionnaire to the program director to be considered for admission to HUMA/SOCI 371. This questionnaire can be accessed at pjhc.rice.edu/enrollment-questionnaire/.

- HUMA 371/SOCI 371 Poverty, Justice, and Human Capabilities [3 credit hours]
- SWGS 394/SOCI 394 Human Development in Global and Local Communities [3 credit hours]

ELECTIVES

Students must complete a total of 3 courses (minimum of 9 credit hours) as listed below to satisfy the Poverty, Justice and Human Capabilities minor's Electives requirement. An additional course from the Non-Western or Race and Ethnicity list can be used to fulfill the General Elective requirement. Students must select separate courses to fulfill the Non-Western and Race and Ethnicity requirements. Additionally, the 3 required elective courses must come from at least two different schools. As course offerings may vary from year to year, students are urged to consult with the undergraduate advisors (see http://pjhc.rice.edu/) at the beginning of each semester. Please note that not all courses listed below will be offered every academic year.)

Non-Western Courses

Students must complete 1 course (minimum of 3 credit hours) from the following:

- ANTH 212/ASIA 212 Perspectives on Modern Asia [3 credit hours]
- ANTH 340 Neoliberalism and Globalization [<u>3 credit hours</u>]
- ANTH 343/RELI 342 New Religious Movements in Africa [3 credit hours]
- ASIA 222/ENGL 222 The World and South Asia [3 credit hours]
- ASIA 232/RELI 232 Religions from India [3 credit hours]
- ASIA 251/POLI 250/SWGS 250 International Political Economy of Gender [3 credit hours]
- ASIA 326 Temples, Technology and Transitions: India in the 21st Century [3 credit hours]
- ASIA 328/HIST 384/SWGS 384 The Modern Girl and Asia in the World [3 credit hours]
- ASIA 452/ANTH 452 Gender and Transnational Asia [3 credit hours]
- ENGL 379 Introduction to Third World Literature [3 credit hours]
- ENGL 380 Contemporary Anglophone Literatures [3 credit hours]
- HIST 212 Contemporary China [3 credit hours]
- HIST 215/315 Blacks in the Americas [3 credit hours]
- HIST 226 Colonial Spanish America [3 credit hours]
- HIST 227 Latin American Cultural Traditions [3 credit hours]
- HIST 228 Modern Latin America [3 credit hours]
- HIST 231 North, West, and Central Africa [<u>3 credit hours</u>]
- HIST 232 East, Central, and Southern Africa [3 credit hours]
- HIST 251/LASR 251 Continuities and Changes in Brazilian History [3 credit hours]
- HIST 268 Modern Slavery [<u>3 credit hours</u>]
- HIST 271 History of South Asia [3 credit hours]
- HIST 278/378 Modern Arab History [<u>3 credit hours</u>]
- HIST 279/379 The Caribbean in the Age of Revolution [3 credit hours]
- HIST 328 Poverty and Social Justice in Latin America [3 credit hours]
- HIST 330 Atlantic Slave Trade and the Origins of Afro America [3 credit hours]
- HIST 333/ANTH 334 Culture and Identity Politics in Contemporary Brazil [3 credit hours]
- HIST 335 Caribbean History to 1838 [3 credit hours]
- HIST 336 Caribbean History, 1838 to the Present [<u>3 credit hours</u>]
- HIST 342 Modern China [<u>3 credit hours</u>]
- HIST 376 Natural Disasters in the Caribbean [3 credit hours]
- HIST 389/SWGS 389 Migration and Diasporas in the Indian Ocean [3 credit hours]
- HIST 397 Economic History in the Americas [<u>3 credit hours</u>]
- HIST 428 Slavery and Human Trafficking [<u>3 credit hours</u>]
- HIST 478 Topics in Latin American History [3 credit hours]
- POLI 238 Special Topics in Poli-Sci [minimum of 3 credit hours, Note: not all topics will count towards the minor]
- POLI 362 Comparative Urban Politics and Policy [3 credit hours]
- POLI 458 Gender and Politics in the Middle East [3 credit hours]
- POLI 459 Sex, Gender, and Representation in Latin America [3 credit hours]
- RELI 111 Introduction to African Religions [3 credit hours]
- RELI 315/ASIA 315/SWGS 315 Gender and Islam [3 credit hours]
- RELI 340 Theology in Africa [<u>3 credit hours</u>]
- RELI 348 Christianity and Islam in Africa [3 credit hours]
- RELI 356 Major Issues in Contemporary Islam [3 credit hours]
- RELI 424 Religion and Politics in Africa [3 credit hours]
- RELI 426 Religion and Literature in Africa [3 credit hours]
- SPPO 410 The City in Latin America [3 credit hours]

Race and Ethnicity Courses

Students must complete 1 course (minimum of 3 credit hours) from the following:

- ANTH 387/ASIA 387 Asian American Contemporary Communities [3 credit hours]
- ANTH 443 Anthropology of Race, Ethnicity, and Health [3 credit hours]
- EDUC 304 Race, Class, Gender in Education [3 credit hours]
- EDUC 335 Urban Education [<u>3 credit hours</u>]
- ENGL 369/SWGS 329 The American West and Its Others [3 credit hours]
- ENGL 371/SPPO 354/SWGS 354 Chicano/a Literature [3 credit hours]
- ENGL 389/SWGS 389 Youth Studies [3 credit hours]
- ENGL 393 Black Manhattan: 1915–1940 [3 credit hours]
- ENGL 399 The Black Imaginary [3 credit hours]
- ENGL 471/SPPO 456 Chicana/o Literature [3 credit hours]
- HIST 215/315 Blacks in the Americas [3 credit hours]

- HIST 241/SWGS 234 U.S. Women's History I: Colonial Beginnings to the Civil War [3 credit hours]
- HIST 242/SWGS 235 U.S. Women's History II: Civil War to the Present [3 credit hours]
- HIST 251/LASR 251 Continuities and Changes in Brazilian History [3 credit hours]
- HIST 266 Slavery and the Founding Fathers [<u>3 credit hours</u>]
- HIST 268 Modern Slavery [3 credit hours]
- HIST 279/379 The Caribbean in Revolution [<u>3 credit hours</u>]
- HIST 295/395 The American South [3 credit hours]
- HIST 336 Caribbean History 1838 to the Present [3 credit hours]
- HIST 338/SWGS 338 Nineteenth-Century Women's Narratives [3 credit hours]
- HIST 374 Jewish History, 1500–1948 [<u>3 credit hours</u>]
- HIST 398/SWGS 398 Topics in Legal History [3 credit hours Note: not all topics will count towards the minor]
- HIST 421 Race, Education, and Society in the Urban South [3 credit hours]
- HIST 428 Slavery and Human Trafficking [3 credit hours]
- POLI 483 U.S.: Mexico Border Issues [3 credit hours]
- RELI 157/311 Religion and Hip Hop Culture in America [3 credit hours]
- RELI 270 Introduction to the Black Church in the U.S. [3 credit hours]
- RELI 312 The Religious Thought of Martin L. King, Jr. and Malcolm X [3 credit hours]
- RELI 347/SWGS 347 Sex and Gender in Modern Jewish Culture [3 credit hours]
- RELI 357 What's Religious about Black Religion? [3 credit hours]
- SOCI 301 Social Inequality [<u>3 credit hours</u>]
- SOCI 309 Race and Ethnic Relations [<u>3 credit hours</u>]
- SOCI 329 Multiracial America [3 credit hours]
- SOCI 363 African American Jewish Relations [3 credit hours]
- SOCI 437 Sociology of Education [<u>3 credit hours</u>]
- SOCI 451 Immigration [<u>3 credit hours</u>]
- SOCI 470 Inequality and Urban Life [4 credit hours]
- SWGS 308 The Future of Food: Feminist, Queer, and Critical Approaches [3 credit hours]

General Elective Courses

Students must complete 1 course (minimum of 3 credit hours) from the following:

- ANTH 342 Ethnographies of Care [3 credit hours]
- ANTH 381 Medical Anthropology [<u>3 credit hours</u>]
- ANTH 477 Special Topics in Anthropology [minimum of 3 credit hours. Note: not all topics will count towards the minor]
- BIOE 360/GLHT 360 Appropriate Design for Global Health [3 credit hours]
- ECON 481 Health Economics [3 credit hours]
- ENGL 354/SWGS 364 Queer Literary Cultures [3 credit hours]
- ENGL 382/SWGS 380 Feminist Theory [3 credit hours]
- GLHT 201 Introduction to Global Health[<u>3 credit hours</u>]
- HEAL 222 Principles of Public and Community Health [3 credit hours]
- HEAL 380 Disparities in Health in America [3 credit hours]
- HIST 340/SWGS 345 History of Feminism [<u>3 credit hours</u>]
- HIST 423 American Radicals and Reformers [<u>3 credit hours</u>]
- HIST 438/SWGS 438 Gender and History [3 credit hours]
- HIST 448 European Welfare States [<u>3 credit hours</u>]
- HIST 455 History of Human Rights [3 credit hours]
- PHIL 307 Social and Political Philosophy [3 credit hours]
- POLI 320/RELI 320 The Legal Framework of Religious Tolerance [3 credit hours]
- POLI 332 Urban Politics [3 credit hours]
- POLI 356 Representation and Policy Making [<u>3 credit hours</u>]
- POLI 437 Education Policy [<u>3 credit hours</u>]
- PSYC 331/SWGS 331 Psychology of Gender [3 credit hours]
- RELI 389 Healing by Killing: Medical Ethics after Holocaust [3 credit hours]
- SOCI 306/SWGS 324 Sociology of Gender [3 credit hours]
- SOCI 319 Work and Occupation [<u>3 credit hours</u>]
- SOCI 345 Medical Sociology [<u>3 credit hours</u>]
- SOCI 368 Sociology of Disaster [<u>3 credit hours</u>]
- SOCI 377 Health Disparities in the United States [3 credit hours]
- SOCI 407 Gender Seminar [<u>3 credit hours</u>]
- SOCI 423 Sociology of Food [<u>3 credit hours</u>]
- SOCI 425 Population and Health Seminar [3 credit hours]
- SOCI 438 Family Seminar [3 credit hours]
- SOCI 465/SWGS 465 Gender and Health [3 credit hours]
- SWGS 101 Introduction to the Study of Women, Gender, and Sexuality [3 credit hours]
- SWGS 201 Introduction to Lesbian, Gay, Bisexual, and Transgendered Studies [3 credit hours]

- SWGS 385 Sexual Debates in the U.S.: Social and Cultural Contexts [3 credit hours]
- SWGS 470 Advanced Seminar in Poverty, Justice, and Human Capabilities [3 credit hours]
- SWGS 497 Engaged Research Seminar [<u>3 credit hours</u>]

CAPSTONE REQUIREMENT

To fulfill the remaining Poverty, Justice and Human Capabilities minor requirements, students must complete the requirements of either "Capstone Course" or "Capstone Course Sequences" as found below to satisfy the PJHC minor's Capstone Requirement. Students can use additional capstone courses to fulfill the General Elective requirement (SWGS 496/497 or SWGS 470) or the Race and Ethnicity requirement (HIST 421 or SOCI 470). HIST 421 and SOCI 470 do not fulfill the Race and Ethnicity requirement unless a second capstone course is completed. Students who complete the entire *Engaged Research* course sequence may use SWGS 497 to fulfill the General Elective requirement.

Capstone Course

Students must complete 1 course (3 credit hours) from the following:

- HIST 421 Race, Education, and Society in the Urban South [3 credit hours]
- SWGS 470 Advanced Seminar in Poverty, Justice, and Human Capabilities [3 credit hours]

Capstone Course Sequences

Students must complete one course sequence, for a total of 2-3 courses depending on course selection (5-7 credit hours), from the following:

- SOCI 469 Community Bridges Training and SOCI 470 Inequality and Urban Life [5 credit hours total]
- SWGS 494 Pre-Seminar in Engaged Research and SWGS 496 Engaged Research Practicum and SWGS 497 Engaged Research Seminar [7 credit hours total]

DIRECT SERVICE LEARNING EXPERIENCE

As part of the Poverty, Justice, and Human Capabilities requirements, students must participate in an approved Poverty, Justice, and Human Capabilities direct service learning experience. Students must complete 3 Poverty, Justice, and Human Capabilities service credits. Students can choose from an array of options, including internships, service trips, and coursework, to complete this requirement. Directed service learning experiences carry 1-3 Poverty, Justice, and Human Capabilities service credits. These options are described in detail at http://pjhc.rice.edu/service-learning-requirement/

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate minor in Poverty, Justice, and Human Capabilities. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses offered by other departments apply towards the minor in Poverty, Justice, and Human Capabilities.

Rice A-Z

Department Description and Code

- Poverty, Justice, and Human Capabilities: PJHC

Minor Description and Code

- Minor in Poverty, Justice, and Human Capabilities: PJHC

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Maps-Directions Feedback

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Poverty, Justice and Human Capabilities >

Undergraduate Students	Poverty, Justice and Human Capabilities The School of Humanities, The School of Social Sciences, and the George R. Brown School of Engineering				
Graduate Students					
Non-Traditional Students					
► Faculty	Department Undergraduate Graduate Course Info Requirements Requirements Listings				
Programs of Study	Graduate Requirements				
Administration and Faculty	Poverty, Justice, and Human Capabilities does not offer an academic program at the graduate level.				
Important Notices					
	Last Revised : July 13, 2016				

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University Calendar

Rice A-Z

Maps-Directions

Feedback

01/03/2017





Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Poverty, Justice and Human Capabilities >

Undergraduate Students	Pove	Poverty, Justice and Human Capabilities The School of Humanities, The School of Social Sciences, and the George R. Brown School of Engineering				
Graduate Students						
Non-Traditional Students						
▶ Faculty		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings	
Programs of Study	Cours	se Listings				
Administration and Faculty		ial course offerings, includi ments can be found in Rice	0 1 <i>,</i>	d in the Poverty, Justice and H	Human Capabilities Undergrad	duate
Important Notices	To view	the most recent course sch	nedule for the 2016-2017 aca	ademic year, see Rice's Cours	se Schedule. 🗗	
	For addi	tional information regarding	Politics, Law, and Social Th	hought, see the department's	website:http://pjhc.rice.edu/.	P
	Last Revise	ed : August 24, 2016				
	<u>(</u>					

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RICE

Undergraduate Students

744 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Program in Writing and Communication >

Program in Writing and Communication

 Graduate Students 	Department Undergraduate Graduate	Course	
Non-Traditional Students	Info Requirements Requirements	Listings	
▶ Faculty	Program Director Teaching Fellows		
Programs of Study	Tracy Volz Grant Adamson Heather Elliott Neill		
Administration and Faculty	Lecturers Laura Richardson Katerina Belik AnaMaria Seglie		
Important Notices	Elizabeth Cummins-Muñoz Lina Dib		
	Andrew Klein		
	David Messmer		
	Burke Nixon		
	Program (Undergraduate): N/A, no degree program		

Program (Graduate): N/A

The mission of the Program in Writing and Communication (PWC) is to integrate the practice of analytical writing and the techniques of both oral and visual communication into the Rice curriculum, with two goals in mind: To enable our students to articulate their ideas as we prepare them for academic and professional life; and to affirm the necessity of this ability and its fundamental value to every aspect of their education and across every University department and discipline.

The PWC provides oversight for the First-Year Writing-Intensive Seminars (FWIS). FWIS are content-based, 3 credit hour seminars in which writing and communication pedagogy plays a significant role in assignments and grading. The courses reflect a broad range of disciplines from across the university.

All first-year students must pass the English Composition Examination and complete a content-based FWIS during their first year at Rice. Students who fail the Composition Exam must successfully complete FWIS 100 during the fall of their first year and prior to enrolling in one of the required content-based FWIS courses.

The PWC also includes the Center for Written, Oral, and Visual Communication. Housed in Fondren Library, the Center supports teaching and learning through workshops, consulting, and courses for undergraduate and graduate students and faculty. Headed by a team of communication professionals, the Center also includes a large staff of writing and communication consultants, both graduate and undergraduate, who are available for individual tutoring appointments. The Center includes facilities for one-on-one consultations and group work, as well as advanced technology for preparation of oral and visual presentations. Physically accessible whenever Fondren Library is open, the Center is virtually accessible around the clock through the PWC website de-

Rice A-Z

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University Calendar

Maps-Directions

Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Program in Writing and Communication >

Undergraduate Students	Prog	Program in Writing and Communication					
Graduate Students		Department	Undergraduate	Graduate	Course		
Non-Traditional Students		Info	Requirements	Requirements	Listings		
► Faculty	Unde	Undergraduate Requirements					
Programs of Study	For cour	ses that satisfy the First-Ye	ear Writing Intensive Seminar g	graduation requirement, please	see Rice's Course Catalo	ıg. 🗗	
Administration and Faculty	Last Revise	ed : August 12, 2016					
Important Notices							

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RICE

746 of 923

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Program in Writing and Communication >

Undergraduate Students	Progr	Program in Writing and Communication					
Graduate Students		Department	Undergraduate	Graduate	Course		
Non-Traditional Students		Info	Requirements	Requirements	Listings		
► Faculty	Gradu	Graduate Requirements					
Programs of Study	The Prog	gram in Writing and Comm	unication does not offer an ac	ademic program at the graduate	e level.		
Administration and Faculty	Last Revise	ed : August 12, 2016					
Important Notices							

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RICE

747 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Program in Writing and Communication >

Undergraduate Students	Program in Writing and Communication							
Graduate Students		Department	Undergraduate	Graduate	Course			
Non-Traditional Students		Info	Requirements	Requirements	Listings			
▶ Faculty	Cours	se Listings						
Programs of Study		cial course offerings, includ Catalog.	ling course descriptions, for th	e Program in Writing and Co	ommunication can be found ir	ו Rice's		
Administration and Faculty	To view	the most recent course scl	hedule for the 2016-2017 aca	demic year, see Rice's Cours	se Schedule. 🗗			
Important Notices	For addi	For additional information regarding Program in Writing and Communication, see the department's website: http://pwc.rice.edu/.						
	Last Revise	ed : August 24, 2016						

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Psychology >

RICE

dergraduate Students	Psychology				
aduate Students	The School of Social Scier	nce			
n-Traditional Students	Department	Undergraduate	Graduate	Course	
ulty	Info	Requirements	Requirements	Listings	
grams of Study	Chair	Р	rofessors, Joint Appointme	nts	
	Eduardo Salas		ennifer M. George . Albert Napier		
nistration and Faculty	Professors		ick K. Wilson		
ortant Notices	Michael D. Byrne	Ji	ng Zhou		
	James L. Dannemiller Michelle "Mikki" R. Hebl		ssociate Professors, Joint /	Appointments	
	Randi C. Martin		ichard R. Batsell	Appointments	
	Stephan J. Motowidlo		. Brent Smith		
	Frederick L. Oswald	D			
	James R. Pomerantz	٨	djunct Professors		
	David W. Wetter		ora E. Angelaki		
	David W. Weller		lichael S. Beauchamp		
	Associate Professors		ohn H. Byrne		
	Margaret E. Beier		John M. Cornwell		
	David M. Lane		David Dickman		
	Bavia IVI. Earle		. Richard Jeanneret		
	Assistant Professors		arvey S. Levin		
	Bryan T. Denny		atherine A. Loveland		
	Christopher P. Fagundes		ynn M. Maher		
	Simon J. Fischer-Baum		ary M. Oppenheim		
	Philip T. Kortum		ohn E. Overall		
			eborah A. Pearson		
	Professors Emeriti		nne Bibiana Sereno		
	Kenneth R. Laughery		lelinda A. Stanley		
	David J. Schneider		ngela L. Stotts		
			evin C. Wooten		
	Associate Professor En		nthony A. Wright		
	Sarah A. Burnett		, ,		
		А	djunct Associate Professor	s	
	Associate Research Pro		erri R. Hanten		
	Cho Lam	S	. Morton McPhail		
		S	. Camille Peres		
	Lecturers				
	Roberta M. Diddel	А	djunct Assistant Professors	5	
	Özge Gürcani	D	anya M. Corkin		
	Chase L. Lesane-Brown		oberta M. Diddel		
	D. Colette Nicolaou	н	arold K. Doerr		
	Sandra V. Parsons	R	onald E. Fisher		
	Carissa A. Zimmerman	N	ary R. Newsome		
		В	etty M. Sanders		

Mihriban Whitmore

Program (Undergraduate): BA degree

Programs (Graduate): MA degree, PhD degree

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 several fields of psychology, as well as in medicine, law, business, or education.

Program emphasis in graduate study is on doctoral training. An important feature of our doctoral program is its strong research orientation. Students are expected to spend most of their time actively engaged in research and are expected to acquire a high level of research competence. Faculty research interests and areas of specialization for graduate students include: cognitive psychology (basic mental activities such as perceiving, attending, remembering, learning, judging, verbalizing, and imagining), systems and cognitive neuroscience (understanding the relationship between the human brain and higher forms of behavior), human factors/human-computer interaction (the scientific discipline concerned with the understanding of interactions among humans and other elements of a system and the application of theories, principles, data, and other methods of design in order to optimize human well-being and overall system performance), industrial/organizational psychology (human behavior in organizational and work situations), and training (broad interdisciplinary area drawing on cognitive psychology, industrial/organizational psychology).

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University Calendar

Maps-Directions

Feedback

01/03/2017

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Psychology >

lergraduate Students	Psvc	hology			
ate Students		chool of Social Sci	ience		
raditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
,	Prog			gree with a Major in	
ns of Study		•	udents majoring in Psychology		sychology
tration and Faculty			, , , , ,	tent domains. They will be able	
ant Notices	2. Un m ap ge 3. Un fa wi th ar re ex	ethods used by psychologis oppopriate research methods articipants in the design, dat eneralize research conclusion inderstand the applications of ctors, industrial/organization ill identify appropriate applic e origin and treatment of ab reas such as clinical, cogniti solution of interpersonal an	s, and develop and apply resea ts and design and conduct scie s. Students will follow the APA a collection, interpretation, and ons appropriately based on the of psychology. They will describ- nal, school) and emerging appli- ations of psychology in solving normal behavior; psychological ve, counseling, educational, hu d intercultural conflicts. Studen rm public policy. Students will a	arch skills. They will be able to entific studies to address psych Ethics Code in the treatment of d reporting of psychological rese parameters of particular resean be major areas (e.g., clinical, co- ied areas (e.g., health, forensic problems, such as: the pursuit al tests and measurement; psyc uman factors, and industrial/org its will articulate how psycholog apply psychological concepts, the	ological questions using human and nonhuman earch. Students will be able t rch methods. Ignitive, counseling, human s, media) of psychology. The and effect of healthy lifestyle hology-based interventions i anizational psychology; and ical principles can be used to
	Requ	irements for the B	A Degree with a Maj	jor in Psychology	
	U U	eral university requirements logy (PSYC) must complete	A second s	ts. Students pursuing the BA de	egree with a major in
			credit hours) to satisfy major nos to satisfy degree requirement	•	

A minimum of 9 courses (29 credit hours) at the 300-level or above.

Once enrolled at Rice, students must obtain approval from the psychology department to transfer courses taken at another college or university.

CORE REQUIREMENTS

Students must complete a total of 5 courses (17 credit hours) from the list below to satisfy the PSYC major's Core Requirements. Students are strongly encouraged to complete the Core Requirements before taking the upper-level courses that comprise their Electives requirement.

- PSYC 101 Introduction to Psychology [<u>3 credit hours</u>]
- PSYC 202 Introduction to Social Psychology [<u>3 credit hours</u>]
- PSYC 203 Introduction to Cognitive Psychology [<u>3 credit hours</u>]
- PSYC 339 Statistical Methods Psychology* [<u>4 credit hours</u>]
- PSYC 340 Research Methods Psychology* [<u>4 credit hours</u>]

*No substitutions or transfer credits are allowed for PSYC 339 or PSYC 340. In addition, students should complete PSYC 339 and PSYC 340 preferably by the end of their sophomore year.

ELECTIVES

To fulfill the remaining PSYC major requirements, students must complete a total of 10 additional courses (30 credit hours) from departmental (PSYC) course offerings. Students may take up to 12 credit hours of PSYC 485 or PSYC 488 *UG Supervised Research/Reading* toward the major, but only 3 of the 12 credit hours may be from PSYC 488.

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 the fall of their senior year, and the faculty will decide on final admission to the honors program by the end of the fourth week of classes. Admission to the honors program requires a psychology major GPA of 3.7 and a cumulative GPA of 3.5, completion of PSYC 339, and completion of 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. Detailed information about the honors program is available from the instructor of the course or the department website.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate Psychology degree and major. The following is a quick reference:

Course Catalog/Schedule

Course offerings/subject code: PSYC
 Department Description and Code
 Psychology: PSYC
 Degree Description and Code
 Bachelor of Arts degree: BA
 Major Description and Code

- Major in Psychology: PSYC

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Previous Editions

Course

GENERAL ANNOUNCEMENTS 2016-2017

Department

2016-2017 > Programs of Study > Psychology >

Un	dergr	aduate	Students
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Psychology The School of Social Science

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

InfoRequirementsRequirementsListingsProgram Learning Outcomes for the MA and PhD Degrees in Psychology

Graduate

Upon completing the MA and PhD degree programs in Psychology, students will be able to:

Undergraduate

- 1. Describe key concepts, principles, and overarching themes in psychology and develop a comprehensive knowledge of scientific theories and empirical findings in a specialty area.
- 2. Explain different research methods used by psychologists, and design and conduct studies to address psychological questions using appropriate research methods. They will analyze data from any of a wide variety of research designs using appropriate univariate, multivariate, and/or graphical methods. Students will demonstrate that they follow the APA Ethics Code in the treatment of human and nonhuman participants in the design, data collection, interpretation, and reporting of psychological research.
- 3. Apply scientific reasoning to interpret psychological phenomena. They will be able to identify methodological and statistical problems in published research and evaluate the appropriateness of conclusions derived from psychological research.
- 4. Write a paper that clearly summarizes previous research, details methods used in the research, presents statistical analyses, and relates the findings to previous research and theory. They will communicate results—through writing, tables, and graphs—that clearly and accurately reflect research findings. Students will present their research and answer questions in a formal setting.

Requirements for the MA and PhD Degrees in Psychology

For general university requirements, see Graduate Degrees. For both MA and PhD degrees, students must complete a research thesis, including a public oral defense. Required coursework is determined by the student's Research Interest Group (cognitive, cognitive neuroscience, human factors/human-computer interaction, industrial/organizational, or training). Students must complete an admission-to-candidacy procedure to establish their expertise in their chosen specialty. Competence in a foreign language is not required. For more information regarding course requirements for each Research Interest Group, please see the Department of Psychology Graduate Program.

Research Interest Groups (RIGs)

- Cognitive: The Cognitive RIG seeks an understanding of such basic mental activities as perceiving, attending, remembering, learning, judging, verbalizing, and imagining.
- Systems & Cognitive Neuroscience: The Systems and Cognitive Neuroscience RIG investigates the relationship between the human brain and higher forms of behavior, including sensation, perception, attention, memory, and language.
- Human Factors/Human-Computer Interaction: The Human Factors/Human-Computer Interaction RIG investigates interactions among humans and other elements of a system. We are especially concerned with the interaction of humans with computer systems.
- Industrial/Organizational Psychology: The Industrial and Organizational (I/O) RIG studies human behavior in
 organizational and work situations. Topics include motivation at work, the aging workforce, discrimination in the workplace,
 job performance, and team training.
- Training: Training is a broad interdisciplinary area drawing on cognitive psychology, industrial/organizational psychology, and educational psychology. Our current interests include the use of interactive technology in training, the role of individual differences in cognitive ability, and the use of games in training.

The program has a strong research orientation, and whether or not students plan to pursue a research career, they are expected to spend a large portion of their graduate years actively engaged in research.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Psychology graduate degree program. The following is a quick reference:

 Course Catalog/Schedule

 - Course offerings/subject code: PSYC

 Department Description and Code

 - Psychology: PSYC

 Degree Descriptions and Codes

 - Master of Arts degree: MA

 - Doctor of Philosophy degree: PhD

 Degree Program Description and Code

 - Degree Program in Psychology: PSYC

Rice A-Z

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University Calendar

Maps-Directions

Feedback

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Psychology >

Undergraduate Students	Psychology	Psychology					
Graduate Students	The School of Social Sc	ience					
Non-Traditional Students	Department	Undergraduate	Graduate	Course			
▶ Faculty	Info Course Listings	Requirements	Requirements	Listings			
Programs of Study	The official course offerings, includ	ing course descriptions, for P	sychology can be found in Rice	's Course Catalog. 🗗			
Administration and Faculty	To view the most recent course sch	nedule for the 2016-2017 aca	demic year, see Rice's Course	Schedule. 🗗			
Important Notices	For additional information regarding	g Psychology, see the depart	ment's website: https://psychological	gy.rice.edu/. 🗗			
	-						
	Last Revised : August 24, 2016						

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Religion >

RICE

Undergraduate Students	Religion	Religion						
Graduate Students	The School of Humanities							
Non-Traditional Students	Department Undergraduate	Graduate Course						
► Faculty	Info Requirements R	Requirements Listings						
Programs of Study	Chair Associa April D. DeConick David C	iate Professors Cook						
Administration and Faculty	Claire F Professors	Fanger						
Important Notices		ant Professors						
	Matthias Henze Brian Og Anne C. Klein							
		s sors Emeriti r H. Kelber						
	Anthony B. Pinn Niels C. John M. Stroup	C. Nielsen, Jr.						
	Program (Undergraduate): BA degree							
	Programs (Graduate): MA degree, and PhD degree							
	The undergraduate major is built to be as flexible as possible so that studi interdisciplinary goals. The major provides students with the opportunity marginal/repressed religious currents within multicultural and transnation	y to explore mainline religious traditions and						

marginal/repressed religious currents within multicultural and transnational contexts. Students will gain religious literacy while studying the historical, social, cultural, psychological, philosophical, and cognitive dynamics of religion and religious experience. For research degrees in the graduate program, see the Graduate Requirements tab.

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University Calendar

Maps-Directions

Feedback

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Religion >

Undergraduate Students	Relig	ion				
Graduate Students	The Sc	hool of Humanitie	es.			
Non-Traditional Students		Department	Undergraduate	Graduate	Course	
Faculty		Info	Requirements	Requirements	Listings	
Faculty	Progr	am Learning Outo	omes for the BA Deg	gree with a Major ir	n Religion	
Programs of Study	Upon coi	mpleting the BA degree, st	udents majoring in Religion will	be able to:		
Administration and Faculty			Study of Religion: Theory, Meth		• • • • • •	
Important Notices	2. Un	derstand Historical, Social	eligion and religious traditions, i and Cultural Dimensions of Rel rical, social, and cultural phenor	igion. They will understand a	•	
	 4. Unit plu cer 5. Intertrar cult 6. Det inst 7. Det (int put 8. Det orig Requi 	rality of religious voices an asored in a variety of socio erpret Multicultural/Transna nsnational in nature throug tural (non)religious exchan monstrate Religious Litera- titutional histories of the wo velop Communication: Peo- er)disciplinary knowledge oblications. monstrate Foreign Langua ginal languages and perfor rements for the B	y/Marginal Currents. They will u d expressions, including curren logical, psychological, philosoph ational Currents. They will under h attention to the impact of glob ge. cy. They will demonstrate a bas	ts that have been marginaliz nical, and political ways. rstand and interpret religious balism, immigration, colonialis ic objective knowledge of the rey will develop the ability to sroom, at professional confer ion. They will develop the ab opropriate.	ed, neglected, repressed, a traditions as multicultural a sm, and other forms of mul- e beliefs, practices, and effectively communicate rences, and in academic wility to read religious texts i	and and ti-
	 A n A n A n No Students A n 	ninimum of 120 courses to ninimum of 6 courses (18 c more than two courses (si who are pursuing two maj ninimum of 8 courses (24 c	credit hours) to satisfy major re satisfy degree requirements. credit hours) at the 300-level or x credit hours) from transfer cre ors (i.e., are double majors) and credit hours) to satisfy major req credit hours) to satisfy major req	above. edit or courses offered outsid d have declared the Religion juirements.	·	
	No	more than 2 courses (6 cr	edit hours) from transfer credit o	or courses offered outside of	the department.	
	Double n	najors who drop their seco	nd major are required to meet the	he requirements listed for sin	igle majors.	

CORE REQUIREMENTS

Students must complete a total of 4 courses (12 credit hours) as listed below to satisfy the Religion major's Core Requirements.

Core Course

RELI 101 Introduction to Religion [3 credit hours]

Religious Traditions

Students must complete 1 course (3 credit hours) from each of the following two categories for a total of 2 courses (6 credit hours):

Judaism/Christianity/Islam/African-American Religions

Students must complete 1 course (3 credit hours) from the following:

- RELI 100/FSEM 100/MDEM 100 Romancing Religion: Narratives of the Scared [<u>3 credit hours</u>]
- RELI 104/MDEM 103 Introduction to Jewish Mysticism [3 credit hours]
- RELI 105/MDEM 105 Medieval Christian Thought [3 credit hours]
- RELI 107/FILM 107 Representations of Magic and Spirituality in Modernist China [4 credit hours]
- RELI 108 Introduction to Judaism [<u>3 credit hours</u>]
- RELI 112 Comparing Christianities [3 credit hours]
- RELI 113 Introduction to Christianity to Africa [3 credit hours]
- RELI 116/MDEM 116 Mysticism Throughout the Ages [3 credit hours]
- RELI 118 Religion, Morality, and the Law [3 credit hours]
- RELI 124 Religion and Art of Happiness [3 credit hours]
- RELI 126/HEBR 126 Introduction to Biblical Hebrew II [3 credit hours]
- RELI 127 Intermediate Biblical Hebrew III [3 credit hours]
- RELI 128/HEBR 128 Intermediate Biblical Hebrew IV [3 credit hours]
- RELI 157 Religion and Hip Hop [<u>3 credit hours</u>]
- RELI 158 Liberation Theologies [<u>3 credit hours</u>]
- RELI 171/FSEM 171/MDEM 171 The Body and the Cosmos in the Middle Ages [3 credit hours]
- RELI 203/HIST 201 Judaism of Jesus and Hillel [3 credit hours]
- RELI 213 The Prophet Jeremiah [<u>3 credit hours</u>]
- RELI 214 Religious Tolerance and Beyond [3 credit hours]
- RELI 215/FILM 215 Mystic Cinema: Kabbalah in Film [3 credit hours]
- RELI 217 Shi'ism: Assassins and Ayatullah [3 credit hours]
- RELI 221/ASIA 221 The Life of Prophet Muhammad [3 credit hours]
- RELI 223 Qur'an and Commentary [3 credit hours]
- RELI 225 Revolutionary Islam: Shi'ism [3 credit hours]
- RELI 243 The Book of Genesis [3 credit hours]
- RELI 270 Introduction to the Black Church in the United States [3 credit hours]
- RELI 271/MDEM 271 Medieval Popular Christianity [3 credit hours]
- RELI 282 Introduction to Christianity [<u>3 credit hours</u>]
- RELI 285/ASIA 240/SWGS 240 Gender and Politicized Religion [3 credit hours]
- RELI 294 Religion in Fiction and Film [3 credit hours]
- RELI 301 Nietzsche and Religious Thought [3 credit hours]
- RELI 304 Jesus and the Gospels [3 credit hours]
- RELI 305/MDEM 305 Pain, Ecstasy, and Embodiment in Religious Experience [3 credit hours]
- RELI 343/HART 347 Seminar on Love [3 credit hours]
- RELI 347/SWGS 347 Sex and Gender in Modern Jewish Culture [3 credit hours]
- RELI 348 Christianity and Islam in Africa [3 credit hours]
- RELI 349/FILM 349 Holocaust Representation in Literature, Art, and Film [3 credit hours]
- RELI 350/MDEM 350 Demons, Mental Illness, and Medicine [3 credit hours]
- RELI 355/HURC 309 American Christianity, Race, and Biology, 1700-Present [3 credit hours]
- RELI 356 Major Issues in Contemporary [3 credit hours]
- RELI 357 What's Religious About Black Religion [3 credit hours]
- RELI 359 Religious Tolerance [3 credit hours]
- RELI 365 Paul and the New Testament [3 credit hours]
- RELI 369 Reading Wright: Theism and Atheism in the Writings of Richard Wright [3 credit hours]
- RELI 379/SOCI 379 Contested Geographies: Race, Nation, and Diaspora [3 credit hours]
- RELI 381 The Messiah [3 credit hours]
- RELI 382 Lost Judaisms: The Apocryphal Writings [3 credit hours]
- RELI 383 The Dead Sea Scrolls [<u>3 credit hours</u>]
- RELI 384 Pilgrimage and Crusade [3 credit hours]
- RELI 385/HIST 381 God, Time, and History [3 credit hours]
- RELI 387 Western Esotericism: Method and Theory [3 credit hours]
- RELI 388 The Psalms and Their Poetic Afterlife [3 credit hours]
- RELI 389 Healing By Killing: Medical Ethics After Holocaust [3 credit hours]
- RELI 390 Search for God in the Postmodern World [3 credit hours]

- RELI 391/MDEM 391 The Reformation & Its Results [3 credit hours]
- RELI 392 Jerusalem: Holy City in Time and Imagination [<u>3-4 credit hours</u>]
- RELI 395 Losing Your Religion in Film & Fiction & Music [3 credit hours]
- RELI 398/FILM 376 Jews on Film: Cinematic Representations of Jewish Life [3 credit hours]
- RELI 424 Religion & Politics in Africa [3 credit hours]
- RELI 426 Religion and Literature in Africa [3 credit hours]
- RELI 427 History and Methods: Nineteenth Century [3 credit hours]
- RELI 428 History and Methods: Twentieth Century [3 credit hours]
- RELI 430 Religion, Psychology & Culture [3 credit hours]
- RELI 440 Islam's Mystical and Esoteric Tradition [3 credit hours]
- RELI 441/ASIA 441 Magic and Popular Religion [3 credit hours]
- RELI 442 Arabic Texts [3 credit hours]
- RELI 443 Maimonides "Guide for the Perplexed" [3 credit hours]
- RELI 449 Early Christian Controversies [3 credit hours]
- RELI 456 History of Western Christianity: Reformation to the Present [3 credit hours]
- RELI 458 Mysticism: Theories and Methods [3 credit hours]
- RELI 462/MDEM 462 English Spirituality After Henry VIII: Protestant, Catholic, or Anglican? [3 credit hours]
- RELI 472 Kabbalah Seminar [3 credit hours]
- RELI 473 Gem Seminar: Special Topics [3 credit hours]
- RELI 476/FREN 324/POLI 324 From Decolonization to Globalization [3 credit hours]
- RELI 481 Gnosticism Seminar [<u>3 credit hours</u>]
- RELI 488 History of Religions [<u>3 credit hours</u>]
- RELI 490 African American Literature and Religion [3 credit hours]

Indigenous African Religions/American Religions/Buddhism/Hinduism

Students must complete 1 course (3 credit hours) from the following:

- RELI 102/FSEM 102 Buddhism Meditation, Art and Us [3 credit hours]
- RELI 111 Introduction to African Religions [3 credit hours]
- RELI 113 Introduction to Christianity in Africa [3 credit hours]
- RELI 157 Religion and Hip Hop [3 credit hours]
- RELI 214 Religious Tolerance & Beyond [3 credit hours]
- RELI 230/ASIA 230 Asian Religions in America [3 credit hours]
- RELI 231/ASIA 231 American Metaphysical Religion [3 credit hours]
- RELI 232/ASIA 232 Religions from India [3 credit hours]
- RELI 233/TIBT 233 Tibetan Language, Literature and Culture I [3 credit hours]
- RELI 234/TIBT 234 Tibetan Language, Literature and Culture II [3 credit hours]
- RELI 270 Introduction to the Black Church in the United States [3 credit hours]
- RELI 285/ASIA 240/SWGS 240 Gender and Politicized Religion [3 credit hours]
- RELI 311 Religion and Hip Hop [3 credit hours]
- RELI 320/POLI 320 The Legal Framework of Religious Tolerance [2 credit hours]
- RELI 322/ASIA 322 Introduction to Buddhism [3 credit hours]
- RELI 332/TIBT 332 Advanced Tibetan Language and Culture [3 credit hours]
- RELI 333 Knowing Body/Glowing Mind: Buddhist Arts of Contemplation and Analysis [3 credit hours]
- RELI 337 Shamans, Saints, and Sages [3 credit hours]
- RELI 340 Theology in Africa [3 credit hours]
- RELI 342/ANTH 343 New Religious Movements in Africa [3 credit hours]
- RELI 354 Prophets in Modernity [3 credit hours]
- RELI 357 What's Religious About Black Religion [3 credit hours]
- RELI 359 Religious Tolerance [<u>3 credit hours</u>]
- RELI 369 Reading Wright: Theism and Atheism in the Writings of Richard Wright [3 credit hours]
- RELI 378 Mind and Art, Film and Literature in Buddhism [3 credit hours]
- RELI 379/SOCI 379 Contested Geographies: Race, Nation and Diaspora [3 credit hours]
- RELI 393 Mutants and Mystics [3 credit hours]
- RELI 399 Contemplative Practicum [<u>1 credit hour</u>]
- RELI 423/ANTH 423 African Myths and Rituals [3 credit hours]
- RELI 424 Religion & Politics in Africa [3 credit hours]
- RELI 426 Religion and Literature in Africa [3 credit hours]
- RELI 433 Tibetan Language and Culture [3 credit hours]
- RELI 458 Mysticism: Theories and Methods [3 credit hours]
- RELI 470 Buddhist Wisdom Text [3 credit hours]

Senior Project

Students must complete 1 course (3 credit hours) from the list below to satisfy the Religion major's Senior Project requirement. The course is either a Seminar or Independent Study with a required research paper.

- RELI 400 Senior Thesis [<u>3 credit hours</u>]
- RELI 401 Independent Study [<u>1-6 credit hours</u>]
- RELI 402 Independent Study [1-6 credit hours]
- RELI 405 Religion & Natural Sciences [3 credit hours]
- RELI 415 Secret Religion [3 credit hours]
- RELI 416 Beginnings of Christianity [<u>3 credit hours</u>]
- RELI 421 Foucault & The Hermeneutics of Self [3 credit hours]
- RELI 424 Religion and Politics in Africa [3 credit hours]
- RELI 426 Religion and Literature in Africa [3 credit hours]
- RELI 427 History and Methods: Twentieth Century [3 credit hours]
- RELI 428 History and Methods: 20th Century [3 credit hours]
- RELI 430 Religion, Psychology & Culture [<u>3 credit hours</u>]
- RELI 440 Islam's Mystical Tradition [3 credit hours]
- RELI 441/ASIA 441 Magic & Popular Religion [3 credit hours]
- RELI 443 Maimonides "Guide for the Perplexed" [3 credit hours]
- RELI 449 Early Christian Controversies [3 credit hours]
- RELI 456 History of Western Christianity: Reformation to the Present [3 credit hours]
- RELI 458 Mysticism: Theories and Methods [<u>3 credit hours</u>]
- RELI 462 English Spirituality After Henry VIII: Protestant, Catholic, or Anglican? [3 credit hours]
- RELI 470 Buddhist Wisdom Texts [3 credit hours]
- RELI 472 Kabbalah Seminar [3 credit hours]
- RELI 473 Gem Seminar: Special Topics [3 credit hours]
- RELI 476/FREN 324/POLI 324 From Decolonization to Globalization [3 credit hours]
- RELI 481 Gnosticism Seminar [<u>3 credit hours</u>]
- RELI 488 The History of Religions Schools [3 credit hours]
- RELI 490 The African American Literature and Religion [3 credit hours]
- RELI 497 Senior Forum [<u>1 credit hour</u>]
- RELI 499 Internship in Religion [3 credit hours]

ELECTIVES

To fulfill the remaining Religion major requirements, single majors must complete a total of 6 additional courses (18 credit hours) from departmental (RELI) course offerings. Double majors must complete a total of 4 additional courses (12 credit hours) to satisfy the Electives requirement. Selection of courses should be worked out programmatically with a faculty member advisor so that at least 3 courses form a concentrated area of study.

Honors Program

Qualified undergraduates may choose the option of writing a senior thesis and submitting it to the department for consideration to receive Distinction in Research and Creative Works. For details about the submission process and this honors award, visit the department's website. To complete the thesis, the student elects RELI 400 "Senior Thesis." Students must have a minimum 3.2 GPA in Religion courses prior to enrolling in RELI 400, a Religion faculty supervisor, and the permission of the Undergraduate Director. Further details are available upon consultation with the Undergraduate Director.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate Religion degree and major. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: RELI
- Department Description and Code
 - Religion: RELI
- Degree Description and Code

- Bachelor of Arts degree: BA

- Major Description and Code
 - Major in Religion: RELI

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Religion >

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- Graduate Students Department Undergraduate Graduate Course Info **Requirements** Requirements Listings Program Learning Outcomes for the PhD Degree in Religion Upon completing the PhD Degree in Religion, students will be able to: 1. Develop Critical Skills for the Study of Religion: Theory, Method and (Inter) Disciplinarity. They will develop and apply critical toolkit to the study of religion and religious traditions, including (inter)disciplinary methodologies and theories. 2. Understand Historical, Social and Cultural Dimensions of Religion. They will understand and interpret religious traditions by examining religion(s) as historical, social, and cultural phenomena. 3. Understand Psychological, Philosophical and Cognitive Dimensions of Religion. They will understand and interpret the subjective dimensions of religion(s) through analyses that explore the psychological, philosophical, and cognitive dynamics of religion and religious experience. 4. Understand Religious Plurality/Marginal Currents. Understand and interpret religious traditions by examining the plurality of religious voices and expressions, including currents that have been marginalized, neglected, repressed, and censored in a variety of sociological, psychological, philosophical, and political ways. 5. Interpret Multicultural/Transnational Currents. They will understand and interpret religious traditions as multicultural and transnational in nature through attention to the impact of globalism, immigration, colonialism, and other forms of multicultural (non)religious exchange. 6. Demonstrate Religious Literacy. They will demonstrate a basic objective knowledge of the beliefs, practices, and institutional histories of the world's religions. 7. Demonstrate Communication: Pedagogy and Professionalism. They will develop ability to effectively communicate (inter)disciplinary knowledge and critical research in the classroom, at professional conferences, and in academic publications. 8. Demonstrate Foreign Language Skills: Primary Text Translation. They will develop ability to read religious texts in their original languages and perform translations of texts where appropriate. 9. Demonstrate Foreign Language Skills: Secondary Research Translation. They will develop ability to read and understand relevant scholarly research/literature that has been published in foreign languages. Requirements for the MA and PhD Degrees in Religion 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. 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 are expected to perform a minimum amount of services in return for their stipend by assisting the department as needed. Although students are not normally admitted to study for an MA, graduate students may earn the MA after obtaining approval of their candidacy for the PhD. The PhD in Religion is a 5-8 year program (based on 3 courses per semester). Course requirements are: 18 courses (54 hours required for students without an MDiv or relevant MA degree); 12 courses (36 credit hours) with an
 - MDiv or relevant MA degree. Two department seminars to be taken in each of the first two years.
 - Successful completion of the second-year review.
 - Passing grades on reading examinations in two secondary research languages approved by the faculty before taking qualifying exams.
 - Passing grades in four qualifying examinations.

Religion The School of Humanities

Non-Traditional Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

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 are available to teach undergraduate courses in the department. Students are encouraged to pursue teaching opportunities at 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.

Requirements for the Certificate in Gnosticism, Esotericism and Mysticism (GEM)

For more information regarding the Certificate in Gnosticism, Esotericism and Mysticism (GEM), please see the GEM page.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Religion graduate degree program. The following is a quick reference:

Rice A-Z

Course Catalog/Schedule

- Course offerings/subject code: RELI Department Description and Code:

- Religion: RELI

<u>Degree Descriptions and Codes</u> - Master of Arts degree: MA

- Doctor of Philosophy degree: PhD
- Degree Program Description and Code
 - Degree Program in Religion: RELI

Web Services

- Certificate Description and Code
 - Certificate in Gnosticism, Esotericism and Mysticism: GEM

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University Calendar

Maps-Directions Feedback

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Religion >

RICE

Religi	OII					
The Sch	nool of Humanitio	es				
	Department	Undergraduate	Graduate	Course		
Cours						
	The official course offerings, including course descriptions, for Religion can be found in Rice's Course Catalog.					
To view th	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.					
For additional information regarding Religion, see the department's website: https://reli.rice.edu/.						
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Last Revised	: August 24, 2016					
	Course The officia To view th For additi	Department Info Course Listings The official course offerings, includ To view the most recent course sc	Info Requirements Course Listings Course Listings The official course offerings, including course descriptions, for R To view the most recent course schedule for the 2016-2017 acad For additional information regarding Religion, see the department	Department Info Undergraduate Requirements Graduate Requirements Course Listings The official course offerings, including course descriptions, for Religion can be found in Rice's O To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course For additional information regarding Religion, see the department's website: https://reli.rice.edu/		

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b

763 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Science Teaching >

Graduate Students Non-Traditional Students Faculty Programs of Study Administration and Faculty	Department Info Director Patricia Reiff Application Review Com David Alexander Marjorie Corcoran	Undergraduate Requirements	Graduate Requirements Advisory Council David Alexander	Course Listings	
Faculty Programs of Study	Info Director Patricia Reiff Application Review Com David Alexander	Requirements	Requirements Advisory Council David Alexander		
Programs of Study	Director Patricia Reiff Application Review Com David Alexander	L L L	Advisory Council David Alexander	Listings	
	Patricia Reiff Application Review Com David Alexander	E	David Alexander		
Administration and Faculty	Application Review Com David Alexander	Ν			
	David Alexander		Marjorie Corcoran Robert Curl (emeritus)		
Important Notices	inaljene eereelan		Carolyn Nichol Neal Lane (emeritus) Anne Papakonstantinou Patricia Reiff Ron Sass (emeritus) Carolyn Sumners		
	Patricia Reiff	A F F			
	Program (Undergraduate): N//	C F C J	Educational Professionals Carolyn Nichol Anne Papakonstantinou Patricia Reiff Carolyn Sumners James Young		
F	Program (Graduate): MST degree The Master of Science Teaching (MST) degree is a content-based, non-thesis, advanced degree primarily directed towar inservice middle school, IPC (Integrated Physics and Chemistry), Physics, or Astronomy high school teachers and other Education and Public Outreach (EPO) professionals. The goal of the program is to provide content and skills to inservice preservice K-12 and Informal educators, so that they will become proficient in, and able to teach, all the Planetary, Astron and Space Science topics included in the Next Generation Science Standards and the State of Texas science standards. The teachers who finish the program are encouraged to become master teachers in their school district, multiplying the in the program manifold by giving workshops and other inservice programs to other teachers both in-state, and across the				
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	ountry. ast Revised : August 17, 2016				

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University Calendar

Rice A-Z

Maps-Directions

Feedback

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Science Teaching >

Undergraduate Students	Science Teaching						
Graduate Students	The Wiess School of Natural Sciences						
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings		
► Faculty					Listings		
Programs of Study	Undergraduate Requirements Science Teaching does not offer an academic program at the undergraduate level.						
Administration and Faculty							
Important Notices	Last Revised : August 17, 2016						

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2016-2017 > Programs of Study > Science Teaching >

Undergraduate Students	Science Teaching The Wiess School of Natural Sciences						
Graduate Students							
Non-Traditional Students	Department	Undergraduate	Graduate	Course			
▹ Faculty	Info Program Learning O	Requirements	Requirements er of Science Teachir	Listings			
Programs of Study		nts for the Master of Science Te					
Administration and Faculty							
Important Notices	 Solve problems based on Kepler's Laws and Newton's Laws using non-calculus mathematical techniques. Demonstrate best practices for teaching scientific content. Present an oral report on a scientific topic using Powerpoint. 						
	 Learn how to use scientific and astronomical equipment such as telescopes, digital cameras, GPS, electronic devices including multimeters, and/or portable planetariums. Prepare a Final Project, which will include scientific research, educational research, and/or curriculum creation or analysis. 						
	Requirements for the	Master of Science Te	eaching Degree (MS1	Γ)			
	For general university requirements must complete:	ents, see Graduate Degrees. Stu	udents pursuing the Master of S	cience Teaching Degree (MST)			

A minimum of 30 credit hours at the 500-level or above to satisfy degree requirements, including a minimum of 15 credit hours from Content or Content/Skills Courses.

A final project. Students will prepare a final project which will include scientific research, educational research, and/or curriculum creation or analysis.

Each candidate for the Master of Science Teaching degree will specify an area of specialization. Examples of the areas of specialization are listed below:

- Astronomy
- Earth Science
- Informal Science
- Integrated Physics and Chemistry (IPC)
- Middle School Science
- Physics

Each student will have a three-person committee, with at least two members from the tenure-track faculty, to approve the student's proposed program, advise on which specific courses will best suit the student's needs, and approve their final project. At least one of the members of the committee will be an experienced Education Professional, who will ensure the appropriateness of the courses to the educator's program. At least one person of the committee will be an expert in the content area that is the student's primary teaching interest.

CONTENT OR CONTENT/SKILLS COURSES

Students must complete a total of 5 courses (15 credit hours) in Content or Content/Skills courses at the 500-level or above. At least 9 credit hours should be directly related to the student's major area of specialization. There may be some courses at the 400-level that satisfy this requirement, but students should be aware that if they take courses at the 400-level, they may need to take additional courses at the 500-level or above to satisfy overall degree requirements. The courses listed below satisfy the Content or Content/Skills requirement, but students may also satisfy the requirement, upon approval of their graduate committee, by completing courses from departmental (ASTR, BIOC, CHEM, EBIO, EDUC, ESCI, MATH, NSCI, or PHYS) course offerings at the 500-level or above.

- ASTR 502 Teaching Earth and Space Science [3 credit hours]
- ASTR 503 Astronomy for Teachers [3 credit hours]
- ASTR 530 Teaching Astronomy Laboratory [<u>3 credit hours</u>]
- ESCI 511 Seminar: Earth Science into Action [3 credit hours]
- PHYS 501 Physics of Ham Radio [3 credit hours]

ADDITIONAL CONTENT/SKILLS OR EDUCATION COURSES

Students must complete 3 additional credit hours from content, skills, or education courses. The courses listed below satisfy the Content/Skills or Education requirement, but students may also satisfy the requirement, upon approval of their graduate committee, by completing courses from departmental (ASTR, BIOC, CHEM, EBIO, EDUC, ESCI, MATH, NSCI, or PHYS) course offerings.

- EDUC 519 Teaching and Learning With Inquiry [3 credit hours]
- EDUC 520 Teaching Diverse Learners [3 credit hours]
- EDUC 563 Theory and Methods: Mathematics [1-3 credit hours]

RESEARCH OR PRACTICUM

Students may complete up to 12 credit hours from research (educational or scientific) or practicum teaching, but must complete, at a minimum, 3 credit hours from graduate research or teaching practicum, developing a research project in conjunction with a science or educational advisor. The courses listed below may satisfy the Research or Practicum requirement, but students may also satisfy this requirement, upon approval of their graduate committee, by completing courses from departmental (ASTR, BIOC, CHEM, EBIO, EDUC, ESCI, MATH, NSCI, or PHYS) course offerings.

- ESCI 515 Geophysical Field Work for Educators [3 credit hours]
- PHYS 800 Graduate Research [<u>1-15 credit hours</u>]

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Science Teaching graudate degree program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses from other department apply towards the graduate degree in Science Teaching. <u>Department Description and Code</u>

- Physics and Astronomy: PHYS

- Degree Description and Code
- Master of Science Teaching degree: MST
- Degree Program Description and Code

- Degree Program in Science Teaching: STEA

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767 of 923

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Science Teaching >

Undergraduate Students	Science Teaching				
Graduate Students	The Wiess School of Na	tural Sciences			
Non-Traditional Students	Department	Undergraduate	Graduate	Course	
Faculty	Info Course Listings	Requirements	Requirements	Listings	
Programs of Study	The official course offerings, includ	ing course descriptions, listed	I in the Science Teaching Grad	luate Requirements section ca	
Administration and Faculty	be found in Rice's Course Catalog.	æ			
Important Notices	To view the most recent course sch	nedule for the 2016-2017 aca	demic year, see Rice's Course	Schedule.	
For additional information regarding Science Teaching, see the department's website: http://space.rice.edu/MST/.					
	Last Revised : August 24, 2016				

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2016-2017 > Programs of Study > Sociology >

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 Graduate Students Non-Traditional Students Faculty Programs of Study 	The School of Social Scien Department Info	ces Undergraduate Requirements	Graduate	Course	
▶ Faculty		-	Graduate	Course	
		Requirements	Requirements	Listings	
Programs of Study			Requirements	Listings	
·····j,	Chair Bridget K. Gorman		rofessors Emeriti handler Davidson		
Administration and Faculty			Elizabeth Long		
Important Notices	Professors Tony N. Brown		William Martin		
	Elaine Howard Ecklund		rofessor in the Practice		
	James Elliott	R	ichard Johnson		
	Rachel Tolbert Kimbro				
	Stephen L. Klineberg		ecturers		
	Ruth Lopez-Turley	C	raig Considine		
	Steve H. Murdock	R	obert Werth		
	Associate Professors	A	djunct Professors		
	Jenifer L. Bratter	D	avid S. Buck		
	Justin Denney	K	eila Natilde Lopez		
		R	oland B. Smith, Jr.		
	Assistant Professors				
	Sergio Chavez	A	djunct Associate Professor		
		R	obin Paige		

Programs (Undergraduate): BA degree, Minor

Programs (Graduate): MA degree, PhD degree

Sociology is a branch of the social sciences that evolved in response to the revolutionary social changes of the 19th century, such as industrialization and urbanization, that ushered in the modern era. Sociology's founding fathers include Emile Durkheim, Max Weber, Karl Marx, Herbert Spencer, and George Herbert Mead. They explored how social relationships and interactions affect individuals and large-scale social institutions, including religion, government, and education. Today, sociologists use qualitative techniques, including ethnography; participant observation; and case studies of a variety of social phenomena, processes, and problems as methods for exploring the meaning of social life and culture to those who live it, and in building inductive theory. Quantitative techniques engage in hypothesis testing of established theories and concepts, using techniques that include experimental designs, survey questionnaires, and network analysis. Sociology as a discipline includes "ways of knowing" that link it closely to methods of the natural sciences, and more interpretive and critical perspectives that are closer to scholarship in the humanities.

The Sociology department does not have a terminal MA program, and students seeking only a master's degree will not be admitted. However, the Master of Arts degree is earned as a student progresses toward the PhD.

Last Revised : August 17, 2016

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Sociology >

Undergraduate Students

Non-Traditional Students

Administration and Faculty

Graduate Students

Programs of Study

Important Notices

Faculty

RICE

Sociology

The School of Social Sciences

 Department Info
 Undergraduate Requirements
 Graduate Requirements
 Course Listings

 Jump to: BA Degree with a Major in Sociology Minor in Sociology

Program Learning Outcomes for the BA Degree with a Major in Sociology

Upon completing the BA degree, students majoring in Sociology will be able to:

- 1. Understand the functions of theory and its use in the social sciences. Students will be familiar with key social theorists in the field. Students will understand key theoretical concepts and be comfortable using them beyond the classroom.
- 2. Gain richer understanding of the social world, including class, race, gender, ethnicity, education, family, occupation, deviancy, health, and global citizenship as well as how the human social world impacts its environment.
- Apply sociological knowledge and training to understand theory and policy oriented around issues of human well-being in the US and globally, including how to understand the relationship between inequality and factors like race, class, gender, and education.
- 4. Apply methodological, theoretical, and research skills to carry out empirical research projects.

Requirements for the BA Degree with a Major in Sociology

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Sociology (SOCI) must complete:

- A minimum of 11 courses (33 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 10 courses (30 credit hours) at the 300-level or above.

Any exceptions to these requirements must be approved by the Major Advisor and/or chair of the Undergraduate Advising Committee Chair.

CORE REQUIREMENTS

Students must complete the following 4 courses (12 credit hours) to satisfy the Sociology major's Core Requirements.

- SOCI 101 Introduction to Sociology [<u>3 credit hours</u>]
- SOCI 380 Social Theory [<u>3 credit hours</u>]
- SOCI 381 Research Methods [3 credit hours]
- SOCI 382 Social Statistics [<u>3 credit hours</u>]

ELECTIVES

To fulfill the remaining Sociology major requirements, students must complete a total of 7 additional courses (21 credit hours) from departmental (SOCI) course offerings at the 200-level or above.

Honors Program

The Honors Program is designed to provide sociology majors with the opportunity to sharpen their research skills and deepen their understanding of the discipline through a two-to-three semester program of directed independent research and writing. The program also offers the opportunity for formal recognition, through Departmental Honors, of those undergraduates who have demonstrated unusual competence in sociology by successfully completing a sustained independent research project. Small

grants for honors thesis research are generously supported by the Chandler and Ian Davidson Scholars Fund as well as the Walter Hall Scholars program.

Eligibility

To be eligible for the program, students must have:

- Taken at least four sociology courses beyond SOCI 101 Introduction to Sociology, including SOCI 381 Research Methods.
 If their project requires statistical analysis, students should also complete SOCI 382 Social Statistics before beginning their research.
- An A- average in all sociology courses taken.

Application Process

- 1. During the fall and early spring semester of their junior year, students are invited to consult with tenured and tenure-track members of the faculty about a potential thesis topic. All students must have at least one tenured or tenure-track faculty member in the sociology department as their thesis chair. The student must submit a written description of their proposed research project to the chosen faculty member for approval of their topic and review of their proposal, as well as secure agreement of the chosen faculty member(s) to serve as their thesis committee chair.
- 2. Once a thesis supervisor has been identified, the student must submit a written description of their proposed research project to the departmental undergraduate advisor. The proposal should be 2-3 pages in length, double-spaced, and is due by April 1st of their junior year. It should include a signed statement from the chosen faculty member agreeing to serve as their chair advisor.
- The sociology faculty will vote on the merits of the proposed thesis project at their monthly faculty meeting in mid-April. If approved, the student may begin work on their thesis immediately, or at a start time agreed upon with their thesis supervisor (including summer semester, if desired).

Program

Students in the Honors Program register for two successive semesters in *Directed Honors Research* (SOCI 492 and 493). An honors thesis typically involves much discussion over both semesters between the student and their tenure or tenure-track advisor. Students should meet early in the process to agree on ground rules for the project, to choose the other members of the thesis committee (made up of one additional faculty member, who serves as a reader and ad-hoc advisor), and to set up a schedule for discussions and submission of written work. It is the department's experience that students who work alone without much consultation with faculty are less likely to succeed in their project than students who maintain close contact with their advisor and the department. Students are also encouraged to include other members of the committee in discussion of the thesis, especially as the project nears completion, so that their feedback can be incorporated before the final draft of the project is submitted.

Students normally begin by conducting a thorough review of the relevant literature, formulating hypotheses that grow out of the literature review, and proposing a research design that clearly describes how the data for the project are to be collected and analyzed. The research itself is usually carried out in the fall semester of the senior year (and sometimes in the summer following the junior year), and is analyzed, written up, and defended as a completed Honor's Thesis during the spring semester of the senior year. (Students are encouraged to examine several previously written theses, which are available in the sociology department.)

In addition to the student's primary advisor, the thesis is read and evaluated by the faculty members, sometimes from other departments, who make up the student's thesis committee.

Program Timeline

- A first draft of the final thesis must be turned in to the committee members no later than February 1st of the student's senior year.
- After receiving feedback on the project, the student will have until the last Monday in March to submit a final draft of the senior thesis to their committee.
- A short presentation (10-15 minutes) of the final thesis project must be given to the full sociology faculty by mid-April. Faculty will vote on whether to grant Departmental Honors to the student at the conclusion of their presentation.

back to menu

Requirements for the Minor in Sociology

Students who are pursuing the minor in Sociology (SOCY) must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 5 courses (15 credit hours) at the 300-level or above.

Any exceptions to these requirements must be approved by the Minor Advisor and/or chair of the Undergraduate Advising Committee Chair.

CORE REQUIREMENTS

Students must complete a total of 2 courses (6 credit hours) as listed below.

- SOCI 101 Introduction to Sociology [<u>3 credit hours</u>]
- SOCI 380 Social Theory [<u>3 credit hours</u>] or SOCI 381 Research Methods [<u>3 credit hours</u>]

ELECTIVES

To fulfill the remaining Sociology minor requirements, students must complete a total of 4 courses (12 credit hours) from departmental (SOCI) course offerings at the 200-level or above, including at least 1 elective course (3 credit hours) at the 400-level.

back to menu

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the undergraduate Sociology degree, major, and minor. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: SOCI Department Description and Code

- Sociology: SOCI

Degree Code and Description

- Bachelor of Arts degree: BA

Major Description and Code

- Major in Sociology: SOCI Minor Description and Code

- Minor in Sociology: SOCY

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Sociology >

۲	Und	dergr	aduat	e Stud	lents

Sociology

The Sciences

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study

Administration and Faculty

Important Notices

		- 5			
е	Sch	ool	of	Social	S

Department	Undergraduate	Graduate	Course
Info	Requirements	Requirements	Listings

Program Learning Outcomes for the MA and PhD Degrees in Sociology

Upon completing the MA and PhD Degree programs in Psychology, students will be able to:

- 1. Understand and apply the role of theory in sociology.
- 2. Demonstrate understanding and application of both qualitative and quantitative sociological methods.
- 3. Demonstrate expertise in at least two specialty areas within sociology.

Requirements for the MA and PhD Degrees in Sociology

The PhD program is a five-year degree program. Students will normally obtain a master's degree after two years of study and research, and will usually need an additional three years to complete the requirements for a PhD. The course work is sequenced and will typically be completed in 21/2 years. By this point, students will be required to have written their Masters thesis and completed their Masters degree. This leaves one semester to take the comprehensive exams and two years to complete the dissertation. Each student will attend a monthly Teaching and Professionalization Workshop that the department will hold throughout the academic school year.

The Sociology department does not admit students seeking only a masters degree. The Master of Arts degree is earned as a student progresses toward the PhD. Students who currently hold a Master's Degree are welcome to apply. However, PhD students must complete four semesters of residency and coursework at Rice University. At the department's discretion, some credits may transfer from other graduate programs.

Admission Policy

Students are admitted on a competitive basis. Admitted students must have a Baccalaureate degree (BA or BS) or equivalent, a minimum 3.0 (B) GPA in undergraduate work, and the intent to complete a PhD in sociology. We consider GRE scores, undergraduate GPA, letters of recommendation, writing samples, a personal essay, and professional experience when making admission decisions for the PhD program. We strongly encourage applications from women and minority groups.

REQUIRED COURSES

Students must complete the following 10 courses (24 credit hours):

- SOCI 526 Contemporary Social Theory [3 credit hours]
- SOCI 541 Qualitative Research Methods [3 credit hours]
- SOCI 580 Classical Social Theory [3 credit hours]
- SOCI 581 Quantitative Research Methods [3 credit hours]
- SOCI 582 Quantitative Data Analysis I [3 credit hours]
- SOCI 583 Quantitative Data Analysis II [3 credit hours]
- SOCI 596 Statistical Computer Programming [<u>1 credit hour</u>]
- SOCI 610 Professionalization Workshop [1 credit hour]
- SOCI 611 Crafting a Dissertation [1 credit hour]
- SOCI 700 Dissertation Research [<u>1-15 credit hours</u>]

The sequence of courses will normally be as follows:

First Semester

or SOCI 526 Contemporary Social TheorySOCI 581 Quantitative Research Methods

- or SOCI 541 Qualitative Research Methods
- SOCI 596 Statistical Computer Programming
- Elective 1
- SOCI 610 Professionalization Workshop

Second Semester

- SOCI 582 Quantitative Data Analysis I and/or SOCI 541 Qualitative Research Methods
- Elective 2
- Elective 3
- SOCI 610 Professionalization Workshop

Third Semester

- SOCI 526 Contemporary Social Theory or SOCI 580 Classical Social Theory
- SOCI 583 Quantitative Data Analysis II
- SOCI 541 Qualitative Research Methods (if not already taken)
- SOCI 610 Professionalization Workshop

Fourth Semester

- SOCI 700 Dissertation Research
- Electives
- SOCI 611 Crafting a Dissertation
- SOCI 610 Professionalization Workshop

Semesters 5-10

Electives, Comprehensive Exams, and Dissertation

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Sociology graduate degree program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: SOCI
- Department Description and Code

- Sociology: SOCI

Degree Descriptions and Codes

- Master of Arts degree: MA
- Doctor of Philosophy: degree PhD

Degree Program Description and Code

- Degree Program in Sociology: SOCI

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Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Sociology >

Undergraduate Students	Sociology				
Graduate Students	The School of Social Sci	ences			
Non-Traditional Students	Department	Undergraduate	Graduate	Course	
▶ Faculty	Info Course Listings	Requirements	Requirements	Listings	
Programs of Study		The official course offerings, including course descriptions, for Sociology can be found in Rice's Course Catalog.			
Administration and Faculty	To view the most recent course sch				
Important Notices	For additional information regarding	Sociology, see the departme	ent's website: https://sociology	rice.edu/. 🗗	
	Last Revised : August 24, 2016				

General Announce	ements 6100 M	ain MS-10, Houston,	Texas 77005-1827	Mailing Address: P.O.	Box 1892, Houston, Tex	as 77251-1892
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775 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Space Studies >

Undergraduate Students	Space Studies						
► Graduate Students	The Wiess School of Natural Sciences						
Non-Traditional Students	Department	Undergraduate	Graduate	Course			
Faculty	Info	Requirements	Requirements	Listings			
Programs of Study	Directors David Alexander		a ssociate Professors Ramon Gonzalez				
Administration and Faculty	Andrew Meade		Assistant Professors				
Important Notices	Professors Christopher M. Johns-Kr Adrian Lenardic Erzsebet Merenyi Marcia O'Malley Tayfun Tezduyar Frank Toffoletto	S	itephen Bradshaw ladley Wickham				
	Program (Undergraduate): N Program (Graduate): MSSpS This degree is one of five tracks in the and focuses on training students in Sp interested in working in the space tect relations positions in non-profit organi	degree professional master's progr pace Engineering and Scienc nnology industry or related g	ce with the intent of creating r overnment entities, e.g. NAS	new options for those students			

The Space Studies track is a collaboration between the Wiess School of Natural Sciences and the George R. Brown School of Engineering, and is geared to help individuals increase their knowledge of space engineering and related science, program management, and policy. The program includes advanced engineering, biological and physical science classes and introduces students to economics, public policy, and management disciplines, which impact space commercialization and national policy. It focuses on training engineers and scientists interested in program management, providing them with the tools to face the complex challenges inherent in US space policy, human and robotic space exploration, and science in space exploration and technology development.

These master's degrees are designed for students seeking to gain further technical core expertise coupled with enhanced management, communication and leadership skills instilling a level of scholastic proficiency that exceeds that of the bachelor's level, and creating the cross-functional aptitudes needed in modern industry and government.

In addition, a coordinated MBA/MSSpS degree is offered in conjunction with the Jesse H. Jones Graduate School of Business.

Last Revised : August 17, 2016

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Space Studies >

Undergraduate Students	Space Studies				
Graduate Students	The Wi	ess School of Nat	tural Sciences		
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
▶ Faculty	Under	rgraduate Require		Requirements	Listings
Programs of Study		•	ademic program at the undergr	raduate level.	
Administration and Faculty					
Important Notices	Last Revise	ed : August 12, 2016			

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SEARCH GA

Previous Editions

Course

Listings

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Space Studies >

Unc	lergrad	luate 3	Stud	ents
-----	---------	---------	------	------

RICE

The Wiess School of Natural Sciences

Department

Info

- Non-Traditional Students
- Faculty
- Programs of Study

Graduate Students

- Administration and Faculty
- Important Notices

Program Learning Outcomes for the MS in Space Studies Degree (MSSpS)

Graduate

Requirements

Upon completing the MSSpS Degree, students will be able to:

- 1. Develop advanced science, engineering, and computational skills.
- 2. Achieve a broad understanding of the tools and methodologies applied in the space industry.

Undergraduate

Requirements

- 3. Gain real life experience in solving technical problems in a science and technology environment.
- 4. Develop business and communication skills

Requirements for the MS in Space Studies Degree (MSSpS)

For general university requirements, see the Professional Degrees section of Graduate Degrees. Students pursuing the MSSpS degree must complete:

- A minimum of 15 courses (39 credit hours) to satisfy degree requirements.
- A 3-6 month internship. Students must present a summary of their internship project in both oral and written form as part of the professional master's seminar.
- A minimum of 30 credit hours at the 500-level or above.

CORE REQUIREMENTS

Students must complete a total of 12 courses (30 credit hours) as listed below to satisfy the MSSpS degree's Core Requirements.

Required Cohort Courses

Students must complete the following 5 courses (9 credit hours):

- NSCI 501 Master Seminar (required for 1 semester) [1 credit hour]
- NSCI 502 Space Studies Seminar Course [<u>1 credit hour</u>]
- NSCI 511 Science Policy and Ethics [<u>3 credit hours</u>]
- NSCI 512 Internship Project [<u>1 credit hour</u>]
- NSCI 610/ENGI 610 Management for Science and Engineering [3 credit hours]

Core Technical Courses

Students must complete the following 3 courses (9 credit hours):

- ASTR 570 Solar System Physics [3 credit hours]
- STAT 615 Intro to Regression and Statistical Computing [3 credit hours]
- MECH 572 Aerospace Systems Engineering [<u>3 credit hours</u>]

Core Science Electives

Students must complete a total of 2 courses (6 credit hours) from the following:

- ASTR 554 Astrophysics of the Sun [3 credit hours]
- BIOC 415 Experimental Physiology [<u>1 credit hour</u>]
- BIOC 540/CHBE 640 Metabolic Engineering [3 credit hours]
- ESCI 540 Earth's Atmosphere [<u>3 credit hours</u>]
- ESCI 660 Geological and Geophysical Fluid Dynamics [<u>3 credit hours</u>]

Statistics/Computation Courses

Students must complete a total of 2 courses (6 credit hours) from the following. Depending on the background, other courses can be chosen with permission of advisor.

- CAAM 453 Numerical Analysis I [3 credit hours]
- CEVE 528/ENGI 528 Engineering Economics [<u>3 credit hours</u>]
- ESCI 650 Remote Sensing (not available every year) [<u>3 credit hours</u>]
- MECH 554/BIOE 554/CEVE 554 Computational Fluid Mechanics [3 credit hours]
- PHYS 416 Computational Physics [<u>3 credit hours</u>]
- STAT 310/ECON 307 Probability and Statistics [3 credit hours]
- STAT 605 R for Data Science [3 credit hours]
- STAT 502/COMP 502/ELEC 502 Neural Machine Learning I [3 credit hours]
- STAT 541 Multivariate Analysis [3 credit hours]
- STAT 640 Data Mining and Statistical Learning [3 credit hours]

ELECTIVES

Students must complete a total of 3 courses (9 credit hours) from one of the following areas, depending on the student's individual interests and career goals.

Focus: Engineering

Students pursuing a focus area in Engineering must complete a total of 3-4 courses (9-12 credit hours) from the following:

- CEVE 504 Atmospheric Particular Matter [3 credit hours]
- CEVE 505/ENGI 505 Eng. Project Development& Management [3 credit hours]
- CEVE 511 Atmospheric Processes [3 credit hours]
- CEVE 576/MECH 576 Structural Dynamics and Control [3 credit hours]
- COMP 498/ELEC 498/MECH 498 Intro to Robotics [3 credit hours]
- MECH 454/BIOE 454/CEVE 454 Computational Fluid Mechanics [3 credit hours]
- MECH 572 Aerospace Systems Engineering [<u>3 credit hours</u>]
- MECH 591 Gas Dynamics [3 credit hours]
- MECH 599 Current Topics [3 credit hours]
- MECH 691 Hypersonic Aerodynamics [3 credit hours]

Focus: Sciences (Astro Science/Earth Science/Life Sciences)

Students pursuing a focus area in Sciences must complete a total of 3 courses (9 credit hours) from the following. Focus areas in earth science, physics and life sciences can be chosen, depending on student's background. Students will consult with academic advisor about appropriate selection of their elective science courses.

- ASTR 542 Nebular Astrophysics [<u>3 credit hours</u>]
- ASTR 554 Astrophysics of the Sun [3 credit hours]
- ASTR 555 Protostars and Planets [<u>3 credit hours</u>]
- ASTR 565 Compact Objects [<u>3 credit hours</u>]
- BIOC 524 Microbiology and Biotechnology [3 credit hours]
- BIOC 540/CHBE 640 Metabolic Engineering [3 credit hours]
- BIOC 544 Advanced Concepts and Critical Analysis in Modern Developmental Biology [3 credit hours]
- BIOC 545 Advanced Molecular Biology and Genetics [3 credit hours]
- BIOC 570 Computation with Biological Data [3 credit hours]
- BIOC 580/BIOE 580/CHBE 580 Protein Engineering [3 credit hours]
- ESCI 540 Earth's Atmosphere [3 credit hours]
- ESCI 581 Topics in Planetary Dynamics and Magmatic Processes [2 credit hours]
- ESCI 667 Geomechanics [<u>3 credit hours</u>]
- ESCI 672 Numerical Methods Earth System [3 credit hours]

Focus: Management

Students pursuing the focus area in Management must complete a minimum of 9 credit hours from the following:

- MGMT 601 Financial Statement Analysis [3 credit hours]
- MGMT 618 Complexities of People and Organizations [<u>1.5 credit hours</u>]
- MGMT 619 Corporate Governance [<u>1.5 credit hours</u>]
- MGMT 629 Business Plan Development [<u>1.5 credit hours</u>]
- MGMT 658 Applied Risk Management [<u>1.5 credit hours</u>]
- MGMT 734 Technology Entrepreneurship [<u>3 credit hours</u>]

NOTE: Courses vary. Some listed courses may not be offered every year, and others may be offered that satisfy the requirements with pre-approval. Students should consult with their academic advisors before enrolling.

THREE TO SIX MONTH INTERNSHIP

Practical experience 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 NSCI 512 Professional Master's Project.

Admission

Admission to graduate study in Space Studies is open to qualified students holding a bachelor's degree in a related science or engineering program that included course work in general physics, chemistry, calculus, linear algebra, and differential equations. Good scores from the general Graduate Record Examination (GRE), good critical thinking and communication skills and strong quantitative abilities. Statistics, introductory economics and computer skills preferred. Department faculty evaluate the previous academic record and credentials of each applicant individually and make admission decisions.

Professional Science Master's 5th Year Degree Option for Rice Undergraduates

Rice students have an option to achieve the MS in Space Studies by adding an additional fifth year to the four undergraduate years of science studies. Advanced Rice students in good standing may apply during their junior year. Upon acceptance, depending on course load, the student's financial aid status, and other variables they may then start taking required core courses of the space studies 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 director. Students should be aware there could be financial aid implications, if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time (12 hours) status.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the graduate Space Studies degree program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses from other department apply towards the graduate degrees in Space Studies. <u>Department Description and Code</u>

Rice A-Z

- Physics and Astronomy: PHYS

Degree Descriptions and Codes

- Master of Science in Bioscience and Health Policy degree: MSSPS

Degree Program Description and Code

- Degree Program in Space Studies: SPST

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Web Services

University Calendar

Maps-Directions Feedback

780 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Space Studies >

Undergraduate Students	Space S	Studies				
Graduate Students	The Wiess	School of Na	tural Sciences			
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings	
► Faculty	Course L		Requirements	Requirements	Listings	
Programs of Study		-	ling course descriptions, listed	d in the Space Studies Gradua	te Requirements section can be	
Administration and Faculty	found in Rice'	found in Rice's Course Catalog.				
Important Notices	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.					
			g Space Studies, see the dep u/spacestudies.aspx?id=1003			
	Last Revised : Au	gust 24, 2016				

General Announce	ements 6100 M	ain MS-10, Houston, ⁻	Texas 77005-1827	Mailing Address: P.O.	Box 1892, Houston, Tex	xas 77251-1892
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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Spanish and Portuguese, and Latin American Studies >

Spanish and Portuguese, and Latin American Studies

The School of Humanities

Graduate	Students

RICE

Non-Traditional Students

Undergraduate Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
Chair	٨	ssociate Professors	
Luis Duno-Gottberg		osé F. Aranda, Jr.	
Luis Duilo-Gollberg		uis Duno-Gottberg	
Professors		iisela Heffes	
Beatriz González-Stepha	-		
M. Rafael Salaberry		ssistant Professors	
Nicolas Shumway	E	sther Fernández	
· ·····	_	lanuel Gutiérrez	

Program (Undergraduate): BA degree

Program (Graduate): N/A

The department offers courses on the literatures and cultures of the Portuguese and Spanish-speaking nations of the world and on Spanish and Portuguese linguistics. The department stresses linguistic competence, interdisciplinary study, and a transnational perspective on Spanish, Latin America and Brazilian 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. Qualified students may undertake independent work.

Latin American Studies is an interdisciplinary major designed to further understanding of the cultures, histories, and politics of Latin America as viewed from regional and global perspectives. For more information, see Latin American Studies.

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Rice Home Web Services

University Calendar

Rice A-Z Maps-Directions

Feedback



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Spanish and Portuguese, and Latin American Studies >

Undergraduate Studen	ts
----------------------	----

Graduate Students

Spanish and Portuguese, and Latin American Studies

The School of Humanities

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
Progr	am Learning Outo	omes for the BA Dec	pree with a Major in	Spanish and

Program Learning Outcomes for the BA Degree with a Major in Spanish and Portuguese

Upon completing the BA degree, students majoring in Spanish and Portuguese will be able to:

- Demonstrate an advanced level of communicative proficiency when writing, speaking, listening to, reading and translating Spanish or Portuguese, including a high degree of ability in interacting with native Spanish or Portuguese speakers and text.
- Demonstrate analytical competence and independent and critical thinking skills by analyzing and responding to Spanish or Portuguese communications, including: identifying and evaluating arguments, ideas, and evidence, constructing critical responses to Spanish or Portuguese texts, and pursuing independent study or research in some facet of Spanish or Portuguese language or culture.
- 3. Demonstrate advanced knowledge of the social, historical, political, and cultural aspects of the Spanish-speaking world and Spanish-speaking communities and apply this knowledge to reading and analyzing authentic cultural products, including literature, art and film. They will understand how these cultural products reflect or construct facets of the Spanishspeaking world's history, culture, and identity.

Requirements for the BA Degree with a Major in Spanish & Portuguese

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Spanish and Portuguese (SPPO) must complete:

- A minimum of 12 courses (36 credit hours) at the 300-level or above to satisfy major requirements
- A minimum of 120 credit hours to satisfy degree requirements

Students who are pursuing two majors (i.e., are double majors) and have declared Spanish and Portuguese (SPPO) must complete a minimum of 10 courses (30 credit hours) at the 300-level or above to satisfy major requirements. Double majors who drop their second major are required to meet the requirements listed for single majors.

CORE REQUIREMENTS

Single majors must complete a total of 11 courses (30 credit hours) from the following to satisfy the Spanish and Portuguese major's Core Requirements. Double majors must complete a total of 9 courses (24 credit hours) to satisfy the Spanish and Portuguese major's Core Requirements.

Writing Seminar

Both single majors and double majors must complete 1 course (3 credit hours) from the following:

- SPPO 330 Hispanic Writing Seminar [3 credit hours]
- SPPO 331 Portuguese Writing Seminar [3 credit hours]

Approaches to Literature

Both single majors and double majors must complete the following course:

SPPO 332 Approaches to Hispanic Literatures [3 credit hours]

Hispanic Linguistics

Both single majors and double majors must complete 1 course (3 credit hours) from the following:

- SPPO 340 Introduction to Hispanic Linguistics [3 credit hours]
- SPPO 341 Dialects in Conflict [3 credit hours]
- SPPO 360 Second Language Acquisition [<u>3 credit hours</u>]

Advanced Coursework in Spanish and Portuguese

Single majors must complete a total of 8 courses (24 credit hours) as listed below.

- 2 Survey courses (6 credit hours) between SPPO 340 and SPPO 359
- 3 Advanced courses (9 credit hours) between SPPO 360 and SPPO 399
- 3 Seminar courses (9 credit hours) between SPPO 401 and SPPO 489

Double majors must complete a total of 6 courses (18 credit hours) as listed below.

- 2 Survey courses (6 credit hours) between SPPO 340 and SPPO 359
- 2 Advanced courses (6 credit hours) between SPPO 360 and SPPO 399
- 2 Seminar courses (6 credit hours) between SPPO 401 and SPPO 489

ELECTIVE

To fulfill the remaining Spanish and Portuguese major requirements, both single majors and double majors must complete 1 additional course (3 credit hours) between SPAN 303 and SPAN 324 or any SPPO course at the 330 course number or above (see Rice University's Course Catalog). In addition, students can also choose courses to satisfy the Spanish and Portuguese major's Elective requirement from the following:

- ANTH 334/HIST 333 The Culture of Identity Politics in Contemporary Brazil [3 credit hours]
- ANTH 361 Latin American Topics [3 credit hours]
- FWIS 133 Latin American Art [3 credit hours]
- HART 265 Art/Politics Modern Latin America [3 credit hours]
- HART 310/ARCH 315 Brazil Built [3 credit hours]
- HART 375/ARCH 375 Latin-Europe/Latin-America [3 credit hours]
- HART 465 Latin American Bodies: On Modernism [3 credit hours]
- HIST 226 Colonial Spanish America [3 credit hours]
- HIST 227 Latin American Cultural Traditions [<u>3 credit hours</u>]
- HIST 251/LASR 251 Brazil: Continuity & Change [3 credit hours]
- HIST 336 Caribbean History: 1938 to Present [3 credit hours]
- HIST 337 Latin American Perspectives [3 credit hours]
- HIST 366/ARCH 366 *Rio de Janeiro* [<u>3 credit hours</u>]
- LASR 158/SPPO 158 Introduction to Latin American Studies [3 credit hours]
- LASR 491 Latin American Studies Capstone [3 credit hours]
- POLI 328 Latino Politics in the United States [3 credit hours]
- POLI 352 Politics & Culture of Mexico [3 credit hours]
- POLI 354 Latin American Politics [<u>3 credit hours</u>]
- POLI 459 Sex, Gender, and Political Representation in Latin American [3 credit hours]
- POLI 483 US- Mexico Border Issues in Comparative Perspective [3 credit hours]

Honors

The department 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. Every year, the department also presents the Cervantes Award for Outstanding Seniors to its top students. 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 (SPPO 495).

Requirements for the BA Degree with a Major in Latin American Studies

For more information about the interdisciplinary BA in Latin American Studies, please visit the Latin American Studies page.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Spanish and Portuguese undergraduate degree and major. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject codes: SPPO, LASR, SPAN

Department Description and Code - Spanish, Portuguese, and Latin American Studies: SPLA Degree Description and Code
 Bachelor of Arts degree: BA <u>Major Description and Code</u> Major in Spanish and Portuguese: SPPO Major in Latin American Studies: LASR
Last Revised : September 09, 2016

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Spanish and Portuguese, and Latin American Studies >

Undergraduate Students	Spanish and Portuguese, and Latin American Studies								
▶ Graduate Students	The School of Humanities								
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate	Course				
▶ Faculty	Info Requirements Requirements Listings Graduate Requirements Info Info Info Info								
Programs of Study	• Spanish, Portuguese and Latin American Studies does not offer an academic program at the graduate level.								
Administration and Faculty									
Important Notices	Last Revise	ed : September 09, 2016							

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Spanish and Portuguese, and Latin American Studies >

Undergraduate Students	Spanish and Portugue	se, and Lat	in American Stu	Idies				
Graduate Students	The School of Humanities							
Non-Traditional Students	Department Ur	ndergraduate	Graduate	Course				
Faculty	Info R Course Listings	equirements	Requirements	Listings				
Programs of Study		The official course offerings, including course descriptions, listed in the Spanish, Portuguese and Latin American Studies						
Administration and Faculty	Undergraduate Requirements section can Studies	Undergraduate Requirements section can be found in Rice's Course Catalog: Spanish 🗟, Portuguese 🗗 or Latin American Studies 🗗.						
Important Notices	To view the most recent course schedule	or the 2016-2017 acad	demic year, see Rice's Course	Schedule. 妤				
	For additional information regarding Spani https://spanishandportuguese.rice.edu/.		atin American Studies, see the	department's website:				
	Last Revised : September 09, 2016							

General Announce	ements 6100 M	ain MS-10, Houston,	Texas 77005-1827	Mailing Address: P.O.	Box 1892, Houston, Te	xas 77251-1892
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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Sport Management >

Undergraduate Students	Sport Management				
Graduate Students	The School of Social Scien	ces			
Non-Traditional Students	Department	Undergraduate	Graduate	Course	
Faculty	Info	Requirements	Requirements	Listings	
Programs of Study	Chair and Professor in t	he Practice Le	ecturers		
	Clark D. Haptonstall		t Ashby		
Administration and Faculty	Associate Professore	Jo	be Branch		
Important Nations	Associate Professors James G. Disch	Ad	djunct Professors		
Important Notices	Daryl Morey				
	Professors in the Practic	ce Ge	eorge Postolos		
	Diane Crossey				
	Tom Stallings				
	Program (Undergraduate): B/	A degree			
	Program (Graduate): N/A				
	Sport Management is an interdisciplina management, law, and communication educate students in the skills and theor	The thoroughly interdiscipli	inary emphasis of the sport r	management major aims to	
	Career preparation for leadership and e Students will acquire a solid academic entering the sport business industry or	and practical foundation and	thus will be competitive for	opportunities that include	

Last Revised : August 17, 2016

General Announce	ements 6100 M	ain MS-10, Houston,	Texas 77005-1827	Mailing Address: P.O.	Box 1892, Houston, Te>	as 77251-1892
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SEARCH GA

RICE

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Sport Management >

ndergraduate Students	Spor	t Management	t					
	The So	The School of Social Sciences						
aduate Students	-							
on-Traditional Students	-	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings			
culty								
	Prog	ram Learning Outo	comes for the BA De	gree with a Major in	n Sport Managem	ent		
ograms of Study	Upon co	ompleting the BA degree, a	student majoring in Sport Man	agement will be able to:				
ministration and Faculty	1. De	evelop and hone profession	al skills through classroom lea	rning and experiential learnin	g through a steady progres	ssior		
		ternships with added respor	•	<u>.</u>	5 · · · 5 · · · ·) · · 5 ·			
portant Notices		Develop a diverse set of fundamental principles and skills, including skills in business, finance, and marketing that would be necessary to produce or evaluate an event from beginning to end (from marketing and media promotion, to budget and						
			•	ng to end (from marketing and	l media promotion, to budo	jet a		
		sales, to execution and post-event evaluation). 3. Develop an understanding of the sports industry in relationship to the legal sector as well as the broader relationship						
	between the industry and society.							
	4. Articulate the marketing decisions executed within the sport industry.							
		5. Acquire a skillset to conduct a research project specific to Sport Analytics. (Specific to the Sport Analytics concentration)						
		6. Develop proficiency in legal analysis by evaluating and communicating the theories and ethical dilemmas impacting the						
		sports industry. (Specific to the Sport Law concentration).7. Develop proficiency in leadership by evaluating and communicating the theories of management and leadership in the						
	sport industry. (Specific to the Sport Leadership concentration).							
	Requ	Requirements for the BA Degree with a Major in Sport Management						
	For gen	For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Sport						
	Management (SMGT) must complete:							
	• A minimum of 15 courses (46-47 credit hours depending on concentration chosen) to satisfy major requirements.							
		A minimum of 120 hours to satisfy degree requirements.						
		The requirements of a major concentration. When students declare the major in Sport Management, students must additionally identify and declare one of the major concentrations, either in a.) Sport Analytics or b.) Sport Law or c.) Sport						
		aditionally identity and decia	ine one of the major concentrat	ions, either in a.) Sport Analy	ucs or b.) Sport Law or C.;	, sp		

The three Sport Management major concentrations and descriptions are listed below:

- Sport Analytics: Designed to prepare our graduates as to how to properly use big data to make educated decisions in the sport management industry.
- Sport Law: Designed to prepare our graduates for law school.
- Sport Leadership: Designed to prepare our graduates for management, leadership, and entrepreneurial roles within the sport industry.

CORE REQUIREMENTS

Students must complete a total of 10 courses (31 credit hours) as listed below to satisfy the Sport Management major's Core Requirements

- BUSI 296 Business Communications [<u>3 credit hours</u>] or MANA 404 Management Communications [<u>3 credit hours</u>]
- ECON 100 Principles of Economics [<u>3 credit hours</u>]
- ECON 239 Law and Economics [<u>3 credit hours</u>] or SMGT 364 Sport Law [<u>3 credit hours</u>]
- SMGT 260 Introduction to Sport Management [<u>3 credit hours</u>]

- SMGT 266 Leading with Service [<u>3 credit hours</u>]
- SMGT 276 Sport Management Practicum [<u>3 credit hours</u>]
- SMGT 362 Sport Marketing [<u>3 credit hours</u>]
- SMGT 366 Event Management [<u>3 credit hours</u>]
- SMGT 376 Sport Management Internship I [<u>3 credit hours</u>]
- STAT 280 Elementary Applied Statistics [<u>4 credit hours</u>]

MAJOR CONCENTRATION: SPORT ANALYTICS

Students must complete a total of 5 courses (16 credit hours) to satisfy the requirements for the major concentration in Sport Analytics .

Required Courses

Students must complete the following 4 courses (13 credit hours):

- COMP 140 Computational Thinking [4 credit hours]
- COMP 330 Tools and Models Data Science [3 credit hours]
- SMGT 430 Introduction to Sport Analytics [<u>3 credit hours</u>]
- STAT 405 R for Data Science [<u>3 credit hours</u>]

Capstone

Students must complete the following course after all required courses above have been completed.

SMGT 490 Seminar in Sport Analytics [3 credit hours]

MAJOR CONCENTRATION: SPORT LAW

Students must complete a total of 5 courses (15 credit hours), one required and four electives, to satisfy the requirements for the major concentration in Sport Law .

Required Course

Students must complete the following course:

SMGT 350 Sport Ethics [<u>3 credit hours</u>]

Electives

To satisfy the remaining requirements for the major concentration in Sport Law, students must complete a total of 4 courses (12 credit hours) from the following:

- HUMA 309 Argumentation and Debate [3 credit hours]
- HUMA 315 Communication Law [3 credit hours]
- PHIL 316 Philosophy of Law [3 credit hours]
- SOCI 325 Sociology of Law [3 credit hours]
- SMGT 365 Sport Mediation [<u>3 credit hours</u>]
- SMGT 464 Advanced Sport Law [3 credit hours]

MAJOR CONCENTRATION: SPORT LEADERSHIP

Students are required to complete a total of 5 courses (15 credit hours), three required and two electives, to satisfy the requirements for the major concentration in Sport Leadership.

Required Courses

Students must complete the following 3 courses (9 credit hours):

- SMGT 350 Sport Ethics [3 credit hours]
- SMGT 377 Sport Management Internship 2 [3 credit hours]
- SMGT 466 Sport Public Relations [<u>3 credit hours</u>]

Electives

To satisfy the remaining requirements for the major concentration in Sport Leadership, students must complete a total of 2 courses (6 credit hours) from the list below. At least 1 course (a minimum of 3 credit hours) must be taken outside of the Sport Management (SMGT) subject area.

- BUSI 310 Leading People in Organizations [3 credit hours]
- BUSI 390 Strategic Management [3 credit hours]
- BUSI 462 Foundations of Entrepreneurship: Toolkit [3 credit hours]
- BUSI 463 Entrepreneurship: Strategy & Funding [3 credit hours]

- ECON 210 Behavioral Economics [3 credit hours]
- SMGT 360 Sales and Revenue Generation in Sport [3 credit hours]
- SMGT 361 Sport Finance [3 credit hours]
- SMGT 365 Sport Mediation [<u>3 credit hours</u>]
- SMGT 405 Research in Sport Management [3 credit hours]
- SMGT 415 Theories of High Level Performance [3 credit hours]
- SMGT 460 Business Analysis in Sport [3 credit hours]
- SMGT 470 Sport Management Seminar [<u>3 credit hours</u>]
- SOSC 444 Social Sciences Applied Innovation Lab [3 credit hours]

Internships

Students are required to complete at least one internship prior to graduation, often with one of the professional teams in Houston (Rockets, Astros, Texans, Dynamo, etc.). Students also will receive networking and out-of-class developmental training, as these play a significant role in obtaining high-profile positions in collegiate and professional sports.

Students are encouraged to go to www.sport.rice.edu for the latest information about the SMGT major.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Sport Management undergraduate degree, major, and major concentrations. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: SMGT

Department Description and Code

- Sport Management: SMGT

- Degree Description and Code
 - Bachelor of Arts degree: BA
- Major Description and Code

- Major in Sport Management: SMGT

Major Concentration Descriptions and Codes

- Major Concentration in Sport Analytics: SPAS
- Major Concentration in Sport Law: SPLW
- Major Concentration in Sport Leadership: SPLE

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University Calendar

Rice A-Z

Maps-Directions Feedback

791 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Sport Management >

Undergraduate Students	Sport Management								
Graduate Students	The School of Social Sciences								
Non-Traditional Students		Department Info	Undergraduate	Graduate	Course				
▶ Faculty	Info Requirements Requirements Listings Graduate Requirements Fraduate Requate Requirements Fraduate Requate								
Programs of Study	Sport Management does not offer an academic program at the graduate level.								
Administration and Faculty									
Important Notices	Last Revise	ed : August 12, 2016							

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Sport Management >

Undergraduate Students	Sport Management							
Graduate Students	The School of Social Sciences							
Non-Traditional Students	Department	Undergraduate	Graduate	Course				
▶ Faculty	Info Course Listings	Requirements	Requirements	Listings				
Programs of Study	The official course offerings, including course descriptions, for Sport Management can be found in Rice's Course Catalog.							
Administration and Faculty	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.							
Important Notices	For additional information regardir	ng Sport Management, see the	department's website: http://s	portmanagement.rice.edu/. 🗗				
	Last Revised : August 24, 2016							

 General Announcements
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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Statistics >

RICE

Undergraduate Students Statistics					
Graduate Students The George R. Brown School of Engineering					
Non-Traditional Students	Department	Undergraduate	Graduate	Course	
	Info	Requirements	Requirements	Listings	
Faculty					
Programs of Study	Chair		ssociate Research Professo	r	
	Marina Vannucci	Ji	anet Siefert		
Administration and Faculty	Professors	А	ssistant Research Professo	r	
Important Notices	Dennis Cox Loren Raun				
	Katherine B. Ensor				
	Rudy Guerra Mark Kimmel		djunct Professors onald A. Berry		
	David Scott		•		
	David Scott Barry Brown James R. Thompson Scott Cantor				
	Sour Cantor Kim-Anh Do				
	Assistant Professors	R	ichard Heydorn		
	Genevera Allen Sallie Keller				
	Philip Ernst	S	Suzanne Leal		
	Michael Schweinberger		Jack Lee		
			eff Morris		
	Professor in the Practice		u Shen		
	John A. Dobelman	P	eter Thall		
	Senior Lecturer	А	djunct Associate Professors	5	
	E. Neely Atkinson	V	eera Baladandayuthapani		
			uelin Huang		
	Professors, Joint Appoi		onnie Ray		
	Bryan W. Brown	Y	ing Yuan		
	Mahmoud El-Gamal		diunat Accistant Drafaccara		
	Don H. Johnson Krishna Palem		djunct Assistant Professors lichele Guindani		
	Robin Sickles		had A. Shaw		
	Edward E. Williams		rancesco Stingo		
	Rick K. Wilson	н	adley Wickam		
	Associate Professors, J	oint Appointments			
	David M. Lane				
	Barbara Ostdiek				
	Research Professor				
	Erzsébet Merényi				

Programs (Undergraduate): BA degree, Minor

Programs (Graduate) MSAT degree, MA degree, PhD degree

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. Graduate study has concentrations in applied probability, Bayesian methodology, bioinformatics, biomathematics, biostatistics, computational finance, epidemiology, large and complex data, machine and statistical learning, quality control, statistics degree also is available in conjunction with the Jesse H. Jones Graduate School of Business.

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Last Revised : August 17, 2016

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Rice Home

University Calendar

Maps-Directions

Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Statistics >

Undergraduate Students

Statistics

Jı.

Graduate Students

RICE

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

The George R. Brown School of Engineering

	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
ump to:				
BA De	egree with a Major in Statis	tics		

Program Learning Outcomes for the BA Degree with a Major in Statistics

Upon completing the BA degree, students majoring in Statistics will be able to:

- 1. Apply fundamental theory in probability and statistical inference.
- 2. Apply and evaluate statistical models.
- 3. Master and apply statistical computing for data analysis and data science.
- 4. Demonstrate competency as a professional statistician.
- 5. Develop effective communication skills as a professional statistician.

Requirements for the BA Degree with a Major in Statistics

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Statistics (STAT) must complete:

- A minimum of 16 courses (50 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 12 courses (35 credit hours) at the 300-level or above.

CORE REQUIREMENTS

Students must complete a total of 10 courses (29 credit hours) as listed below to satisfy the Statistics major's Core Requirements.

Mathematics

Students must complete a total of 4 courses (12 credit hours) from the following:

- MATH 101 Single Variable Calculus I [3 credit hours]
- MATH 102 Single Variable Calculus II [3 credit hours]
- MATH 212 Multivariable Calculus [3 credit hours]
- CAAM 335 Matrix Analysis [3 credit hours]
 - or MATH 355 Linear Algebra [3 credit hours]

Computation

Students must complete the following course:

STAT 405 R for Data Science [3 credit hours]

Basic Computing

Students must complete 1 course (4 credit hours) from the following:

- COMP 140 Computational Thinking [4 credit hours]
- COMP 180 Principles of Computing [4 credit hours]

COMP 215 Introduction to Program Design [4 credit hours]

Advanced Computing

Students must complete 1 course (at least 3 credit hours) from the following:

- COMP 322/ELEC 323 Fundamentals of Parallel Programming [4 credit hours]
- COMP 330 Tools and Models for Data Science [3 credit hours]
- COMP 382 Reasoning About Algorithms [4 credit hours]
- CAAM 378 Introduction to Operations Research and Optimization [3 credit hours]
- CAAM 440 Applied Matrix Analysis [3 credit hours]
- CAAM 453 Numerical Analysis I [3 credit hours]
- CAAM 471 Linear and Integer Programming [3 credit hours]
- CAAM 519 Computational Science I [<u>3 credit hours</u>]

Probability and Statistics

Students must complete the following 2 courses (7 credit hours)

- STAT 310/ECON 307 Probability and Statistics [3 credit hours]
- STAT 410 Linear Regression [4 credit hours]

SENIOR CAPSTONE

Students must complete the following course:

STAT 450 Senior Capstone Project [at least 3 credit hours]

ELECTIVES

To fulfill the remaining Statistics major requirements, students must complete 6 courses (18 credit hours) from departmental (STAT) course offerings at the 300-level or above, including at least 3 courses from the list below. Up to 2 courses (6 credit hours) taken from departments other than Statistics may be substituted with advisor approval. STAT 305 and STAT 385 will not count as electives.

- STAT 411 Advanced Statistical Methods [3 credit hours]
- STAT 418 Probability [<u>3 credit hours</u>]
- STAT 419 Statistical Inference [3 credit hours]
- STAT 421 Applied Time Series and Forecasting [3 credit hours]
- STAT 422 Bayesian Data Analysis [3 credit hours]
- STAT 444 Data Mining and Statistical Learning [3 credit hours]
- STAT 453 Biostatistics [3 credit hours]
- STAT 502/COMP 502/ELEC 502 Neural Machine Learning I [3 credit hours]
- STAT 541 Multivariate Analysis [<u>3 credit hours</u>]
- STAT 545 GLM & Categorical Data Analysis [3 credit hours]

back to menu

Requirements for the Minor in Statistics

Students pursuing the minor in Statistics (STAS) must complete:

- A minimum of 6 courses (19-20 credit hours depending on track selected) to satisfy minor requirements.
- A minimum of 5 courses (15 credit hours) at the 300-level or above.
- The requirements of one area of specialization.
- No more than 3 courses (9 credit hours) from study abroad or transfer credit.

AREAS OF SPECIALIZATION

There are two areas of specialization offered to students pursuing the Statistics minor. Track A is designed for mathematically sophisticated students who wish to understand not only how statistical methods are used, but also how they are developed. Track B is designed to help students develop a working knowledge of statistics and the wide range of possibilities for the use and misuse of statistical methods.

TRACK A

Core Requirements

Students must complete the following 3 courses (10 credit hours) to satisfy Track A's Core Requirements.

- STAT 310/ECON 307 Probability and Statistics [3 credit hours]
- STAT 405 *R* for Data Science [<u>3 credit hours</u>]
- STAT 410 Linear Regression [<u>4 credit hours</u>]

Electives

To fulfill the remaining Track A Statistics minor requirements, students must complete a total of 3 additional classes (9 credit hours) from departmental (STAT) course offerings at the 300-level or above. Suggested electives include courses listed below, but STAT 305 and STAT 385 do not count as electives for Track A.

- STAT 313 Uncertainty and Risk in Urban Infrastructures [3 credit hours]
- STAT 411 Advanced Statistical Methods [3 credit hours]
- STAT 418 Probability [<u>3 credit hours</u>]
- STAT 421 Applied Time Series and Forecasting [3 credit hours]
- STAT 422 Bayesian Data Analysis [3 credit hours]
- STAT 423 Probability in Bioinformatics and Genetics [3 credit hours]
- STAT 449 Quantitative Financial Risk Management [<u>3 credit hours</u>]
- STAT 453 Biostatistics [<u>3 credit hours</u>]

TRACK B

Core Requirements

Students must complete 2 courses (8 credit hours) as listed below to complete Track B's Core Requirements.

- STAT 280 Elementary Applied Statistics [<u>4 credit hours</u>]
 - or STAT 305 Intro to Statistics for the Biosciences [4 credit hours]
- STAT 385 Methods for Data Analysis and System Optimization [<u>4 credit hours</u>]

Electives

To fulfill the remaining Track B Statistics minor requirements, students must complete a total of 4 additional courses (12 credit hours) from departmental (STAT) course offerings at the 300-level or above. With advisor approval, one elective may be from departments other than Statistics. Suggested electives include courses listed below, but STAT 305 and STAT 385 do not count as electives for Track B.

- STAT 405 Statistical Computing and Graphics [3 credit hours]
- STAT 482 Quantitative Financial Analytics [3 credit hours]
- STAT 484/CEVE 484 Environmental Risk Assessment and Human Health [3 credit hours]
- STAT 485 Environmental Statistics and Decision Making [3 credit hours]
- STAT 486 Market Models [<u>3 credit hours</u>]

back to menu

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Statistics undergraduate degree, major, and minor. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: STAT
- Department Description and Code
 - Statistics: STAT
- Degree Description and Code
- Bachelor of Arts Degree: BA
- Major Description and Code
- Major in Statistics: STAT
- Minor Description and Code
 - Minor in Statistics: STAS

Last Revised : August 12, 2016

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Statistics >

Undergraduate Students

Non-Traditional Students

Administration and Faculty

Graduate Students

Programs of Study

Important Notices

Faculty

Statistics

The George R. Brown School of Engineering

Department Undergraduate Graduate Course Info Requirements Requirements Listings Jump to: MSTAT Degree in Statistics MA/PhD Degrees in Statistics Degree Requirements and Program Learning Outcomes for MSTAT, MA, and PhD in **Statistics**

For general university requirements, see Graduate Degrees. Admission 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.

Program Learning Outcomes for the Master of Statistics Degree (MSTAT)

Upon completing the MSTAT degree program, students will be able to:

- 1. Master fundamental theory in probability and statistics.
- 2. Become familiar with a broad range of statistical methods for applications.
- 3. Become proficient at statistical computing.
- 4. Develop effective communication skills as a professional statistician.

Requirements for the Master of Statistics Degree (MSTAT)

For general university requirements, see Graduate Degrees. Candidates pursuing the non-thesis MSTAT degree must complete:

A minimum of 30 credit hours of approved coursework at the 500-level or above.

In addition, courses comprising the 30-credit hour requirement shall not be complete on a pass/fail grading basis.

CORE REQUIREMENTS

Students must complete the following 5 courses (15 credit hours). These courses are normally completed by the end of the first 2 semesters.

- STAT 518 Probability [<u>3 credit hours</u>]
- STAT 519 Statistical Inference [3 credit hours]
- STAT 605 Statistical Computing and Graphics [3 credit hours]
- STAT 615 Introduction to Regression and Statistical Computing [3 credit hours]
- STAT 616 Advanced Statistical Methods [3 credit hours]

AREAS OF SPECIALIZATION

To fulfill the remaining MSTAT degree requirements, students must complete an additional 5 courses (15 credit hours) from an area of specialization listed below. Students are allowed to choose either a broad-based or specialized program of study. Depending on the student's selected specialization, the mix of required, specialization-specific and elective courses will be jointly determined by the student and the graduate advisor. Students will meet with their advisor during the first year of the program to select an individualized plan of study, with periodic tune-ups as the program progresses.

Financial Statistics and the Statistics of Risk

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Students pursuing this area of specialization are recommended to complete the following 3 courses (9 credit hours):

- STAT 621 Applied Time Series and Forecasting [3 credit hours]
- STAT 682 Quantitative Financial Risk Management [3 credit hours]
- STAT 686 Market Models [<u>3 credit hours</u>]

Bioinformatics, Statistical Genetics, and Biostatistics

Students pursuing this area of specialization are recommended to complete the following 4 courses (12 credit hours):

- STAT 545 Generalized Linear Models & Categorical Analysis [3 credit hours]
- STAT 553 Biostatistics [<u>3 credit hours</u>]
- STAT 623 Probability in Bioinformatics and Genetics [3 credit hours]
- STAT 673 Probability in Statistics for Systems Biology [<u>3 credit hours</u>]

Statistical Computing and Data Mining

Students pursuing this area of specialization are recommended to complete the following 4 courses (12 credit hours):

- STAT 541 Multivariate Analysis [3 credit hours]
- STAT 542 Simulation [3 credit hours]
- STAT 622 Bayesian Data Analysis [3 credit hours]
- STAT 640 Data Mining & Stat Learning [3 credit hours]

Environmental Statistics

Students pursuing this area of specialization are recommended to complete the following 2 courses (6 credit hours):

- STAT 684 Environmental Risk Assessment & Human Health [3 credit hours]
- STAT 685 Quantitative Environmental Decision Making [<u>3 credit hours</u>]

ELECTIVES

Students should complete their remaining coursework from electives in their targeted area of interest. Students may be asked to take specific courses outside the department, depending on the incoming background of the student, career objectives, and funding sources.

back to menu

Program Learning Outcomes for the MA and PhD Degrees in Statistics

Upon completing the MA and PhD degree programs Statistics, students will be able to:

- 1. Master fundamental theory in probability and statistics.
- 2. Become familiar with a broad range of statistical methods for applications.
- 3. Become proficient at statistical computing.
- 4. Develop effective communication skills as a professional statistician.
- 5. Develop the skills to do independent research.

Requirements for the MA and PhD Degrees in Statistics

For general university requirements, see Graduate Degrees. Students pursuing the PhD degree program in Statistics must complete:

- A minimum of 90 credit hours of approved course work beyond the bachelor's degree and a minimum of 60 hours beyond a master's degree.
- A satisfactory performance on preliminary and qualifying examinations, and an original thesis with a public oral defense.

All STAT graduate students are assigned a limited amount of teaching and other departmental service as part of their graduate education. The assignment usually entails less than 10 hours per week, averaged over the semester. Students completing the PhD degree in four years will be assigned no more than six semesters of service.

Students awarded the MA degree in Statistics should be aware that:

- The MA degree in statistics requires 30 credit hours of approved course work as well as one of the following: (1) the completion of an original thesis and defense in a public oral examination; or (2) satisfactory performance on the PhD comprehensive examinations, and the completion of a major project.
- A candidacy MA is awarded to statistics PhD students through option (2) where the major project corresponds to the

- doctoral thesis proposal.
- An MA is available to PhD students in the Departments of Economics or Political Science through option (1) where the
 original doctoral thesis and defense was related to the MA in statistics. The degree awarded in statistics is a non-thesis
 master's degree.

back to menu

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Statistics graduate degree programs. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: STAT Department Description and Code

- Statistics: STAT

Degree Descriptions and Codes

- Master of Statistics degree: MSTAT
- Master of Arts degree: MS
- Doctor of Philosophy degree: PhD

Degree Program Description and Code

- Degree Program in Statistics: STAT

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Rice Home

University Calendar

Rice A-Z

Maps-Directions

Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Statistics >

RICE

Undergraduate Students	Statistics					
Graduate Students	The George R. Brown School of Engineering					
Non-Traditional Students	Department Undergraduate Graduate Course					
Faculty	Info Requirements Requirements Listings Course Listings Info Info					
Programs of Study	The official course offerings, including course descriptions, for Statistics can be found in Rice's Course Catalog.					
Administration and Faculty	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.					
Important Notices	For additional information regarding Statistics, see the department's website: https://statistics.rice.edu/.					
	Last Revised : August 24, 2016					
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 General Announcements
 6100 Main MS-10, Houston, Texas 77005-1827
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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Study of Women, Gender and Sexuality >

Study of Women, Gender and Sexuality

The School of Humanities

- Graduate Students
- Non-Traditional Students

Undergraduate Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings	
Director		Associate Professors		
Susan Lurie		José F. Aranda. Jr.		
		Jenifer Bratter		
Associate Director and	Advisor	Joseph Campana		
Cymene Howe		Krista Comer		
-)		Scott S. Derrick		
Professors		Sarah Ellenzweig		
Tani Barlow		Julie Fette		
Elias K. Bongmba		Deborah A. Harter		
Marcia Brennan		Cymene Howe		
Marcia J. Citron		Betty Joseph		
April D. DeConick		Colleen R. Lamos		
James D. Faubion		Susan Lurie		
Eugenia Georges		Nancy A. Niedzielski		
Beatriz Gonzàlez-Stepha	Beatriz Gonzàlez-Stephan Leslie Schwindt-Bayer			
Bridget K. Gorman		Elora Shehabuddin		
Michelle R. Hebl		Nicole A. Waligora-Davis		
Rosemary Hennessy		Kerry Ward		
Rachel Kimbro		Fay Yarbrough		
Anne C. Klein				
Jeffrey J. Kripal		Assistant Professors		
Caroline R. Levander		Andrea Ballestero		
Susan Keech McIntosh		Erin Cech		
Helena Michie		Sergio Chávez		
Deborah Nelson-Campbe	ell	Leonora Souza Paula		
Kirsten Ostherr		Zoë Wool		
Nanxiu Qian				
Sonia Ryang		Professors in the Practice		
Paula Sanders		Brian Scott Riedel		
Meredith Skura		Diana L. Strassmann		
Ewa M. Thompson				
Lora Wildenthal		Lecturers		
Diane Wolfthal		Thad Logan		
		Marwa Shalaby		
		Melissa Weininger		

Program (Undergraduate): BA degree

Program (Graduate): Certificate

The undergraduate major, honors track undergraduate major, and the graduate certificate program take an interdisciplinary

2016-2017 General Announcements

803 of 923

approach in their exploration of women's lives and histories and the role that ideas about sexual differences and sexual identities have played in human societies. Areas of inquiry include women's participation in social and cultural production; the construction of heteronormative gender and sexuality as well as lesbian, gay, bisexual, and transgender identities; the relationship between ideas about gender and concepts inherent in other social, political, and legal structures; and the implications of feminist and sexuality studies for philosophical and epistemological traditions. Students acquire an understanding of how adopting gender as a significant category of analysis challenges existing disciplines. They 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, gender, and sexuality studies.

Rice A-Z

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Web Services

University Calendar

Maps-Directions

Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Study of Women, Gender and Sexuality >

Under	ergradua	te Students
-------	----------	-------------

Study of Women, Gender and Sexuality

The School of Humanities

Graduate Studen	ts
-----------------	----

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

00				
	Department	Undergraduate	Graduate	Course
	Info	Requirements	Requirements	Listings

Program Learning Outcomes for the BA Degree with a Major in the Study of Women, Gender, and Sexuality

Upon completing the BA degree, students majoring in the Study of Women, Gender, and Sexuality must complete:

- 1. Demonstrate an awareness of the diversity of feminist thought in the past and present.
- 2. Demonstrate familiarity with key issues in the study of women's lives and histories.
- 3. Demonstrate knowledge of social, political, and cultural features of gender and sexuality in the US and globally.
- 4. Understand diverse global feminist perspectives, including critical race studies and feminist contributions to social and critical theory.
- 5. Demonstrate knowledge of the feminist concept of engaged research based upon cumulative practice as engaged researchers in extra-classroom activities.
- 6. Develop skill in analytical writing as well as oral and visual presentation.

Requirements for the BA Degree with a Major in the Study of Women, Gender, and Sexuality

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in the Study of Women, Gender, and Sexuality (SWGS) must complete:

- A minimum of 12-13 courses depending on course selection (at least 36 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A maximum of 4 courses (12 credit hours) from a single department which are not cross-listed with the Study of Women, Gender, and Sexuality department.

Students who are pursuing two majors (i.e., are double majors) and have declared Study of Women, Gender, and Sexuality must complete a minimum of 10 courses (30 credit hours) to satisfy major requirements. Double majors who drop their second major are required to meet the requirements listed for single majors.

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 Study of Women, Gender, and Sexuality advisor. Course requirement tracking forms are available in the Study of Women, Gender and Sexuality office.

CORE REQUIREMENTS

Students must complete a total of 6 courses depending on course selection (18 credit hours) as listed below to satisfy the Study of Women, Gender, and Sexuality major's Core Requirements.

Core Courses

Students must complete a total of 4 courses (12 credit hours) as listed below.

- SWGS 101 Introduction to the Study of Women, Gender, and Sexuality [<u>3 credit hours</u>]
 or SWGS 201 Introduction to Lesbian, Gay, Bisexual, and Transgender Studies [<u>3 credit hours</u>]
- 1 course (3 credit hours) from the Non-Western Studies course list (see below for courses)
- 1 course (3 credit hours) from the Critical Race Studies course list (see below for courses)
 SWGS 345/HIST 340 *History of Feminism* [<u>3 credit hours</u>]

or at least 1 course (3 credit hours) from the Theory course list (see below for courses)

Research/Seminar/Practicum

Students must complete the coursework listed under one of the following groups. Note that the *Engaged Research Practicum* and *Seminar* are open to non-majors. Permission of the instructor is required as well as some background in the study of women, gender or sexuality.

Seminar/Practicum

Students must complete the following 3 courses (7 credit hours):

- SWGS 494 Pre-Seminar in Engaged Research [1 credit hour]
- SWGS 496 Engaged Research Practicum [<u>3 credit hours</u>]
- SWGS 497 Engaged Research Seminar [<u>3 credit hours</u>]

Honors Thesis

Students who are pursuing the Honors Program in SWGS must complete the following 2 courses (6 credit hours):

- SWGS 498 Honors Research in the Study of Women, Gender, and Sexuality [3 credit hours]
- SWGS 499 Honors Research in the Study of Women, Gender, and Sexuality [3 credit hours]

ELECTIVES

To fulfill the remaining Study of Women, Gender, and Sexuality major requirements, students must complete a total of 6 additional courses (18 credit hours) from the courses listed below. Students pursuing the Study of Women, Gender, and Sexuality major as one of their two majors must complete a total of 4 additional courses (12 credit hours). 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.

Non-Western Courses

- SWGS 240/ASIA 240/RELI 285 Gender and Politicized Religion [3 credit hours]
- SWGS 250/POLI 250/ASIA 251 International Political Economy of Gender [3 credit hours]
- SWGS 315/RELI 315/ASIA 315 Gender and Islam [3 credit hours]
- SWGS 384/HIST 384/ASIA 328 Modern Girl and Asia in the World [3 credit hours]
- SWGS 394/SOCI 394 Human Development in Global and Local Communities [3 credit hours]
- SWGS 399/ASIA 399/MDEM 379 Women in Chinese Literature [3 credit hours]
- SWGS 449/ANTH 449 Cultures of Sexuality [3 credit hours]
- SWGS 492/ASIA 492/HIST 492 Gender Histories of Modern China [3 credit hours]

Critical Race Studies Courses

- SWGS 234/HIST 241 U.S. Women's History I: Colonial Beginnings to the Civil War [3 credit hours]
- SWGS 235/HIST 242 U.S. Women's History II: Civil War to the Present [3 credit hours]
- SWGS 329/ENGL 369 The American West and Its Others [3 credit hours]
- SWGS 338/HIST 338 19th Century Women's Narratives [3 credit hours]
- SWGS 347/RELI 347 Sex and Gender in Modern Jewish Culture [3 credit hours]
- SWGS 354/ENGL 371/SPPO 354 Chicano/a Literature [3 credit hours]
- SWGS 370/ENGL 370 Survey of African American Literature [3 credit hours]
- SWGS 415/LING 415 Sociolinguistics [<u>3 credit hours</u>]
- SWGS 453/ENGL 470 Topics in African American Literature [3 credit hours]
- SWGS 466/SPPO 430 Latin American Women's Culture [3 credit hours]

Theory Courses

- SWGS 345/HIST 340 History of Feminism [3 credit hours]
- SWGS 380/ENGL 382 Feminist Theory [3 credit hours]
- SWGS 395 Feminist Knowledges [<u>3 credit hours</u>]
- SWGS 407/ENGL 481 Studies in Feminist Literary Theory [3 credit hours]
- SWGS 430/ENGL 498 Queer Theory [3 credit hours]
- SWGS 480 Feminist Literary Theory [3 credit hours]

Other Courses

- SWGS 111/PHIL 111 Introduction to Feminist Philosophy [3 credit hours]
- SWGS 130/FSEM 130/GERM 130 Women and Nazi Germany [3 credit hours]
- SWGS 205/LING 205 Language and Society [3 credit hours]

- SWGS 273/ENGL 273 Medicine and Media [4 credit hours]
- SWGS 301/ENGL 317/MDEM 317 Arthurian Literature [3 credit hours]
- SWGS 303 Gender and Science [<u>3 credit hours</u>]
- SWGS 305/ENGL 316/MDEM 316 Chaucer [3 credit hours]
- SWGS 306/HEAL 306 Human Sexuality [3 credit hours]
- SWGS 308 The Future of Food: Feminist, Queer, and Critical Approaches [3 credit hours]
- SWGS 314/MDEM 314/RELI 314 Divine Sex: Gender and Divinity in the Middle Ages [3 credit hours]
- SWGS 320/THEA 320 Gender and Performance [3 credit hours]
- SWGS 324/SOCI 306 Sociology of Gender [<u>3 credit hours</u>]
- SWGS 325/SOCI 334 Sociology of the Family [3 credit hours]
- SWGS 327/ENGL 381 Topics in Women Writers [3 credit hours]
- SWGS 331/PSYC 331 Psychology of Gender [<u>3 credit hours</u>]
- SWGS 332/ANTH 325 Sex, Self, and Society in Ancient Greece [3 credit hours]
- SWGS 333/ANTH 311 Masculinities [3 credit hours]
- SWGS 334/ITAL 330 Madonnas and Divas: Images of and from Italian Women [3-4 credit hours]
- SWGS 335/ANTH 388 The Lifecycle: A Biocultural View [3 credit hours]
- SWGS 336/ANTH 308 The Anthropology of the Historical Imagination [3 credit hours]
- SWGS 343/ENGL 343 Jane Austen's Worlds [3 credit hours]
- SWGS 346/HART 346 Making Love in Modern Art [3 credit hours]
- SWGS 350/ANTH 327 Gender and Symbolism [<u>3 credit hours</u>]
- SWGS 353/ANTH 354 Illness, Disability, and the Gendered Body [3 credit hours]
- SWGS 358/GERM 321/HUMA 321/HART 385 European Women Filmmakers [3 credit hours]
- SWGS 361/GERM 338/HUMA 373 New German Film: Hitler's Cinematic Children [3 credit hours]
- SWGS 364/ENGL 354 Queer Literary Cultures [3 credit hours]
- SWGS 367/ENGL 367 Literature and Culture of the U.S.-Mexico Borderlands [3 credit hours]
- SWGS 370/ENGL 370 African American Literature [3 credit hours]
- SWGS 372/ENGL 342 Survey of Victorian Fiction [3 credit hours]
- SWGS 378/ENGL 378 Literature of the Americas [3 credit hours]
- SWGS 385 Sexual Debates in the US [3 credit hours]
- SWGS 389/ENGL 389 Youth Studies [3 credit hours]
- SWGS 390/SPAN 390 Hispanic Cinema [3 credit hours]
- SWGS 393/SPPO 385 Science, Feminism, and Christianity in the American 20th Century [3 credit hours]
- SWGS 398/HIST 398 Topics in Legal History [3 credit hours: Note: not all topics will count towards this degree.]
- SWGS 400 Constructing Identities in Modern Fiction [3 credit hours]
- SWGS 405/ENGL 443 Austen Only: Novels and Film [3 credit hours]
- SWGS 412/FREN 360 Women and Women's Voices in French Literature [3 credit hours]
- SWGS 424/FREN 424 Women in France [3 credit hours]
- SWGS 434/HART 434/MDEM 434 Seeing Sex in European Art, 1400–1700 [3 credit hours]
- SWGS 440/MUSI 526 Women in Music [3 credit hours]
- SWGS 453/ENGL 470 African American Studies [3 credit hours]
- SWGS 462/ENGL 462 20th–21st-Century American Studies [3 credit hours]
- SWGS 465/SOCI 465 Gender and Health [3 credit hours]
- SWGS 470 Advanced Seminar in Poverty, Justice, and Capabilities [3 credit hours]
- SWGS 472/ENGL 432 Topics in Richardson's Clarissa [3 credit hours]
- SWGS 485/HART 485 Gender and Hollywood Cinema in the 1950s [3 credit hours]
- SWGS 495 Independent Study [<u>1-4 credit hours</u>]

Specialization in Poverty, Justice, and Human Capabilities in the Study of Women, Gender, and Sexuality Major

Within the major in the Study of Women, Gender, and Sexuality, students can pursue a specialization or area of emphasis in Poverty, Social Justice, and Human Capabilities (PJHC). The specialization allows students to focus their course of study on the relation of gender and sexuality to poverty and human well-being and to develop an analytic framework for addressing these issues.

Students pursuing the Poverty, Justice, and Human Capabilities specialization within the Study of Women, Gender, and Sexuality major must complete a total of three courses (nine credit hours) as listed below. The three courses completed are included in the course requirements to satisfy the Study of Women, Gender, and Sexuality major requirements, and do not need to be taken in addition to the total courses required for the major.

- HUMA/SOCI 371 Introduction to Poverty, Justice, Capabilities
- Two approved elective courses (six credit hours) with substantive gender focus chosen from the PJHC undergraduate requirements. These elective courses also may be approved to fulfill Study of Women, Gender, and Sexuality major requirements for the Critical Race and Non-Western Studies requirements.

Honors Program

Students wishing to pursue the Honors Program will complete a thesis. The process of preparing the thesis begins in the late spring of the junior year.

In that spring semester, the student chooses an advisor from the SWGS faculty and with that advisor produces a proposal for a research project. The proposal must be approved by the Study of Women, Gender, and Sexuality major advisor by the last day of the exam period in the spring of the junior year.

In the fall of the senior year, students enroll in SWGS 498 for directed research supervised by a CSWGS faculty affiliate and are in regular consultation with their advisors.

In the spring of the senior year, students enroll in SWGS 499 and work closely with their advisors as they complete the thesis. Honors students present their projects in a public event at the end of the semester.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviation (4-digit codes) to identify the undergraduate Study of Women, Gender and Sexuality degree and major. The following is a quick reference:

Course Catalog/Schedule:

- Course offerings/subject code: SWGS
- Department Code and Description
- Center for the Study of Women, Gender, and Sexuality: SWGS
- Degree Code and Description
- Bachelor of Arts Degree: BA
- Major Code and Description

- Major in the Study of Women, Gender, and Sexuality: SWGS

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 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Study of Women, Gender and Sexuality >

۲	Un	der	gra	duate	Stud	lents
---	----	-----	-----	-------	------	-------

Graduate Students

Study of Women, Gender and Sexuality

The School of Humanities

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department	Undergraduate	Graduate	Course
Info	Requirements	Requirements	Listings

Program Learning Outcomes for the Certificate in the Study of Women, Gender, and Sexuality

Upon completion of the Study of Women, Gender, and Sexuality Certificate, students will:

- Demonstrate knowledge of historical and contemporary approaches to the study of women, gender, and sexuality across diverse disciplines.
- Engage through their intellectual production feminist concepts and methodologies and features of women's studies, gender studies, and/or sexuality studies as academic fields.
- 3. Incorporate critical debates in the study of women, gender, and sexuality in their oral presentations and written analyses, including work for publication and/or use in a dissertation.

Requirements for the Certificate in the Study of Women, Gender, and Sexuality

The Certificate in the Study of Women, Gender, and Sexuality is designed to provide interdisciplinary training in women, gender, and sexuality 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 certificate program. The Certificate in the Study or Women, Gender and Sexuality 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 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.

Students pursuing the Certificate in the Study of Women, Gender, and Sexuality, candidates must:

- A minimum of 3 courses (9 credit hours) to satisfy certificate requirements.
- A minimum of 3 non-credit hours for participation in SWGS' annual colloquium by attending six colloquium seminars and associated public lectures, generally within two years.
- Complete a dissertation that in some way features the study of women, gender, and/or sexuality.
- All required coursework associated with the student's corresponding degree program. Upon completion, the certificate is
 awarded at the same time as the conferral of the student's Rice degree, along with a formal notation on their academic
 transcript.

Students pursuing the Certificate in the Study of Women, Gender, and Sexuality are strongly encouraged to include a member of the CSWGS faculty on their dissertation committee and to consult regularly with the faculty member as they pursue their dissertation work.

The program awards graduate fellowship stipends, within the limits of available funds, to enrolled 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 all required coursework (within the student's home department as well as CSWGS) and after achieving candidacy in the PhD. program. Graduate students who enroll in the certificate program in fall 2008 and in subsequent semesters will be asked to submit a dissertation proposal (or a 500-word statement with a proposal to follow later) that includes some indication of the ways women, gender, and/or sexuality feature in their project in order for a stipend to be disbursed during the "prospectus semester." CSWGS will ask for this proposal or statement after the student completes qualifying exams. Certificate students are 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.

The following courses are those that can be used to fulfill requirements for the certificate. In most cases, students will be able to

complete these requirements within the normal time limits for coursework in their PhD programs. All students must work out their individual courses of study with the CSWGS director and the graduate advisor in their home departments. Each student's course of study must be pre-approved by the CSWGS director. Please note that not all courses listed below will be offered every academic year. For a current list of courses, please visit the CSWGS website at cswgs.rice.edu

CORE REQUIREMENTS

Students must complete 2 courses (6 credit hours) from the following:

- SWGS 501 Feminist Debates [3 credit hours]
- SWGS 502 Gender, the Disciplines, and Interdisciplinarity [3 credit hours]

CROSS-LISTED ELECTIVE COURSE REQUIREMENT

Students must complete 1 course (3 credit hours) from the following:

- SWGS 503 Directed Reading [<u>1-3 credit hours</u>]
- SWGS 517/ENGL 517 Medieval Women Writers [3 credit hours]
- SWGS 520/ENGL 520 Shakespeare and Difference [3 credit hours]
- SWGS 522 Feminist Economics [<u>3 credit hours</u>]
- SWGS 525/ANTH 525 Self, Sex, and Society in Ancient Greece [3 credit hours]
- SWGS 534/HART 534 Seeing Sex in European Art, 1400–1700 [3 credit hours]
- SWGS 542/ENGL 542 Victorian Fiction [3 credit hours]
- SWGS 545/HIST 545 Women and Gender: Europe and Beyond [3 credit hours]
- SWGS 546/ENGL 546 20th-Century British Literature [3 credit hours]
- SWGS 556/LING 556 Seminar in Language Variation [3 credit hours]
- SWGS 577/RELI 577 Buddhism, Gender, Society [3 credit hours]
- SWGS 580 Sex, Sanctity, and Psychoanalysis [3 credit hours]
- SWGS 581/ENGL 581 Cultural Studies [3 credit hours]
- SWGS 583/ENGL 583 Reading Material [3 credit hours]
- SWGS 585/ENGL 585 Postcolonialism and Beyond [3 credit hours]

ANNUAL COLLOQUIUM REQUIREMENT

Certificate in the Study of Women, Gender, and Sexuality students will participate in a colloquium consisting of a series of seminars and public lectures over the course of a year, to be offered annually at Rice and organized by the Center for the Study of Women, Gender, and Sexuality (CSWGS). Colloquium attendance by certificate students constitutes an official requirement for the certificate. Normally, students are expected to attend colloquia events over a minimum of four semesters, (amounting to six seminars and six lectures). Attendance beyond that is highly encouraged. Colloquium topics will be determined by the CSWGS steering committee with a view to highlighting emerging knowledge in gender, sexuality, and women's studies. The colloquium provides graduate students with the opportunity to engage in sustained intellectual exchange with leading scholars and to participate in producing cutting-edge work in the field.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Study of Women, Gender, and Sexuality degree program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: SWGS

Department (or Center) Description and Code

- Center for the Study of Women, Gender and Sexuality: SWGS
- Degree Description and Code
 - Master of Arts degree: MA
 - Doctor of Philosophy degree: PhD

Certificate Description and Code

- Certificate in Study of Women, Gender and Sexuality: WGS

Last Revised : August 26, 2016

General Announcements 6100 Main MS-10, Houston, Texas 77005-1827 Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Study of Women, Gender and Sexuality >

Undergraduate Students	Study of Women, Gender and Sexuality					
► Graduate Students	The School of Humanities					
Non-Traditional Students	DepartmentUndergraduateGraduateCourseInfoRequirementsRequirementsListings					
▶ Faculty	Info Requirements Requirements Listings Course Listings Info Info					
Programs of Study	The official course offerings, including course descriptions, for the Study of Women, Gender, and Sexuality can be found in Rice's Course Catalog.					
Administration and Faculty						
Important Notices	To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.					
	For additional information regarding Study of Women, Gender, and Sexuality, see the department's website: http://swg.rice.edu/.					
	Last Revised : August 24, 2016					

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RICE

811 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Subsurfa	ce Geoscience	>								
Undergraduate Students		Subsurface Geoscience								
Graduate Students	The Wi	The Wiess School of Natural Sciences								
Non-Traditional Students		Department	Undergraduate	Graduate	Course					
▶ Faculty		Info	Requirements	Requirements	Listings					
Programs of Study		Director André W. Droxler		sociate Professors						
Administration and Faculty		Professors		sistant Professors						
Important Notices		John B. Anderson Gerald R. Dickens	Je	ff Nittrouer						
		Alan Levander	Ac	ljunct Faculty						
		Julia Morgan	Vit	or Abreu						
		Fenglin Niu	Ga	iry Gray						
		Dale S. Sawyer	Mi	tch Harris						
		Colin A. Zelt	Ma	alcom Ross						
			Eri	k Scott						

Program (Undergraduate): N/A

Program (Graduate): MSSG degree

Rice University introduced the 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 two focus areas: geology and geophysics. 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 one of five tracks in the 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.

Rice A-Z

A coordinated MBA/MSSG degree is offered in conjunction with the Jesse H. Jones Graduate School of Business.

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University Calendar

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Maps-Directions
```

Feedback

SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Subsurface Geoscience >

Undergraduate Students	Subs	Subsurface Geoscience							
► Graduate Students	The Wi	ne Wiess School of Natural Sciences							
Non-Traditional Students		Department	Undergraduate	Graduate	Course				
► Faculty	Info Requirements Requirements Listings Undergraduate Requirements Info Info								
Programs of Study	Subsurfa	ace Geoscience does not c	offer an academic program at th	e undergraduate level.					
Administration and Faculty									
Important Notices	Last Revise	ed : August 12, 2016							

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SEARCH GA



Previous Editions

Listings

GENERAL ANNOUNCEMENTS 2016-2017

Info

2016-2017 > Programs of Study > Subsurface Geoscience >

Undergraduate Students	Subsurface Geoscience						
Graduate Students	The Wiess School of Natural Sciences						
Non-Traditional Students	Department Undergraduate Graduate Course						

- Faculty
- Programs of Study

Administration and Faculty

Important Notices

Program Learning Outcomes for the MS in Subsurface Geoscience Degree (MSSG)

Requirements

Upon completing the MSSG degree, students will be able to:

- 1. Become proficient in applying geological knowledge and geophysical methods.
- 2. Obtain advanced practical skills in geology and/or geophysics valuable to the energy industry.

Requirements

- 3. Develop written, oral, and visual communication skills to bridge the gaps between science and business.
- 4. Possess business and management skills and business ethics to be effective in a business environment.

Requirements for the MS in Subsurface Geoscience Degree (MSSG)

For general graduation requirements, see Graduation Requirements. Students pursuing the MSSG degree must complete:

- A minimum of 14 courses (40 credit hours) to satisfy degree requirements.
- A 3-6 month internship. Instead of a thesis, 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.
- The requirements for one area of specialization (see below for specializations).

The MSSG degree offers two areas of specialization:

- Geology
- Geophysics

CORE REQUIREMENTS

Students must complete the following 4 courses (9 credit hours) to satisfy the MSSG degree's Core Requirements.

- NSCI 501 Professional Master's Seminar [required for two semesters, Fall and Spring, for a minimum of 2 credit hours]
- NSCI 511 Science Policy and Ethics [<u>3 credit hours</u>]
- NSCI 512 Professional Master's Project [<u>1 credit hour</u>]
- NSCI 610/ENGI 610 Management in Science and Engineering [3 credit hours]

Internship

A three to six month internship under the guidance of a host company, government agency or national laboratory is required. At the conclusion of this internship, students must present their internship project in both oral and written form as part of the Professional Master's Project.

AREAS OF SPECIALIZATION

Students must complete one of two areas of specialization in the MS degree program in Subsurface Geoscience: Geology or Geophysics.

GEOLOGY SPECIALIZATION

Students must complete a total of 11 courses (30-32 credit hours depending on course selection) to satisfy the requirements for the MSSG degree program's Geology specialization.

Core Requirements

Students must complete a total of 7 courses (21-22 credit hours depending on course selection) from the following to satisfy the

- ESCI 334 Geological Techniques [<u>3 credit hours</u>]
- ESCI 558 3D Seismic Reflection Data Interpretation [3 credit hours]
- ESCI 615 Petroleum Geology [3 credit hours]
- ESCI 617 Petroleum Industry Economics and Management [<u>3 credit hours</u>]
- ESCI 626 Interpretation of Regional 2D Seismic Data [3 credit hours]
- ESCI 627 Sequence Stratigraphy [<u>3 credit hours</u>]
- ESCI 636 Well Logging and Petrophysics [<u>3 credit hours</u>]
- ESCI 642 Exploration Geophysics [4 credit hours]

Electives

To satisfy the remaining Geology specialization requirements, students must complete a total of 3 additional courses (9-10 credit hours) as Electives. Suggested elective courses can be found below.

- ESCI 504 Siliciclastic Depositional Systems [3 credit hours]
- ESCI 506 Carbonate Depositional Systems [<u>3 credit hours</u>]
- ESCI 544 Hydrocarbon Exploration (AAPG Imperial Barrel competition) [3 credit hours]
- ESCI 550 Modern Exploration Technology [3 credit hours]
- ESCI 564 Seismic Data Processing [3 credit hours]
- ESCI 567 Unconventional Energy Exploration [3 credit hours]
- ESCI 558 3D Seismic Reflection Data [3 credit hours]
- ESCI 663 Structure and Evolution of Tectonic Systems [4 credit hours]

Substitutions for required or elective courses may be approved by the Track Advisor.

GEOPHYSICS SPECIALIZATION

Students must complete a total of 10 courses (30-31 credit hours) to satisfy the requirements for the MSSG degree program's Geophysics specialization.

Core Requirements

Students must complete a total of 7 courses (21-22 credit hours) from the following to satisfy the Geophysics specialization's Core Requirements.

- ESCI 550 Modern Exploration Technology [3 credit hours]
- ESCI 558 3D Seismic Reflection Data Interpretation [3 credit hours]
- ESCI 564 Seismic Data Processing [<u>3 credit hours</u>]
- ESCI 615 Petroleum Geology [3 credit hours]
- ESCI 617 Petroleum Industry Economics and Management [3 credit hours]
- ESCI 626 Interpretation of Regional 2-D Seismic Data [3 credit hours]
- ESCI 640 Geophysical Data Analysis: Digital Signal Processing [<u>3 credit hours</u>] or ESCI 641 Geophysical Data Analysis: Inverse Methods [<u>3 credit hours</u>]
- ESCI 642 Exploration Geophysics [<u>4 credit hours</u>]

Electives

To fulfill the remaining Geophyiscs specialization requirements, students must complete a minimum of 3 additional courses (9 credit hours) as Electives. Suggested elective courses can be found below.

- ESCI 334 Geological Field Methods [<u>3 credit hours</u>]
- ESCI 504 Siliciclastic Depositional Systems [<u>3 credit hours</u>]
- ESCI 506 Carbonate Depositional Systems [3 credit hours]
- ESCI 544 Hydrocarbon Exploration (AAPG Imperial Barrel competition) [3 credit hours]
- ESCI 567 Unconventional Energy Exploration [3 credit hours]
- ESCI 627 Sequence Stratigraphy [<u>3 credit hours</u>]
- ESCI 636 Well Logging and Petrophysics [3 credit hours]
- ESCI 663 Structure and Evolution of Tectonic Systems [4 credit hours]
- MGMT 610 Fundamentals of the Energy Industry [<u>1.5 credit hours</u>]

Additional Electives for Both Specializations

The following courses are additional electives that can be used to satisfy the requirements in both specializations.

- CAAM 378 Introduction to Operations Research and Optimzation [3 credit hours]
- CEVE 528/ENGI 382 Engineering Economics & Management [3 credit hours]
- COMP 556/ELEC 556 Introduction to Computer Networks [4 credit hours]

- ECON 601 Energy Economics / [4 credit hours]
- ESCI 654 Geographic Information Science [3 credit hours]
- MGMT 661 International Business Law [3 credit hours]
- MGMT 670 Operations Strategy [<u>1.5 credit hours</u>]
- MGMT 676 Social Enterprise [<u>1.5 credit hours</u>]
- POST 501/GLBL 541 Energy Policy [<u>3 credit hours</u>]
- STAT 518 Probability [<u>3 credit hours</u>]
- STAT 615 Regression and Linear Models [<u>3 credit hours</u>]

Please contact the department for additional courses that can satisfy the requirements listed above. Substitutions for required or elective courses may be approved by the Track Advisor.

Admission

Admission to graduate study in subsurface geoscience is open to qualified students holding a bachelor's degree in a related science that includes coursework in geoscience, general chemistry, physics, calculus, and differential equations. Department faculty evaluate the previous academic record and credentials of each applicant individually.

Professional Science Master's Fifth Year Degree Option for Rice Undergraduates

Rice students have an option to achieve the MS in Subsurface Geoscience degree by adding an additional fifth year to the four undergraduate years of science studies. Advanced Rice students in good standing may apply during their junior year to the graduate program. Upon acceptance, depending on course load, financial aid status, and other variables they may 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 program director and the PSM director. Students should be aware there could be financial aid implications, if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time (12 hours) status.

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the graduate Subsurface Geoscience degree program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses from other departments apply towards the Subsurface Geoscience degree program.

Department Description and Code

Earth Science: ESCI

Degree Description and Code

- Master of Science in Subsurface Geoscience degree: MSSG

Degree Program Description and Code

- Degree Program in Bioscience and Health Policy: SGEO

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Subsurface Geoscience >

Undergraduate Students	Subsurface Geoscience									
▶ Graduate Students	The Wi	The Wiess School of Natural Sciences								
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings					
▶ Faculty	Cours	se Listings	Requirements	Requirements	Listings					
Programs of Study			•	I in the Subsurface Geoscier	nce Graduate Requirements se	ection				
Administration and Faculty		ound in Rice's Course Cat	C C C C C C C C C C C C C C C C C C C							
Important Notices		To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.								
	For addit	tional information regardin	g Subsurface Geoscience, se	e the department's website:	https://profms.rice.edu/Geosci.	.aspx.				
	Last Revise	ed : August 24, 2016								

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Systems, Synthetic and Physical Biology >

Undergraduate Students

RICE

Systems, Synthetic and Physical Biology

Institute of Biosciences and Bioengineering

Graduate Students	
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- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings				
Director	A	ssociate Professors					
Herbert Levine, BIOE	M	lichael Diehl, BIOE					
	ld	lo Golding, BCM					
Associate Director	0	leg A. Igoshin, BIOE					
Jonathan Silberg, BIOS	С	hing-Hwa Kiang, PHYS					
	M	lichael Kohn, BIOS					
Professors	C	hristy Landes, CHEM					
Pedro Alvarez, CEVE	L	uay K. Nakhleh, COMP					
Gang Bao, BIOE	R	Robert Raphael, BIOE					
George N. Bennett, BIOS	6 La	Laura Segatori, CHBE					
Cecilia Clementi, CHEM	Ju	Junghae Suh, BIOE					
Michael Deem, BIOE							
Ramon Gonzalez, CHBE	A	ssistant Professors					
Lydia E. Kavraki, COMP	M	Matthew R. Bennett, BIOS					
Marek Kimmel, STAT	D	Deepak Nagrath, CHBE					
Anatoly B. Kolomeisky, C	HEM X	Xaq Pitkow, ECE					
Jianpeng Ma, BIOE	A	Amina A. Qutub, BIOE					
Jose Onuchic, PHYS	Ja	Jacob Robinson, ECE					
George Phillips, BIOS	F	Francois St-Pierre, ECE					
Susan Rosenberg, BCM	La	Lauren Stadler, CEVE					
Ka-Yiu San, BIOE	Je	effrey J. Tabor, BIOE					
Yousif Shamoo, BIOE	A	ryeh Warmflash, BIOS					
Peter G. Wolynes, CHEM	1 D	avid Y. Zhang, BIOE					
	W	/eiwei Zhong, BIOS					

Participating Faculty

This program includes faculty from departments of Bioengineering, Biosciences, Chemical and Biomolecular Engineering, Chemistry, Civil and Environmental Engineering, Computer Science, Electrical and Computer Engineering, Physics & Astronomy, and Statistics.

Program (Undergraduate): N/A

Programs (Graduate): MS degree, PhD degree

Systems, Synthetic and Physical Biology (SSPB) is a new discipline that draws upon principles from physics, chemistry, engineering, and mathematics and integrates experimental biochemical, cell biological, and molecular genetics approaches with computational design, simulation, and modeling to anticipate the properties of complex and multiscale biological systems. The Graduate Program in SSPB represents a cooperative effort by faculty in the schools of Natural Sciences and the Engineering to provide training in this highly interdisciplinary field. This program is overseen by the Institute of Biosciences and Bioengineering (IBB) and overseen by an executive committee composed of members from any of the participating departments.

The interdisciplinary nature of the SSPB program allows students to achieve their graduate degree requirements by taking select classes from any of the participating departments and performing their dissertation research under supervision of any faculty associated with the program.

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RICE

819 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Systems, Synthetic and Physical Biology >

Undergraduate Students	Syste	Systems, Synthetic and Physical Biology								
► Graduate Students	Institut	Institute of Biosciences and Bioengineering								
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings					
▶ Faculty	Unde	rgraduate Require		Requirements	Listings					
Programs of Study	Systems	, Synthetic, and Physical E	Biology does not offer an acade	mic program at the undergradu	ate level.					
Administration and Faculty										
Important Notices	Last Revise	ad : August 12, 2016								

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Systems, Synthetic and Physical Biology >

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Systems, Synthetic and Physical Biology

Graduate Students

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices

Institute of Biosciences and Bioengineering

Department
Info

Undergraduate	
Requirements	Re

Graduate equirements

Course Listings

Program Learning Outcomes for MS and PhD Degrees in Systems, Synthetic and **Physical Biology**

Students graduating from this program will:

- 1. Become knowledgeable about the breadth of topics within Science, Technology, Engineering, and Mathematics (STEM) disciplines that underlie the foundations of Systems, Synthetic and Physical Biology.
- 2. Independently integrate knowledge from diverse STEM fields to develop a solution plan for defined biological problems.
- 3. Apply knowledge from Biology, Mathematics, and Physics to an open-ended biological challenge.
- 4. Develop deep knowledge within the sub-area where they pursue their dissertation research.
- 5. Write well-organized, coherent technical prose that is at a level observed within peer-reviewed manuscripts.
- 6. Deliver oral presentations that are of the caliber that is expected at national conferences.
- 7. Demonstrate critical thinking skills when confronted with unanticipated questions.
- 8. Conduct independent research. Students will develop individually, or as part of a team, a solution to an open-ended research question, identify and pose a research problem and place that problem in context within the field's established literature, and thoughtfully relate their research to that of others in their field through peer-reviewed publications.
- 9. Assume responsibility for their continued professional growth by striving to acquire the knowledge and skills needed for scholarly achievement.

Requirements for the MS and PhD Degrees in Systems, Synthetic and Physical Biology

The Graduate Program in SSPB offers Master's and Doctoral degrees. Students will be directly admitted only to the Doctoral program. For each degree, the student must fulfill the university requirements set forth in the General Announcements under which he or she entered. The semester credit hour requirements may be fulfilled both by classroom hours and research hours. Students are required to accumulate at least 25 semester hours of graduate approved courses while maintaining a GPA of 3.0 or higher. Students must be enrolled for at least 12 credits each semester.

PREREQUISITE REQUIREMENTS

Students are required to have training in the following 5 foundation areas:

- 1. Molecular Biology (Introductory Biology class and at least one upper-level biology class such as Cell Biology, Genetics or Biophysics)
- 2. Biochemical reaction kinetics (Biochemistry, Bioreaction Engineering, or equivalent)
- 3. Physical Chemistry or Thermodynamics or Statistical mechanics,
- 4. Ordinary Differential Equations
- 5. Statistics

If students are missing formal training in these subjects, they are required to take the equivalent background courses during their first year at Rice (no more than one of these classes can be taken for Pass/Fail). The corresponding courses at Rice include the following:

- BIOC 341 Cell Biology [3 credit hours]
- BIOC 301 Biochemistry I [3 credit hours] or BIOE 330 Bioreaction Engineering [3 credit hours]
- BIOC 352 Physical Chemistry for Biosciences [3 credit hours]

or BIOE 332 Bioengineering Thermodynamics [3 credit hours] or PHYS 425 Statistical & Thermal Physics [3 credit hours] or PHYS 526 Statistical Physics [3 credit hours]

- MATH 211 Ordinary Differential Equations and Linear Algebra [3 credit hours]
- BIOE 439 Applied Statistics for Bioengineering and Biotechnology [3 credit hours]

REQUIRED COURSES

Students must complete the following 4 courses (10 credit hours). All students are required to complete UNIV 594 during their first semester, and credit earned for UNIV 594 does not apply toward the minimum of 24 credit hours in coursework requirement for the degree.

- SSPB 501/BIOE 502 Physical Biology [3 credit hours]
- SSPB 502/BIOE 552 Introduction to Systems Biology [3 credit hours]
- SSPB 503/BIOE 508 Synthetic Biology [3 credit hours]
- UNIV 594 Responsible Conduct Research [1 credit hour]

ADVANCED TOPICS

Students are also required to take at least three courses (9 credit hours) from advanced topics in the SSPB field.

ELECTIVES

Students must complete 2 open elective courses (6 credit hours), which are subject to approval by the Graduate Advising Commitee (GAC). It is recommended that at least one of the courses in advanced topics apply quantitative concepts from computer science, physics, and mathematics or statistics to biological problems, and at least one of the courses focus on biology within the sub-area where students pursue their dissertation research.

SEMINARS

RESEARCH

Other Program Requirements (MS students)

All students involved in research must complete the Collaborative Institutional Training Initiative (CITI) Responsible Conduct of Research online course. Candidates for the MS degree also must:

- Choose an advisor (PI) by the end of the first semester
- Fulfill a teaching requirement
- Submit an original research thesis
- Complete 30 semester hours of study (including thesis research hours)
- Defend the thesis in a public oral examination.

Other Program Requirements (PhD students)

All students involved in research must complete the Collaborative Institutional Training Initiative (CITI) Responsible Conduct of Research online course. Candidates for the PhD degree also must:

- Choose an advisor (PI) by the end of the first semester or equivalent
- Fulfill a teaching requirement
- Submit a thesis proposal that provides evidence of their ability to carry out original research in a specialized area of Systems, Synthetic and Physical Biology before the beginning of their fifth semester in residence
- Complete 90 semester hours of advanced study (including thesis research hours)
- Pass their qualifying exam which includes thesis proposal defense
- Defend the PhD thesis in a public oral examination.

Qualifying Exam (PhD students)

Students are expected to pass their qualifying exam before the beginning of their fifth semester in residence unless an extension has been granted by GAC. Students may retake the exam up to two times if granted permission to do so by GAC. Students who do not pass the Qualifying Exam may exit the program with a MS degree if the appropriate requirements have been met.

Thesis Proposal Defense: Students are required to submit their written proposal to their Graduate Progress Review (GPR) committee no later than two weeks before the scheduled exam. The proposal is expected to be in NIH NRSA-like format - limited to 10 pages (not including References) and include the following sections: Abstract, Background, Problem Statement, Research Plan, Preliminary Results, References, and Proposed Timeline. Students whose research area may not be suitable for this format may seek approval of an alternative format by their GPR committee. On the day of the defense, students are expected to

give an oral presentation of their proposal and answer technical questions. The student should expect to give a presentation, which if uninterrupted would last about 45 minutes, and be prepared for substantial questioning by the GPR committee.

Admission

Applicants for graduate study in SSPB must have:

- BA or BS degree in natural sciences, engineering, or related field (or some equivalent)
- Strong ability and motivation for research as indicated by academic record, Graduate Record Examination (GRE) scores, and recommendations

Although the program offers a MS degree, only students who intend to pursue the PhD degree are admitted into the program. In rare instances, students who fulfilled the MS degree requirements and who do not wish to continue their studies toward their PhD degree may choose to graduate with MS degree. Information on admission to the program is available on the SSPB website \mathcal{C} .

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the graduate Systems, Synthetic and Physical Biology degree program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses from other department apply towards the graduate degrees in Systems, Synthetic and Physical Biology.

Department Description and Code

- Systems, Synthetic, and Physical Biology: SSPB

Degree Descriptions and Codes

- Master of Science degree: MS

- Doctor of Philosophy degree: PhD

Degree Program Description and Code

- Degree Program in Systems, Synthetic and Physical Biology: SSPB

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Maps-Directions Feedback

RICE

823 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Systems, Synthetic and Physical Biology >

Undergraduate Students	Systems, Synthetic and Physical Biology								
Graduate Students	Institut	Institute of Biosciences and Bioengineering							
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings				
▶ Faculty	Cours	se Listings							
Programs of Study	The offic	ial course offerings, includi	ng course descriptions, listed	in the Systems, Synthetic a	nd Physical Biology Graduate				
Administration and Faculty	Requirer	nents section can be found	I in Rice's Official Course Cat	alog. 🚰					
Important Notices	To view	the most recent course sch	edule for the 2016-2017 acad	demic year, see Rice's Cour	se Schedule. 🗗				
		tional information regarding http://sspb.rice.edu/. 🗗	g Systems, Synthetic, and Phy	ysical Biology, see the depa	rtment's				
	Last Revise	ed : August 24, 2016							

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SEARCH GA



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Teacher Education >								
Undergraduate Students Teacher Education								
Graduate Students	The Susanne M. Glasscock School of Continuing Studies							
Non-Traditional Students	Department	Undergraduate	Graduate	Course				
▶ Faculty	Info	Requirements	Requirements	Listings				
-	Associate Dean		cturers					
Programs of Study	Jennifer Gigliotti		rgie Crawford					
Administration and Faculty	Director		elah Crear ott Hochberg					
Important Notices	Judy Radigan		anicca Joshua					
•		Lav	wrence Kohn					
	Professor	Ro	bert Lundin					
	Linda M. McNeil	An	gela Rabuck					
		Jud	dy Radigan					
		The	omas Schanding					
		Sh	eila Whitford					
		Ad	junct Professor					
		Ro	land B. Smith, Jr.					

Teacher Education courses are open to Rice students studying for careers in teaching and to Rice students interested in studying the complexities of the educational system and its role in society. Ideas and issues central to courses in education include education and democracy, global education, the organization of knowledge, and the nature of learning. Education, learning, and teaching are considered broadly, but the particular focus is on inquiry learning for diverse student populations.

Program (Undergraduate): N/A, no degree program

Program (Graduate): MAT

The teacher education program engages, prepares, and supports its teacher leaders for student-centered classrooms in a diverse society. The program emphasizes the value of equity in education and the political and educational policies that should undergird that equity. Students acquire a strong foundation in assessment, classroom culture, instructional strategies, literacy across the curriculum and human developmental processes. All teachers will use culturally relevant content and pedagogy in working with English language and diverse learners as this program acknowledges the changing face of Houston and the nation.

Rice offers three teacher education plans:

(1) a program leading to the state of Texas teacher certification in combination with the undergraduate degree in the elected subject field(s), including notation of that Texas Teacher Certificate on the recipient's Rice academic transcript,
(2) a Master of Arts in Teaching (MAT) that can be completed concurrently with a Rice bachelor's degree with generally one additional year of study, and
(3) a Master of Arts in Teaching (MAT) for experienced or new teachers.

The Rice teacher education program balances academic integrity with Texas Education Agency compliance. Students seeking additional information about the teacher education program are encouraged to meet with an advisor in Teacher Education.

Texas Teaching Credential (the Texas Teacher Certificate)—Rice is approved by the State of Texas to offer teacher preparation programs in the following fields: art, English language arts and reading, history, Latin, life sciences, mathematics, physical sciences, physics/mathematics, science, social studies, and Spanish.

After satisfactory completion of the Rice teacher education program, which includes the state-mandated examinations for teachers, students are recommended for a Texas teaching credential. The Texas Education Agency then awards a Texas Teacher Certificate (Grades 7–12).

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 that enrolls students receiving federal assistance under this act to report annually "to the State and the general public" certain information. This information includes the pass rate of their 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 their teacher preparation program.

Rice University's Teacher Education Program is accredited by the state of Texas. The first year pass rate for program completers on assessments required by the state for 2014-2015 was 100%, compared with 94% for the overall state pass rate. Thirteen students were enrolled in the program in 2014-2015. Student teachers spent an average of 40 hours per week in supervised student teaching with a student/faculty ratio of 1.3-to-1. Rice teacher education program graduates are regularly recruited by school districts in Houston and the surrounding areas because of their innovative ideas, content knowledge, expertise, leadership abilities, and dedication to the teaching profession.

Last Revised : August 17, 2016

General Annour	ncements	6100 Main I	MS-10, Houston, Tex	as 77005-1827	Mailing A	Address: P.O. Bo	x 1892, Houston, Texas	77251-1892
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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Teacher Education >

Undergraduate Students	Teac	her Education				
Graduate Students	The Su	sanne M. Glassco	ck School of Contin	uing Studies		
Non-Traditional Students		Department Info	Undergraduate	Graduate	Course	
▶ Faculty	Texas		Requirements tion for Rice Underg	Requirements raduates	Listings	
Programs of Study	For gene	eral university requirements,	see Graduation Requirements	. Rice University Teacher Ec	00	
Administration and Faculty	certificat	e for teacher education, Ric	s for student-centered classroo e University Teacher Education	n does offer a program to cur	rrent Rice degree-seeking	
Important Notices	Teacher	Education program, all und	all requirements for Texas Te ergraduate degree requiremen rmal notation of their Texas ce	ts, and certification by the Sta	ate of Texas, Rice student	
	complete A r Ed Co Co Co Co Dar In addition Stu edu Stu edu Stu edu Stu edu Stu edu Stu edu Stu edu Stu edu Stu edu Stu edu Stu edu Stu Edu Edu Stu edu edu Stu edu edu Stu edu edu Stu edu edu edu edu edu edu edu ed	e: ninimum of 30 credit hours to ucation advisor to develop a mplete all university and ma mplete all courses in teachin mplete the content courses ine and in the Teacher Educ mplete 75 hours of field-base ckground check with particip on, undergraduate students udents must be exempted from ucation courses to count for idents must begin two-seme d methods courses and a set 5, and EDUC 467). idents must pass appropriate idents must apply with the a mpleted. ssional Education wing courses fulfill requiremr should contact Teacher Ed UC 305 Educational Psychol UC 316 Assessment [3 cree UC 320 Teaching and Lear UC 320 Teaching Diverse L	jor requirements for a bachelo ng field and education with a C specified by the certification fie cation office. The development of the certification of the particular of the certification of the particular of the certification of the certification. The certification of the certifi	ertificate requirements. Stude r's degree. or better. eld advisor(s). Lists of course ary schools, in conjunction wi e following requirements: Education Assessment (THEA with first semester curriculum um with a cooperating teacher cy for Texas Teacher Certific: cation. For additional informa	ents must meet with a Tead s for each subject are avai ith satisfactory results on A) exam prior to enrolling ir development and theory er (EDUC 421, EDUC 460- ation when all requirement	cher ilable n any - ts are

- HIST 421 Race, Education and Society in the Urban South [<u>3 credit hour</u> or EDUC 304 Race, Class, Gender in Education [<u>3 credit hours</u>]
- EDUC 421 Curriculum Development [<u>3 credit hours</u>]
- EDUC 422 Literacy Across the Curriculum [<u>3 credit hours</u>]
- EDUC 460-466 Theory and Methods (Teaching Content Area) [3 credit hours]
- EDUC 467 Practicum for Pre-service Teachers [6 credit hours]

Feedback

Admission

Students may apply to the Rice University Teacher Education program for admission if they show:

- Attainment of sophomore standing at Rice University.
- Grades of C- or better in all semester hours for the teaching field and a grade point average of 2.5 or better, both in courses for the teaching field and overall.
- Evidence of adequate physical vigor and speech to perform as a teacher in a classroom.

A completed plan of study approved by a department advisor and the major field advisor is required before completion of the Teacher Education program. Once completed, and after completion of the student's Rice undergraduate degree requirements, and certification by the State of Texas, an acknowledgement and formal notation of the student's Texas certification will be made on their Rice academic transcript.

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Teacher Education >

Undergraduate Students	Teac	her Education	1					
Graduate Students	The Su	Isanne M. Glassco	ock School of Conti	nuing Studies				
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings			
▶ Faculty	Progr			er of Arts in Teaching				
Programs of Study		-		ching degree program, students				
Administration and Faculty	1. Cr	eate environments where s	students discover and constru	ct meaning from content (using	their unique perceptions,			
Important Notices	thoughts and feelings).2. Implement teaching strategies for diverse learners.							
			nd content mastery to guide in porates digital learning and edu					
	Requ	Requirements for the Master of Arts in Teaching Degree (MAT)						
			0,	rly ability, and a commitment to Specific requirements include:	teaching, and they must ha	ave		
	■ Co ■ Gr of	mpletion of 24 credit hours ades of B- (2.67 grade poin 3.0 or better, both in cours	es for the teaching field and o	ours attempted in the teaching	field and a grade point ave	rage		
	Admitteo			on assistance is available. See gher Education Assessment (T		-		

Degree Requirements—For general university requirements, see Graduate Degrees. Students pursuing the Master of Arts in Teaching degree must complete:

- A minimum of 36 credit hours at the 500-level or above to satisfy degree requirements.
- All courses with a grade of B- (2.67 grade points) or better to receive credit.

The MAT is a nonthesis degree program for students who want to qualify for secondary school teaching following a bachelor's degree. 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 7–12. The specific requirements for the Texas Standard Teaching Certificate are listed below.

- Begin two-semesters of work in assigned school with first semester curriculum development and theory & methods courses and a second semester full-day practicum with a cooperating teacher (EDUC 521, EDUC 560-566, and EDUC 567).
- Complete a two-semester supervised teaching internship by acquiring and fulfilling all professional responsibilities of a teaching position in a local accredited secondary school and completing a seminar course (EDUC 540).
- Complete 75 hours of field-based experience in local secondary schools, in conjunction with satisfactory results on background check with participating school districts.
- Make grades of B- or better in all teaching field and education courses.
- Pass appropriate TExES exams.
- Apply for Texas State certification when all requirements are completed.

The cooperating school districts pay a regular salary for internship teaching.

CORE COURSE REQUIREMENTS

Students must complete the following 11 courses (36 credit hours) as listed below to satisfy the MAT degree requirements. At the discretion of the associate dean and academic advisor, some students may require additional courses to address deficiencies prior to seeking Texas State teacher certification.

- EDUC 505 Educational Psychology [3 credit hours]
- EDUC 516 Assessment [<u>3 credit hours</u>]
- EDUC 519 Teaching and Learning with Inquiry [3 credit hours]
- EDUC 520 Teaching Diverse Learners [<u>3 credit hours</u>]
- EDUC 521 Curriculum Development [<u>3 credit hours</u>]
- HIST 521 Race, Education, and Society in the Urban South [<u>3 credit hours</u>] or EDUC 504 Race, Class, Gender in Education [<u>3 credit hours</u>]
- EDUC 522 Literacy Across the Curriculum [3 credit hours]
- EDUC 560-566 Content Specific Theory and Methods [<u>3 credit hours</u>]
- EDUC 567 Practicum for Preservice Teachers [6 credit hours]
- EDUC 540 Seminar for First Year Teachers [Internship I and II. 6 credit hours total, two consecutive semesters]

Rice undergraduate students can pursue both their undergraduate and graduate degrees concurrently, completing the MAT with generally one additional year of study beyond the bachelor's degree. Students seeking additional information about the 5-year MAT program are encouraged to meet with an advisor in Teacher Education.

Requirements for the Master of Arts in Teaching Degree (MAT) for Experienced Teachers

Students pursuing the Master of Arts in Teaching Degree for Experienced Teachers must complete:

- A minimum of 36 credit hours at the 500-level or above to satisfy degree requirements.
- All courses with a grade of B- or better to receive credit.

The MAT degree program is offered for experienced teachers that have a minimum of two years experience teaching.

CORE COURSE REQUIREMENTS

Students must complete the following 8 courses (24 credit hours) as listed below to satisfy the MAT degree requirements for experienced teachers.

- EDUC 516 Assessment [<u>3 credit hours</u>]
- EDUC 519 Teaching and Learning with Inquiry [3 credit hours]
- EDUC 520 Teaching Diverse Learners [3 credit hours]
- EDUC 522 Literacy Across the Curriculum [3 credit hours]
- EDUC 590 Teachers as Leaders [3 credit hours]
- HIST 521 Race, Education, and Society in the Urban South [<u>3 credit hours</u>] or EDUC 504 Race, Class, and Gender in Education [<u>3 credit hours</u>]
- EDUC 595 Capstone [Capstone I and II, 6 credit hours, two semesters total]

ELECTIVES

To fulfill the remaining requirements for the MAT Degree for Experienced Teachers, students must complete a total of 4 additional courses (12 credit hours) from Professional Education courses or Academic Content Specialization. These courses can be found below:

- EDUC 501 Philosophical, Historical, and Social Foundations of Education [3 credit hours]
- EDUC 502 Contemporary Issues in Education [3 credit hours]
- EDUC 505 Educational Psychology [<u>3 credit hours</u>]
- EDUC 510 Introduction to Special Education [<u>3 credit hours</u>]
- EDUC 515 Adolescent Development [<u>3 credit hours</u>]
- EDUC 521 Curriculum Development [<u>3 credit hours</u>]
- EDUC 525 Adolescent Literature [3 credit hours]
- EDUC 530 The American High School [<u>3 credit hours</u>]
- EDUC 535 Urban Education Issues, Policy, and Practice [3 credit hours]
- EDUC 545 Educational Technologies and Digital Learning [<u>3 credit hours</u>]
- EDUC 550 Education Policy: From Legislatures to Classrooms [<u>3 credit hours</u>]
- EDUC 560-566 Theory and Methods (Content Specialization Courses) [3 credit hours]
- EDUC 570 Field-Based Studies in Teaching and Learning [<u>1-3 credit hours</u>]

EDUC 591 Independent Study and Research [<u>1-3 credit hours</u>]

Codes and Descriptions Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the graduate Master of Arts in Teaching degree program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: EDUC <u>Department Description and Code</u>

- Education: EDUC Degree Description and Code
- Master of Arts in Teaching degree: MAT
- Degree Program Description and Code

- Degree Program in Education : EDUC

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831 of 923



Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Teacher Education >

Undergraduate Students	Teac	Teacher Education The Susanne M. Glasscock School of Continuing Studies					
Graduate Students	The Su						
Non-Traditional Students	_	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings		
▶ Faculty	Cours	se Listings					
Programs of Study		•	ling course descriptions, for E	ducation can be found in Rice's	s Course Catalog. 🗗		
Administration and Faculty	To view	the most recent course scl	hedule for the 2016-2017 acad	demic year, see Rice's Course	Schedule.		
Important Notices	For addi	tional information regarding	g Education, see the departme	ent's website: http://teach.rice.e	edu/. 🗗		
	-						
	Last Revise	ed : August 24, 2016					

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University Calendar

Rice A-Z

Maps-Directions

Feedback

832 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Teaching and Learning >

Undergraduate Students	Teaching and Learni	ing			
Graduate Students	Department	Undergraduate	Graduate	Course	
Non-Traditional Students	Info	Requirements	Requirements	Listings	
► Faculty	Director	As	sistant Directors		
Programs of Study	Joshua R. Eyler		zabeth Barre bin Paige		
Administration and Faculty			-		
Important Notices	Program (Undergraduate): N	/A			
	Program (Graduate): Certific	ate			
	The graduate certificate program in tea pedagogical training, practical experier open to any Rice graduate student or p	nce, and mentoring that will p	repare them to be effective		am is
	Last Revised : August 17, 2016				
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University Calendar

Rice A-Z

Maps-Directions

Feedback

833 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Teaching and Learning >

Undergraduate Students	Теас	hing and Lear	ning		
Graduate Students		Department	Undergraduate	Graduate	Course
Non-Traditional Students		Info	Requirements	Requirements	Listings
► Faculty					
▶ Programs of Study	Last Revis	sed : September 09, 2016			
Administration and Faculty					
Important Notices					

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834 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Teaching and Learning >

Undergraduate Students	Teac	hing and Lear	ning							
Graduate Students		Department	Undergraduate	Graduate	Course					
Non-Traditional Students		Info	Requirements	Requirements	Listings					
▶ Faculty	Progr	am Learning Outo	comes for the Certif	icate in Teaching an	d Learning					
Programs of Study	Upon co	Upon completing the Certificate in Teaching and Learning, students will be able to:								
Administration and Faculty		 Develop an understanding of and explain best practices in teaching and learning. Communicate individual pedagogical values and approaches to teaching and learning. 								
Important Notices		 Assess key approaches, methodologies, and trends in the scholarship of teaching and learning. Identify and evaluate pedagogical methods that apply to students' disciplines and teaching interests. 								
		 Demonstrate effectiveness as instructors through formal presentations. Situate the role of teaching in higher education and the job market. 								
	Requi	irements for the C	ertificate in Teachi	ng and Learning:						
			Teaching and Learning must							
	 All aw tra CORE R Students Requires UN UN UN UN Descrit Note: In 	required coursework assoc arded at the same time as inscript. EQUIREMENTS is must complete the followin ments: IIV 500 Principles of Effect IIV 501 Research in Teach IIV 502 Practicum in Colles IIV 509 Teaching Portfolio ption and Codes Lea	the conferral of the student's ng 4 courses (11 credit hours tive College Teaching [<u>3 credit</u> hing and Learning [<u>3 credit hours</u>] ge Teaching [<u>3 credit hours</u>] [<u>2 credit hours</u>] gend s the following abbreviations (esponding degree program. Up Rice degree, along with a form) to satisfy the Certificate in Te <u>dit hours</u>] purs]	aching and Learning's Core					
	- Cou <u>Departm</u> - Cent <u>Certifica</u> - Cert	Catalog/Schedule irse offerings/subject code: ient (or Center) Description er for Teaching Excellence te Description and Code ficate in Teaching and Lea	<u>a and Code</u> :: RCTE							
	Last Revise	2d : August 25, 2016								

835 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Teaching and Learning >

Undergraduate Students	Teac	hing and Lear	ning		
Graduate Students		Department	Undergraduate	Graduate	Course
Non-Traditional Students		Info	Requirements	Requirements	Listings
► Faculty	Cours	se Listings			
Programs of Study		0	ling course descriptions, for co d in Rice's Course Catalog.		and Learning Graduate
Administration and Faculty	To view	the most recent course scl	hedule for the 2016-2017 aca	demic year, see Rice's Cour	se Schedule. 🗗
Important Notices	For addi	tional information regarding	g Teaching and Learning, see	e the department's website: h	ttp://cte.rice.edu/.
	Last Revise	ed : August 24, 2016			

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 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

836 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > University Courses >

University Courses			
Department	Undergraduate	Graduate	Course
Info	Requirements	Requirements	Listings
Dean of Undergraduates	s [Dean of Graduate and Postdo	octoral Studies
John Hutchinson	S	Seichi Matsuda	
Program (Undergraduate): N/	Α		
University courses provide opportunitie	÷ .		, .
	Department Info Dean of Undergraduate John Hutchinson Program (Undergraduate): NA Program (Graduate): N/A University courses provide opportunitie in curriculum development, directed to	Department Info Undergraduate Requirements Dean of Undergraduates John Hutchinson I Program (Undergraduate): N/A S Program (Graduate): N/A University courses provide opportunities for dialogue across discil in curriculum development, directed toward students interested in	Department Info Undergraduate Requirements Graduate Requirements Dean of Undergraduates John Hutchinson Dean of Graduate and Postdor Seichi Matsuda Program (Undergraduate): N/A Program (Graduate): N/A University courses provide opportunities for dialogue across disciplinary and departmental bound in curriculum development, directed toward students interested in interdisciplinary subjects beyon

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University Calendar

Rice A-Z

Maps-Directions Feedback

837 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > University Courses >

Undergraduate Students	Unive	ersity Courses						
Graduate Students		Department	Undergraduate	Graduate	Course			
Non-Traditional Students		Info	Requirements	Requirements	Listings			
▶ Faculty	Unde	Undergraduate Requirements						
Programs of Study	Universit	ty Courses do not offer an a	cademic program at the under	rgraduate level.				
Administration and Faculty	Last Revise	ed : August 12, 2016						
Important Notices		-						

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838 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > University Courses >

Undergraduate Students	Unive	ersity Courses	5					
Graduate Students		Department	Undergraduate	Graduate	Course			
Non-Traditional Students		Info	Requirements	Requirements	Listings			
► Faculty	Gradu	Graduate Requirements						
Programs of Study	Universit	ty Courses do not offer an a	academic program at the grad	luate level.				
Administration and Faculty	Last Revise	ed : August 12, 2016						
Important Notices								

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839 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > University Courses >

Undergraduate Students	Unive	ersity Courses	6			
Graduate Students		Department	Undergraduate	Graduate	Course	
Non-Traditional Students		Info	Requirements	Requirements	Listings	
FacultyPrograms of Study			is, including detailed course o	descriptions, for University C	Courses please see Rice's Cou	ırse
Administration and Faculty	To view	the most recent course sch	edule for the 2016-2017 acad	demic year, see Rice's Cour	se Schedule. 🗗	
Important Notices						
	Last Revise	ed : August 12, 2016				

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University Calendar

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840 of 923

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Visual and Dramatic Arts >

	The School of Humanities			
Graduate Students	The School of Humanities			
Non-Traditional Students	Department	Undergraduate	Graduate	Course
F acultur	Info	Requirements	Requirements	Listings
Faculty				
Programs of Study	Chair		Lecturer of Film & Media Stu	ıdies
	John Sparagana		Tish Stringer	
Administration and Faculty	Professors		Lecturer of Photography	
Important Notices	Karin Broker		Paul Hester	
	John Sparagana			
	Geoff Winningham		Lecturer of Studio Art	
			Josh Bernstein	
	Associate Professors			
	Brian Huberman		Lecturer of Theatre	
	Christopher Sperandio		Heather Breikjern	
			Mark Krouskop	
	Assistant Professors			
	Natasha Bowdoin		Artist in Residence	
	Lisa Lapinski		Allison Hunter	
	Professor in the Practic	e of Film & Media	Undergraduate Advisors	
	Studies		Lisa Lapinski (Studio Art)	
	Charles Dove		Charles Dove (Film, Photogra	ohy)
			Christina Keefe (Theatre)	
	Professor in the Practic	e of Theatre		
	Christina Keefe			
	Program (Undergraduate): B	A degree		
	Program (Graduate): N/A	-		
	Department of Visual and Dramatic Art with emphasis in the studio arts, film and the selection of courses and any other scholarships and internships, career go	nd photography, or theatre matters of concern in the	tracks. Each student should c	liscuss with their faculty advisor
	Last Revised : August 17, 2016			

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University Calendar

Maps-Directions

Rice A-Z

Feedback

841 of 923

SEARCH GA

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Visual and Dramatic Arts >

ndergraduate Students		al and Dramati			
aduate Students	The So	chool of Humanitie	9S		
on-Traditional Students	-	Department Info	Undergraduate Requirements	Graduate Requirements	Course Listings
culty	Prog		omes for the BA Deg		
grams of Study	Progra	am Learning Outcom	es for the Major Conce	ntration in Studio Art	
ninistration and Faculty	Upon co		udents majoring in Visual and [Dramatic Arts with the major	concentration in Studio Arts wil
ortant Notices			d understanding of a variety of	materials and processes in a	range of two and three-
	dir	-	the ability to apply these acqui		nd ways of working. This includ
	vo es 3. De va 4. De Progr a Upon co Photogr 1. Ur 2. Be 3. Gr 4. Ut	acabularies and creative visions emonstrate an understandin rried guises in contemporary usic, philosophy, and the sc evelop an understanding of am Learning Outcom ompleting the BA degree, str raphy will be able to: Inderstand the social, aesthe ecome fluent in both older for rasp the relationship betwee illize the understanding and	ent. g of the meaning and potential v society, and art's relationship iences. self in the larger context of the nes for the Major Conce udents majoring in Visual and D tic, and technological history of orms of filmmaking and photogr en the tools and the art. the fluency to create works of a	iliarity with a wide range of s purpose of the arts, a knowle and engagement with other of practice of art. Intration in Film and F Dramatic Arts with the major f film and photography. aphy and newer ones.	kills, concepts, and approaches edge of art history, art's role and disciplines including literature, Photography
	Progra	am Learning Outcom	es for the Major Conce	ntration in Theatre	
	Upon co to:	ompleting the BA degree, stu	udents majoring Visual and Dra	amatic Arts with the major co	ncentration in Theatre will be al
	pe 2. De ab efi	erformance, sound etc. to pre emonstrate the ability to use ole to identify its structure an fective performance, scene	critical thinking and analytical d form, and to understand char study and design.	III a range of roles in an actua skills to analyze and evaluate racters and specific scenes v	al, hands-on theatrical productic e a theatrical text, including beir

- 3. Demonstrate the ability to effectively communicate both verbally and in writing in situations of performance, play analysis, and performance direction, which necessitates collaboration and communication amongst many contributing individuals.
- 4. Understand theater and performance broadly, and specific theatrical works or performances, within their historical, social, cultural, and political contexts.

Requirements for the BA Degree with a Major in Visual and Dramatic Arts

For general university requirements, see Graduation Requirements. Students pursuing the BA degree with a major in Visual and Dramatic Arts (VADA) must complete:

- A minimum of 11-13 courses depending on major concentration and whether or not the student is a single major or double major (30-40 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- The requirements of a major concentration. When students declare the major in Visual and Dramatic Arts, students must additionally identify and declare one of the major concentrations, either in a.) Studio Art or b.) Film and Photography or c.) Theatre.

Requirements for the Major Concentration in Studio Art

CORE REQUIREMENTS

Both **single majors and double majors** must complete a total of 8 courses (25 credit hours) as listed below to satisfy the Core Requirements for the major concentration in Studio Art.

- ARTS 165 Beginning Sculpture [<u>3 credit hours</u>]
- ARTS 225 Beginning Drawing [3 credit hours]
 - or ARTS 101 Drawing for the Non-Art Major [3 credit hours] or ARTS 103 Creative 2-D Design [3 credit hours]
- ARTS 301 Beginning Painting [<u>3 credit hours</u>]
- ARTS 311 Beginning Printmaking [3 credit hours]
- ARTS 325 Life Drawing [<u>3 credit hours</u>] or ARTS 323 Drawing Studio [<u>3 credit hours</u>]
- ARTS 388 Critical Studies for Studio Practice [<u>3 credit hours</u>]
- ARTS 499 Senior Studio [3 credit hours: taken in both the fall and spring semesters of the senior year]
- ARTS 294 Special Problems: Junior Field Trip [<u>1 credit hour</u>]

ELECTIVES

To fulfill the remaining requirements for the major concentration in Studio Arts, **single majors** must complete a total of 5 courses (15 credit hours) as listed below. **Double majors** must complete a total of 4 courses (12 credit hours) as listed below. Double majors who drop their other major must complete 5 courses (15 credit hours) to graduate with the single major. Double majors who drop their second major are required to meet the requirements listed for single majors.

Art History (HART) Electives

Students must complete a total of 2 courses (6 credit hours) from HART course offerings at the 100-level or above.

Directed Electives in Visual Arts, Film, Photography, Theatre

Single majors must complete a total of 2 courses (6 credit hours) from Visual Arts (ARTS), Film (FILM), Photography (FOTO), or Theatre (THEA) course offerings at the 100-level or above. **Double majors** must complete 1 course (3 credit hours) from Visual Arts (ARTS), Film (FILM), Photography (FOTO), or Theatre (THEA) course offerings at the 100-level or above.

Advanced Studio Arts (ARTS) 400-Level Elective

Students must complete 1 course (3 credit hours) from the following:

- ARTS 425 Advanced Drawing [3 credit hours]
- ARTS 449 Printmaking Studio [3 credit hours]
- ARTS 465 Advanced Sculpture [3 credit hours]
- ARTS 475 Advanced Painting [3 credit hours]

Students pursuing the major concentration in Studio Arts are strongly encouraged to explore arts-related courses offered in other departments that may enrich the major concentration in Studio Arts such as: philosophy, anthropology, science, history, cultural studies, language, writing, comparative studies, etc. Students should speak with their faculty advisor prior to enrolling.

The junior year field trip is designed to help visual arts majors focus on the upcoming senior year of intensive studio work, and to get to know the Visual and Dramatic Arts faculty and staff. These are trips to cultural centers nationally and internationally, including visits to museums, galleries, artist studios, theaters, and meetings with creative professionals in the fields of film/photo, theater, and studio arts. It is required for students pursuing the major concentration in Studio Art.

Requirements for the Major Concentration in Film and Photography

CORE REQUIREMENTS

Both **single majors and double majors** must complete a total of 7 courses (21 credit hours) as listed below to satisfy the Core Requirements for the major concentration in Film and Photography.

- Choose 4 courses (12 credit hours) from the following:
 - FILM 327/ANTH 324/ARTS 327 Documentary Production [3 credit hours]
 - FILM 328/ARTS 328 Filmmaking I [3 credit hours]
 - FILM 420 Film Studio [<u>3 credit hours</u>]

- FOTO 205 Introduction to Photography [<u>3 credit hours</u>]
- FOTO 310 Intermediate Digital Photography [<u>3 credit hours</u>]
- FOTO 385 Photography Seminar [3 credit hours]
- FOTO 410 Advanced Digital Photography [<u>3 credit hours</u>]
- Choose 1 course (3 credit hours) from the following:
 - FILM 323/MUSI 316 Experimental Sound and Video [3 credit hours]
 - FOTO 383 Photography Bookmaking [<u>3 credit hours</u>]
 - FOTO 388/ASIA 388 Photography in China [<u>3-4 credit hours</u>]
 - FOTO 390/ESCI 380 Visualizing Nature [<u>3 credit hours</u>]
- Choose 2 courses (6 credit hours) from the following:
 - ARTS 388 Critical Studies for Studio Practice [<u>3 credit hours</u>]
 - FILM 280/ARTS 280/HART 280 History and Aesthetics of Film [3 credit hours]
 - FILM 284/HART 284 Nonfiction Film [3 credit hours]
 - FILM 383/HART 383 Global Cinema [<u>3 credit hours</u>]
 - FILM 432/ARTS 432 Film Genre: The Western [<u>3 credit hours</u>]
 - FILM 435/ARTS 435/HART 480 Film Authorship [<u>3 credit hours</u>]

ELECTIVES

To fulfill the remaining requirements for the major concentration in Film and Photography, **single majors** must complete a total of 5 courses (15 credit hours) as listed below. **Double majors** must complete a total of 3 courses (9 credit hours) as listed below. Double major are required to meet the requirements listed for single majors.

Directed electives in Visual Arts, Film, Photography, or Theatre

Single majors must complete a total of 3 courses (9 credit hours) from Studio Arts (ARTS), Film (FILM), Photography (FOTO) or Theatre (THEA) course offerings at the 100-level or above. **Double majors** must complete a total of 2 courses (6 credit hours) from Studio Arts (ARTS), Film (FILM), Photography (FOTO) or Theatre (THEA) course offerings at the 100-level or above.

Advisor Directed Electives in Visual Arts, Film, or Theatre

Single majors must complete a total of 2 courses (6 credit hours) in Theory/Criticism of Studio Arts (ARTS), Theatre (THEA), or Film/Media Studies (offered in the departments of Anthropology, English, French Studies, History, etc.). **Double majors** must complete 1 course (3 credit hours) in Theory/Criticism of Studio Arts (ARTS), Theatre (THEA), or Film/Media Studies (offered in the departments of Anthropology, English, French Studio, Arts (ARTS), Theatre (THEA), or Film/Media Studies (offered in the departments of Anthropology, English, French Studies, History, etc.). Open selections may be qualified by course prerequisites. Elective courses should be selected in consultation with a Visual and Dramatic Arts faculty advisor.

Students pursuing the major concentration in Film and Photography are strongly encouraged to explore film-related courses offered in other departments that may enrich the major concentration in Film and Photography, such as philosophy, anthropology, science, history, cultural studies, language, writing, comparative studies, etc. Students should speak with their faculty advisor prior to enrolling.

ARTS 294 Special Problems: Junior Field Trip is recommended for students pursuing the major concentration in Film and Photography. The junior year field trip will be designed to help visual arts majors focus on the upcoming senior year of intensive studio work, and to get to know the Visual and Dramatic Arts faculty and staff. These are trips to cultural centers nationally and internationally, including visits to museums, galleries, artist studios, theaters, and meetings with creative professionals in the fields of film/photo, theater, and studio arts.

Requirements for the Major Concentration in Theatre

CORE REQUIREMENTS

Both **single majors and double majors** must complete a total of 4 courses (12 credit hours) as listed below to satisfy the Core Requirements for the major concentration in Theatre.

- THEA 100 Stage Craft [<u>3 credit hours</u>]
 or THEA 101 Costume Construction [<u>3 credit hours</u>]
 or THEA 103 Theatre Technology [<u>3 credit hours</u>]
- THEA 300 Introduction to Theatre Design [<u>3 credit hours</u>] or THEA 301 Acting I [<u>3 credit hours</u>]
- THEA 315 Theatre in Western Culture: A Historical Introduction [3 credit hours]
- THEA 331 Theatre Production Crew [<u>1-6 credit hours</u>]

ELECTIVES

To fulfill the remaining requirements for the major concentration in Theatre, **single majors** must complete a total of 9 courses (27 credit hours) as listed below. **Double majors** must complete a total of 7 courses (21 credit hours) as listed below. Double majors who drop the other major must complete 9 courses (27 credit hours) to receive the single major. Double majors who drop

Electives in Visual Arts, Film, Photography, or Theatre

Single majors must complete a total of 6 courses (18 credit hours) from Theatre (THEA), Studio Arts (ARTS), Photography (FOTO), or Film (FILM) course offerings. Single majors may not include more than three courses (nine credit hours) from ARTS or FILM course offerings to satisfy this requirement. **Double majors** must complete a total of 4 courses (12 credit hours) from Theatre (THEA), Studio Arts (ARTS), Photography (FOTO), or Film (FILM) course offerings. Double majors may not include more than 2 courses (6 credit hours) from ARTS or FILM course offerings to satisfy this requirement.

Electives in Dramatic or Film Theory/Criticism, Literature, or Art History

Students must complete a total of 3 courses (9 credit hours) in dramatic or film theory or criticism, dramatic literature, or art history. Elective courses should be selected in consultation with the theatre faculty advisor.

Students pursuing the major concentration in Theatre are strongly encouraged to explore theatre-related courses offered in other departments that may enrich the major concentration in Theatre, such as: philosophy, anthropology, science, history, cultural studies, language, writing, comparative studies, etc. Students should speak with their faculty advisor prior to enrolling.

Students pursuing the major concentration in Theatre are encouraged to take Lifetime Physical Activity Program (LPAP) courses to supplement and enhance their studies in theatre. Courses include (but not limited to): LPAP 148, *Dance Choreography*; LPAP 130, *Contact Improvisation*; LPAP 155, *Introduction to Ballet*; LPAP 133, *Capoeira*; and LPAP 157 *Jazz Dance/Hip Hop*. Students should receive departmental approval and have already satisfied the LPAP graduation requirements before enrolling. Students may not take more than four LPAP courses for credit.

ARTS 394 *Special Problems: Junior Field trip* is recommended for students pursuing the major concentration in Theatre. The junior year field trip will be designed to help all visual and dramatic arts majors focus on the upcoming senior year of intensive work, and to get to know the Visual and Dramatic Arts faculty and staff. These are trips to cultural centers nationally and internationally, including visits to museums, galleries, artist studios, theaters, and meetings with creative professionals in the fields of film/photo, theater, and studio arts.

Distinction in Research and Creative Works

Distinction in Research and Creative Works is a university award for select undergraduates, granted at commencement, which appears on the transcript and diploma. Students must apply within their department or program to be considered for the award and a letter from a faculty member must support the application.

Eligibility for the award extends widely to include a variety of research, design, and other creative projects, as well as persistent dedication to research. Projects completed in part or entirely at other institutions or with community partners will be eligible for consideration.

Applicants must be in good academic standing and have a cumulative GPA of at least 3.30 in courses completed at Rice.

Also, of further note: The award will be granted only to projects that produce a concrete outcome – e.g. an essay, invention, design, art exhibition, project or performance, or musical composition – and demonstrate commitment and/or achievement above and beyond the norm. Students who complete senior theses, senior design projects or other required senior capstone projects shall not qualify automatically for consideration for this university distinction.

The application for Distinction I Research and Creative works to the Department of Visual and Dramatic Arts must include: 1) application form; including portfolio; 2) overall GPA of 3.30; 3) a written artist statement; 4) letter of support from a Visual and Dramatic Arts faculty member; 5) public exhibition, screening, publication or performance that includes a lecture or artist talk component by applicant; 6) two-page description of how the project meets the requirements of Distinction.

The department requires exceptional evidence of success, as defined by completion of a project (body of artwork, film, theatrical design work, etc.). Support through the application process is available through the department-- e.g. workshops, seminars and individual meetings with faculty mentors.

Contact the department or look online for deadline dates. No electronic submissions accepted. Please note that your project does not have to be completed to apply for Distinction (all final materials will be due in Spring 2017). The department selects a very limited number of students for Distinction.

Transfer Credit

No more than two courses may be transferred for the single or double major to satisfy degree requirements for BA in Visual and Dramatic Arts degree. The two transfer credit courses must be studio, film, photography, or theatre practice courses required for all majors. Advanced placement credit may not be used by Visual and Dramatic Arts majors to fulfill department degree

requirements.

Entering transfer students who are transferring coursework from another accredited college or university will be allowed to transfer their undergraduate art courses. Students must speak with the department chair immediately upon transferring to Rice.

The Department of Visual and Dramatic Arts will accept academic work completed in the Spring at NYU program as well as the National Theater Institute program, Eugene O'Neill Theater Center, as transfer credit to fulfill major requirements (following university transfer credit guidelines).

See also Transfer Credit.

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 (one fall and one spring) and the possibility of two student showcases offered each year in Hamman Hall, a 500-seat proscenium theatre facility. The department invites distinguished guest artists each semester to direct and produce the two main-stage productions. Participation in productions is open to all students.

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 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 numbered 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.

National Theater Institute

The National Theater Institute is the educational arm of the renowned Eugene O'Neill Theater Center. The program is designed to complement a liberal arts education with three distinct study-away programs, all offering rigorous, risk-taking theater exploration. The semester long program at the O'Neill Center in Connecticut, the NTI Moscow Art Theater semester, and the seven-week Theatermakers summer program confront the serious theater student with opportunities to discover new creative possibilities.

The National Theater Institute offers an extensive conservatory-based training program for the dedicated student. Distinguished master teaching artists guide the classes in courses in acting, directing, design, playwriting, stage combat, voice, and movement. The Department of Visual and Dramatic Arts will accept academic work completed at the National Theater Institute as transfer credit to fulfill major requirements (following university transfer credit guidelines).

Rice Film Program

Our film program works in concert with the Department of Visual and Dramatic Arts' academic mission to enrich our students' undergraduate experience. Our film and media studies 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 celluloid and 4K Digital Cinema Projection with Dolby Digital Sound. Film production students can showcase their work during the academic year on our silver screen in recently renovated projection facilities.

During the academic year, Rice Cinema screens films from around the world—foreign features, shorts, documentaries, and animation—as part of our ongoing partnership with the diverse cultural communities of the City of Houston. Film at Rice reaches beyond the university's hedges to create, engage, and encourage scholarly thought and dialog on the many issues that impact our world. Among the internationally known filmmakers who have appeared on our campus over the years include Werner Herzog, Rakhshan Banietemad, Atom Egoyan, Shirin Neshat, Martin Scorsese, Andy Warhol, George Lucas, and Dennis Hopper.

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 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 collaborative events and programs. The collections and exhibitions of local museums are often 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.

Descriptions and Codes Legend

Note: Internally, the university uses the following abbreviations (4-digit codes) to identify the Visual and Dramatic Arts undergraduate degree, majors, and major concentrations. The following is a quick reference:

Course Catalog/Schedule

- Visual Arts course offerings/subject code: ARTS
- Film course offerings/subject code: FILM
- Photography course offerings/subject code: FOTO
- Theatre course offerings/subject code: THEA

Department Description and Code

- Visual and Dramatic Arts: VADA
- Degree Description and Code
 - Bachelor of Arts degree: BA
- Major Description and Code

- Major in Visual and Dramatic Arts: VADA

- Major Concentration Descriptions and Codes
 - Major Concentration in Studio Art: VSTU
 - Major Concentration in Film and Photography: VFIL
 - Major Concentration in Theatre: VTHE

Last Revised : August 29, 2016

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847 of 923

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Visual and Dramatic Arts >

Undergraduate Students	Visual and Dramatic Arts					
► Graduate Students	The School of Humanities					
▶ Non-Traditional Students		Department Info	Undergraduate	Graduate	Course	
▶ Faculty	Info Requirements Requirements Listings Graduate Requirements Info Info					
Programs of Study	Visual and Dramatic Arts does not offer an academic program at the graduate level.					
Administration and Faculty						
Important Notices	Last Revised : August 12, 2016					

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848 of 923

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Programs of Study > Visual and Dramatic Arts >

Undergraduate Students	Visual and Dramatic Arts					
Graduate Students	The School of Humanities					
Non-Traditional Students		Department Info	Undergraduate Requirements	Graduate	Course	
▶ Faculty	Cours	e Listings	Requirements	Requirements	Listings	
Programs of Study	The official course offerings, including course descriptions, for Visual and Dramatic Arts can be found in Rice's Course Catalog.					
Administration and Faculty	♂ To view the most recent course schedule for the 2016-2017 academic year, see Rice's Course Schedule.					
Important Notices						
	For addit	ional information regarding	g Visual and Dramatic Arts, se	ee the department's website:	http://arts.rice.edu/.	
	Last Revise	d : August 24, 2016				

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849 of 923

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Administration and Faculty > Board of Trustees

Undergraduate Students

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Jump to:

Trustees Trustees Emeriti

- Graduate Students
- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty
 - Board of Trustees
 - Administration
 - Faculty
 - Emeritus Faculty

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Back to top

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GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Administration and Faculty > Administration

١	Under	graduate	Students
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- Graduate Students
- Non-Traditional Students

Faculty

Programs of Study

Administration and Faculty

- Board of Trustees

- Administration

- Faculty
- Emeritus Faculty
- Important Notices

Jump to: Administration Administrative Offices College Masters

Administration

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Vice President for Administration
Vice President for Development and Alumni Relations
Vice President for Digital Education and Strategic Initiatives
Vice President for Enrollment
Vice President for Finance
Vice President for Investments and Treasurer
Vice President for IT & Chief Information Officer
Vice President for Public Affairs
Vice President and General Counsel
Director of Athletics, Recreation and Fitness
Associate Vice President for Global Affairs
Deputy Secretary to the Board of Trustees & Assistant to the President
University Representative

Provost

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Administrative Offices

Acad	lemic Advising	Aliya Bhimani
Admi	inistrative and Enterprise Systems & Services (OIT)	Randy Castiglie
Admi	ission	Julie Browning
Affirn	native Action/Equal Employment Opportunity	Russell Barnes
Alum	nni Relations	Marthe "Marta"
Athle	atics	Joe Karlgaard
Budg	get Office	Kathy Collins
Cam	pus Services (OIT)	Michael Dewey
Cam	pus Store	Matthew Erskir
Care	er Development	Nicole Van Der
Cash	nier's Office	Carla Perez
Cente	er for Civic Leadership (CCL)	Caroline Quene
Contr	roller's Office	Brad Fralic

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David W. Leebron

Peter Rossky Antonio Merlo John Hutchinson Seiichi Matsuda Paula Sanders Yousif Shamoo Sara Lowman Edward P. Djerejian

andy Castiglioni lie Browning issell Barnes arthe "Marta" Golden e Karlgaard athy Collins chael Dewey atthew Erskin cole Van Den Heuvel rla Perez roline Quenemoen ad Fralic

Counseling Center **Delivery Services Disability Support Services Diversity and Inclusion** Emergency Medical Service (EMS) Environmental Health and Safety Facilities, Engineering and Planning Faculty Development Financial & Human Resources Applications (OIT) General Counsel Graduate and Postdoctoral Studies Housing and Dining Human Resources Information Security (OIT) Institutional Effectiveness Institutional Research International Students and Scholars KTRU General Manager Multicultural Affairs Networking, Telecom and Data Center (OIT) News and Media Relations Payroll Office Police Department (RUPD) President's Office Provost's Office Procurement Public Affairs Public Art Program **Recreation Center** Registrar Research Computing and Cyberinfrastructure (OIT) **Risk Management** Sponsored Research Strategic Initiatives & Digital Education Student Center and Student Activities Student Financial Services Student Health Services Student Judicial Programs Student Wellbeing Study Abroad Systems Engineering and Communications Infrastructure (OIT) Teaching, Learning and Scholarly Technologies (OIT) Title IX Coordinator Transportation Office University Relations

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Timothy Baumgartner

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Greg Marshall

McMurtry College Sid Richardson College Wiess College Will Rice College

Back to top

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2016-2017 > Administration and Faculty > Faculty

Undergraduate Students	Faculty
Graduate Students	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Non-Traditional Students	Aazhang, Behnaam , 1985. J.S. Abercrombie Professor of Electrical and Computer Engineering BS (1981), MS (1983), PhD (1986) University of Illinois
▶ Faculty	Abad, Victoria, 2014. Lecturer of Spanish BA (2009), MA (2010) Universidad Complutense
Programs of Study	
 Administration and Faculty 	Abreu, Vitor dos Santos, 2000. Adjunct Professor of Earth Science, Lecturer BA (1984), MS (1990) Federal University of Rio Grande, Porto Alegre, Brazil; PhD (1997) Rice University
 Board of Trustees Administration 	Achard, Michel, 1997. Professor of Linguistics and French Studies, Department Chair of Linguistics, Master of Jones College BA (1983) University of Aix-en-Provence; MA (1987), PhD (1993) University of California–San Diego
- Faculty	Adam, Hajo, 2012. Assistant Professor of Management
- Emeritus Faculty	BBA (2004) International University in Germany; MS (2007), PhD (2010) INSEAD
Important Notices	Adams, Wade, 2013. Senior Faculty Fellow in Materials Science and NanoEngineering BS (1968) U.S. Air Force Academy; MS (1971) Vanderbilt University; PhD (1984) University of Massachusetts
	Adnan, Sarmad, 2001. Adjunct Professor of Mechanical Engineering BSME (1987) Ohio University; MS (1989), PhD (1992) Rice University
	 Ajayan, Pulickel M., 2007. Benjamin M. and Mary Greenwood Anderson Professor in Engineering and Professor of Materials Science and NanoEngineering, Chemistry, and Chemical and Biomolecular Engineering, Department Chair of Materials Science and NanoEngineering BTech (1985) Banaras Hindu University, India; PhD (1989) Northwestern University
	Akin, John Edward, 1983. Professor of Mechanical Engineering and Computational and Applied Mathematics BS (1964) Tennessee Polytechnic Institute; MS (1966) Tennessee Technological University; PhD (1968) Virginia Polytechnic Institute
	 Akins, Brian, 2012. Assistant Professor of Accounting BS (1997) University of Texas–Austin; MBA (2006) Rice University; MA (2008) Lubbock Christian University; PhD (2012) Massachusetts Institute of Technology
	Albers, Andrew, 2008. Lecturer of Architecture BS (1995) Georgia Institute of Technology; MArch (1999) Rice University
	Albert, Laurence (Larry), 2001. Visiting Critic BA (1986) Yale University; MArch (1997) Rice University
	Alemany, Lawrence B., 1994. NMR Manager and Lecturer of Chemistry BS (1975) City College of New York; PhD (1980) University of Chicago
	Alexander, David, 2003. Professor of Physics and Astronomy BSc (1985), PhD (1988) University of Glasgow, Scotland
	Alfaro, Ernesto, 2008. Lecturer of Architecture BA (1996) Columbia University; MArch (2000) Rice University
	Alford, John R., 1985. Professor of Political Science

Allen, Genevera I., 2010. Dobelman Family Junior Chair and Assistant Professor of Statistics BA (2006) Rice University; PhD (2010) Stanford University

Alpak, F. Omer, 2014. Adjunct Associate Professor of Computational and Applied Mathematics BSc (1997) Middle East Technical University; MSc (1999), PhD (2005) University of Texas–Austin

Alvarez, Pedro J. J., 2003. George R. Brown Professor of Materials Science and NanoEngineering BEng (1982) McGill University; MSE (1989), PhD (1992) University of Michigan

Al-Zand, Karim, 2002. Associate Professor of Composition and Theory BM (1993) McGill University; PhD (2000) Harvard University

Ambrose, Catherine G., 2009. Adjunct Associate Professor of Bioengineering BS (1987) Washington University–St. Louis; MS (1989), PhD (1992) University of Texas–Austin

Ames, Daisy, 2016. Lecturer of Architecture BA (2007) Brown University; MA (2013) Yale School of Architecture

Amin, Mustafa, 2015. Assistant Professor of Physics and Astronomy BS (2003) University of Texas–Arlington; PhD (2006) Stanford University

Anandasabapathy, Sharmila, 2007. Adjunct Professor of Bioengineering BA (1993) Yale University; MD (1998) Albert Einstein College of Medicine

Anderson, John B., 1975. W. Maurice Ewing Chair in Oceanography, Professor of Earth Science BS (1968) University of South Alabama; MS (1970) University of New Mexico; PhD (1972) Florida State University

Anding, Roberta, 1997. Lecturer of Kinesiology BS (1977), MS (1980) Louisiana State University

Angelaki, Dora E., 2012. Adjunct Professor of Electrical and Computer Engineering, Adjunct Professor of Psychology Diploma (1985) National Technical University of Athens; MS (1989), PhD (1991) University of Minnesota

Antoulas, Athanasios C., 1985. Professor of Electrical and Computer Engineering Diploma in Electrical Engineering (1975), Diploma in Mathematics (1975), PhD (1980) Eidgenösische Technische Hochschule, Switzerland

Aparicio, Jaime, 2016. Lecturer in Kinesiology BS (2002) Texas A&M University; BS (2009) University of Texas–Pan American; DPT (2014) Texas Women's University

Aranda Jr, José F., 1994. Associate Professor of English and Spanish, Portuguese and Latin American Studies, Master of Brown College

BA (1984) Yale University; MA (1988), PhD (1994) Brown University

Araya Polo, Mauricio, 2016. Adjunct Associate Professor of Computational and Applied Mathematics BSc (1998) University of Chile; MSc (2003), PhD (2006) University of Nice

Arbizu-Sabater, Victoria, 2006. Lecturer of Spanish BA (1986), MA (1996) University of Seville, Spain; MA (1999) Rice University

Arepalli, Sivaram, 2001. Adjunct Professor of Chemical and Biomolecular Engineering BS (1968) Andhra University; MS (1971), PhD (1979) Indian Institute of Technology

Aresu, Bernard, 1977. Laurence H. Favrot Professor of French, Licence es lettres (1967) Université de Montpellier, France; PhD (1975) University of Washington

Arnold, William, M., 2009. Professor in the Practice of Management AB (1966) Cornell University; MA (1968), MBA (1972) University of Texas–Austin

Asano, Yukiko, 2016. Lecturer of Japanese BA (2001) University of Wisconsin–Madison; PhD (2012) Stony Brook University Asthagiri, Dilip, 2014. Lecturer of Chemical and Biomolecular Engineering. BS (1992) Indian Institute of Technology; MS (1994) University of Michigan–Ann Arbor; PhD (1999) University of Delaware

Atherholt, Robert, 1984. Professor of Oboe BMus (1976), MMus (1977) Juilliard School of Music

Atkinson, E. Neely, 1985. Senior Lecturer of Statistics BA (1975), MA (1981), PhD (1981) Rice University

Awad, Maher M., 2005. Senior Lecturer of Arabic BA (1988) California State University, MA (1990) University of Colorado

Babakhani, Aydin, 2011. Assistant Professor of Electrical and Computer Engineering BS (2003) Sharif University of Technology, Iran; MS (2005), PhD (2008) California Institute of Technology

Back, Kerry E., 2009. J. Howard Creekmore Professor of Finance BA (1978) Western Kentucky University; PhD (1983) University of Kentucky

Bader, Graham, 2008. Associate Professor of Art History, Department Chair of Art History BA (1991) Yale University; MA (1995) Williams College; MA (2000), PhD (2005) Harvard University

Bae, Kyung-Hee, 2012. Lecturer in the Program in Writing and Communication BS (1993) Seoul Women's University; MA (2003) University of Houston

Badgwell, Thomas A., 2000. Adjunct Associate Professor of Chemical and Biomolecular Engineering BS (1982) Rice University; MS (1990), PhD (1992) University of Texas–Austin

Bado, Richard, 2005. Professor of Opera, Director of the Opera Studies Program BM (1981) West Virginia University; MM (1983) Eastman School of Music

Baggerly, Keith A., 2004. Adjunct Associate Professor of Statistics BA (1990), MA (1993), PhD (1994) Rice University

Baig, Fatima, 2016. Lecturer of German BA (2001) Rupert Charles University; PhD (2011) University of Iowa

Bailar, Melissa, 2012. Professor in the Practice of Humanities BA (1997) Rice University; PhD (2005) Rice University

Bailey, Walter B., 1982. Associate Professor of Musicology BMus (1976) Lewis and Clark College; MA (1979), PhD (1982) University of Southern California

Baker, George C., 2012. Lecturer in Improvisation
 BMus (1973) Southern Methodist University; Diplôme de Virtuosité (1975) Schola Cantorum;
 MMus (1977) University of Miami; DMA (1979) University of Michigan;
 MD (1987) University of Texas-Southwestern; MBA (1998) Southern Methodist University

Balabanlilar, Lisa A., 2007. Associate Professor of History, Head Resident Fellow McMurtry College BA (1998) Portland State University; MA (2003), PhD (2007) Ohio State University

Balazsi, Gabor, 2009. Adjunct Associate Professor of Bioengineering
 BS (1996), MS (1997) Babe–Bolyai University of Cluj, Romania; MS (1999), PhD (2001) University of Missouri–St.
 Louis

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- Barlow, Tani E., 2008. T. T. and W. F. Chao Professor of History BA (1975) San Francisco State University; MA (1979), PhD (1985) University of California–Davis
- Barnett, Gregory, 2002. Associate Professor of Musicology BA (1988) Oberlin College; MFA (1992), PhD (1997) Princeton University
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- Barrett, Deborah, 1998. Professor of the Practice of Professional Communication BA (1972), MA (1977) University of Houston; PhD (1983) Rice University
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- Bartel, Bonnie, 1995. Ralph and Dorothy Looney Professor of Biochemistry and Cell Biology BA (1983) Bethel College; PhD (1990) Massachusetts Institute of Technology
- Batsell, Richard R., 1980. Associate Professor of Marketing, Associate Professor of Psychology BA, BBA (1971), PhD (1976) University of Texas–Austin
- Bayazitoglu, Yildiz, 1977. Harry S. Cameron Professor of Mechanical Engineering and of Materials Science and NanoEngineering
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- Beason Abmayr, Beth, 2001. Lecturer of Biochemistry and Cell Biology BS (1990) Auburn University; PhD (1996) University of Alabama
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- Behringer, Richard, 2008. Adjunct Professor of Biochemistry and Cell Biology PhD (1986) University of South Carolina
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 BA (2002) Austin College; MA (2005), PhD (2010) Pennsylvania State University
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- Blättler, Damian, 2013. Assistant Professor of Music Theory AB (2006) Harvard University, MA, MPhil (2008), PhD (2013) Yale University
- Blumenthal-Barby, Martin, 2009. Associate Professor of German Studies MA , MPhil (2006), PhD (2008) Yale University
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- Boles, John B., 1981. William Pettus Hobby Professor of History, Associate of Will Rice College BA (1965) Rice University; PhD (1969) University of Virginia
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 BA (1971) Moscow University, U.S.S.R.; MA (1974) Hebrew University, Israel; PhD (1981) Weizmann Institute of Science, Israel
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- Boyer, Dominic C., 2009. Professor of Anthropology BA (1992) Brown University; MA (1994), PhD (2000) University of Chicago
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- Braam, Janet, 1990. Professor of Biochemistry and Cell Biology and Department Chair of BioSciences
 BS (1980) Southern Illinois University; PhD (1985) Sloan- Kettering Division of Cornell Graduate School of Medical Sciences
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- Brito, Dagobert L., 1984. George A. Peterkin Professor of Political Economy BA (1967), MA (1970), PhD (1970) Rice University
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 BM (1968) Eastman School of Music; Certificat d'Etudes (1970) Paris Conservatory; MM (1980) Emporia State University

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- Cannady, William Tillman, 1964. Professor of Architecture BArch (1961) University of California–Berkeley; MArch (1962) Harvard University
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- Cartwright Jr, Robert S., 1980. Professor of Computer Science BA (1971) Harvard College; MA (1973), PhD (1973) Stanford University
- Casbarian, John Joseph, 1973. Harry K. and Albert K. Smith Professor of Architecture BA (1969) Rice University; MFA (1971) California Institute of the Arts; BArch (1972) Rice University
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- Cates, Mary Susan, 2003. Lecturer of Biochemistry and Cell Biology BS (1995) University of Houston; PhD (2000) Rice University
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- Cevher, Volkan, 2010. Faculty Fellow of Electrical and Computer Engineering BS (1999) Bilkent University, Turkey; PhD (2005) Georgia Institute of Technology
- Chan, Anthony A., 1993. Professor of Physics and Astronomy BSc (1982), MSc (1984) University of Auckland; MA (1986), PhD (1989) Princeton University
- Chan, Jesse, 2013. Assistant Professor of Computational and Applied Mathematics BA (2008) Rice University; PhD (2013) University of Texas–Austin
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- Chen, Shih-Hui, 2000. Professor and Chair of Composition and Theory Diploma (1982) National Academy of the Arts, Taiwan; MM (1985) Northern Illinois University; DMA (1993) Boston University
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- Citino, Nathan, 2015. Associate Professor of History BA (1993) University of Notre Dame; MA (1998), PhD (1999) Ohio State University
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- Clark, Barbara, Associate Professor of Voice BM (1992) University of Arizona, MM (1996), DMA (2010) University of Cincinnati College-Conservatory of Music
- Clark Jr, John W., 1968. Professor of Electrical and Computer Engineering and Bioengineering BS (1962) Christian Brothers College; MS (1965), PhD (1967) Case Western Reserve University
- Clementi, Cecilia, 2001. Wiess Career Development Chair, Professor of Chemistry and of Chemical and Biomolecular Engineering
 BS (1995) University of Florence; MS (1996), PhD (1998) International School for Advanced Studies, Italy
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- Cohan, Dinah A., 2009. Assistant Professor of Marketing MA, MS (1999) Ulyanovsk State University, Russia; PhD (2009) Duke University
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- Cook, David, 2001. Associate Professor of Religion, Associate of Brown College BA (1994), MA (1996) Hebrew University; PhD (2001) University of Chicago
- Cooper, Keith D., 1990. L. John and Ann H. Doerr Chair in Computational Engineering, Professor of Computer

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- Costello, Leo, 2005. Associate Professor of Art History BA (1993) Skidmore College; MA (1996) American University–Washington, D.C.; MA (1999), PhD (2002) Bryn Mawr College
- Cowan, Kenneth, 2012. Associate Professor of Organ BMus (1997) Curtis Institute of Music; MMus (1999), Artist Diploma (2000) Yale University School of Music
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- Cox, Steven J., 1988. Professor of Computational and Applied Mathematics BS (1982), MS (1983) Marquette University; PhD (1988) Rensselaer Polytechnic Institute
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- Cronin, Justin C., 2003. Writer-in-Residence BA (1984) Harvard University; MFA (1989) University of Iowa
- Crossey, Diane, 2015. Professor in the Practice of Sport Management BBA (1992), MS (1994) University of Massachusetts
- Crotty, Kevin, 2012. Assistant Professor of Finance BMus (2004), MAcco (2005) University of North Carolina; PhD (2012) Kellogg School of Management, Northwestern University
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- Dunham, Amy E., 2007. Assistant Professor of Ecology and Evolutionary Biology BA (1995) Connecticut College; PhD (2003) State University of New York–Stony Brook
- Dunham, James F., 2001. Professor of Viola and Chamber Music BFA (1972), MFA (1974) California Institute of the Arts
- Dunn, Susan, 2002. Artist Teacher of Voice BMus (1985), Graduate Diploma of Music (1987) Queensland Conservatorium of Music
- Dunning, F. Barry, 1972. Sam and Helen Worden Professor of Physics and Astronomy BSc (1966), PhD (1969) University College, London
- **Duno-Gottberg, Luis**, 2008. Associate Professor of Spanish, Portuguese and Latin American Studies, Department Chair of Spanish, Portuguese and Latin American Studies
 - BA (1994) Universidad Central de Venezuela; MA (1996), PhD (2000) University of Pittsburgh
- Eagleman, David M., 2011. Adjunct Assistant Professor of Electrical and Computer Engineering BA (1993) Rice University; PhD (1998) Baylor College of Medicine
- Ecklund, Elaine Howard, 2008. Herbert S. Autrey Chair and Professor of Sociology BS (1995), MA (2001), PhD (2004) Cornell University

Ecklund, Karl M., 2008. Associate Professor of Physics and Astronomy AB (1989) Princeton University; PhD (1996) Stanford University

- Egan, Scott, 2014. Assistant Professor of Ecology and Evolutionary Biology BA (1999) University of Texas–Austin; MS (2004) Texas State University–San Marcos, PhD (2010) Vanderbilt University
- Eich, Elizabeth, 2006. Lecturer of Biochemistry and Cell Biology BS (1998) Texas A&M University; PhD (2005) Rice University
- El-Bakry, Amr, 1998. Adjunct Professor of Computational and Applied Mathematics BS (1984) Alexandria University, Egypt; MA (1990), PhD (1991) Rice University
- El-Dahdah, Farès, 1996. Professor of Humanities BFA (1986), BArch (1987) Rhode Island School of Design; MAUD (1989), DDes (1992) Harvard University
- El-Gamal, Mahmoud A., 1998. Chair of Islamic Economics, Finance, and Management; Professor of Economics; Professor of Statistics
 BA (1983), MA (1985) American University, Cairo; MS (1985) Stanford University; PhD (1988) Northwestern University
- Ellenzweig, Sarah, 2000. Associate Professor of English BA (1990) Wesleyan University; MS (1996), PhD (2000) Rutgers University

Elliott, James, 2014. Professor of Sociology in the School of Social Sciences BA (1989) University of California–Santa Cruz; MS (1992), PhD (1997) University of Wisconsin–Madison

- Ellison, Paul V. H., 1975. Lynette S. Autrey Professor of Double Bass, Chair of Strings BME (1965) Eastern New Mexico University; MM (1966) Northwestern University
- Emami, Maryam, 2010. Lecturer of French BA (1997), MA (1999) Teheran Azad Shomal University, Iran; MA (2005) University of California–Santa Barbara
- Emden, Christian, 2003. Professor of German Studies BA (1995), BA (1996) University of Konstanz; MPhil (1997), PhD (2000) University of Cambridge
- Engel, Paul S., 1970. Professor of Chemistry BS (1964) University of California at Los Angeles; PhD (1968) Harvard University
- Engelhardt Jr., Hugo Tristram, 1982. Professor of Philosophy BA (1963), PhD (1969) University of Texas–Austin; MD (1972) Tulane University School of Medicine
- Englebretson, Robert, 2000. Associate Professor of Linguistics BA (1992), MA (1996), PhD (2000) University of California–Santa Barbara
- Ensor, Katherine Bennett, 1987. Professor of Statistics BSE (1981), MS (1982) Arkansas State University; PhD (1986) Texas A&M University
- Eraslan, Hülya, 2014. Ralph S. O'Connor Chair in Economics, Professor of Economics, and Department Chair of Economics BS (1991) Bilkent University; MA (1994) State University of New York-Buffalo, PhD (2001) University of Minnesota
- Ernst, Philip A., 2014. Assistant Professor of Statistics AB (2007) Harvard University; AM (2010), PhD (2014) University of Pennsylvania
- Esarey, Justin, 2012. Assistant Professor of Political Science BA and BS (2002) Bowling Green State University; MS (2004) Florida State University; PhD (2008) Florida State University
- Etnyre, Bruce, 1984. Professor of Kinesiology BS (1973) Valparaiso University; MS (1977) Purdue University; PhD (1984) University of Texas–Austin
- Fagundes, Christopher P., 2015. Assistant Professor of Psychology BA (2005) University of California, Davis; MS (2008), PhD (2010) University of Utah

- Fang, Songying, 2009. Associate Professor of Political Science
 BS (1990) Science and Technology University of Beijing; MA (1996) Renmin University of China; MA (2000)
 Binghamton University SUNY; PhD (2006) University of Rochester
- Fanger, Claire, 2009. Associate Professor of Religion BA (1979) Reed College; MA (1983) Boston University; MA (1987), PhD (1994) University of Toronto
- Farach- Carson, Mary C., 2009. Ralph and Dorothy Looney Professor of Biochemistry and Cell Biology and Bioengineering, Vice Provost for Translational Biosciences (on leave)
 BS (1978) University of South Carolina; PhD (1982) Medical College of Virginia/Virginia Commonwealth University
- Farajzadeh, Rouhollah, 2015. Adjunct Associate Professor of Chemical and Biomolecular Engineering BS (2001) AmirKabir University of Technology; MS (2004), PhD (2008) Delft University of Technology
- Faubion, James D., 1993. Professor of Anthropology, Radoslav A. Tsanoff Chair of Public Affairs in the Department of Anthropology, Associate of Jones College
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- Feeback, Daniel L., 1997. Adjunct Professor of Biochemistry and Cell Biology BS (1978) Missouri Western State College; PhD (1982) University of Oklahoma Health Sciences Center
- Fernández, Esther, 2015. Assistant Professor of Spanish, Portuguese and Latin American Studies Dottore in Matematica (1985) Universitá di Padova, Italy; MS (1987), PhD (1989) University of California–Berkeley
- Farnsworth, Heber, 2016. Visiting Assistant Professor of Finance & Economics BA (1992) Brigham Young University; PhD (1997) University of Washington
- Ferris, David, 1998. Associate Professor of Musicology BM (1982) New England Conservatory; PhD (1993) Brandeis University
- Festa, Elizabeth A., 2007. Lecturer in the Program in Writing and Communication BA (1995) University of Notre Dame; MA (2000), PhD (2007) Vanderbilt University
- Fette, Julie, 2005.Associate Professor of French Studies BS (1989) Georgetown University; MA (1994) New York University; DEA (1995) Ecole Normale Superieure & Ecole des Hautes Etudes en Science; M Phil (1997) New York University; Doctorat (2001) Ecole des Hautes Etudes en Sciences; PhD (2001) New York University
- Few Jr, Arthur A., 1970. Research Professor in Physics and Astronomy BS (1962) Southwestern University; MBS (1965) University of Colorado; PhD (1969) Rice University
- Finley, Dawn, 2001. Associate Professor of Architecture BS (1993) University of Michigan; MArch (1999) Rice University
- **Fischer, Jeanne K**., 1992. Artist Teacher of Piano and Collaborative Skills BMus (1971) Oberlin College; MMus (1977) New England Conservatory of Music
- Fischer, Norman, 1992. Herbert S. Autrey Professor of Cello BMus (1971) Oberlin College
- Fischer-Baum, Simon J., 2012. Assistant Professor of Psychology BA (2003) Columbia University; PhD (2010) Johns Hopkins University
- Fisher, Ronald E., 2002. Adjunct Assistant Professor of Psychology BA (1982) Brandeis University; PhD (1990), MD (1991) Baylor College of Medicine
- Fleck, Jonathan, 2016. Lecturer of Spanish BA (2008) University of Chicago; PhD (2016) University of Texas–Austin
- Fleishacker, Alan, 2003. Senior Lecturer of Architecture BA (1973) Oklahoma State University; JD (1976) University of Oklahoma

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- Fleming, Jefferson D., 1993. Fayez Sarofim Vanguard Professor of Finance, Deputy Dean of Academic Affairs in the Jesse H.
 Jones Graduate School of Business
 BA (1987) Cornell College; MBA (1989), PhD (1993) Duke University
- Foote, Jill, 2003. Senior Lecturer of Finance BA (1987) Rice University; MA (1992) New York University; PhD (2002) Fordham University
- Foster, Aaron, 2011. Adjunct Assistant Professor of Bioengineering BA (1994) University of Puget Sound; PhD (2003) University of Sydney, Australia
- Foster, Matthew S., 2012. Assistant Professor of Physics and Astronomy
 B. of Eng. (2000) The Cooper Union for the Advancement of Science and Art; PhD (2006) University of California, Santa Barbara
- Fox, David Stephen, 1990. Lecturer of Architecture BA (1973), BArch (1975) Rice University
- Fox, Jeremy, 2015. Associate Professor of Economics BA (1998) Rice University; MA (2003), PhD (2003) Stanford University
- Fox, Robert O., 2003. Adjunct Professor of Biochemistry and Cell Biology BS (1976) University of Pittsburgh; MPhil (1978), PhD (1981) Yale University
- Franklin, Amy, 2009. Adjunct Assistant Professor of Cognitive Sciences BS (1999) University of Houston; MA (2007), PhD (2007) University of Chicago
- Frantz, Gene, 2012. Professor in the Practice of Electrical and Computer Engineering BSEE (1971) University of Central Florida; MSEE (1977) Southern Methodist University; MBA (1982) Texas Tech University
- **Fraser, Charles D.**, 2005. Adjunct Professor of Bioengineering BA (1980) University of Texas–Austin; MD (1984) University of Texas Medical Branch– Galveston
- French, Christopher, 1999. Artist Teacher of Cello Orchestral Repertoire BMus (1982) North Park University
- French, Melodie, 2016. Assistant Professor of Earth Science BA (2006) Oberlin College; MS (2009) University of Wisconsin–Madison; PhD (2014) Texas A&M University
- Fronczyk, Kassandra, 2011. VIGRE Postdoctoral Instructor BS (2006), MS (2007) Brigham Young University; PhD (2011) University of California-Santa Cruz
- Fu, Liang, 2010. Lecturer of Chinese BA (1991) Central China Normal University; MA (1999) Beijing University of Aeronautics and Astronautics; MBA (2002) Miami University
- Fukuyama, Tohru, 1995. Adjunct Professor of Chemistry BS (1971), MS (1973) Nagoya University; PhD (1977) Harvard University
- Furr, James, 2003. Senior Lecturer of Architecture BArch (1969) Louisiana State University
- Gabbiani, Fabrizio, 2004. Adjunct Professor of Computational and Applied Mathematics
 MS (1989) Swiss Federal Institute of Technology, Switzerland; PhD (1992) Institute of Theoretical Physics, Switzerland
- Gao, Zhiyong, 1986. Associate Professor of Mathematics BA (1979) Fudan University; PhD (1984) State University of New York–Stony Brook
- Garcia-Cruz, Kevin D., 2015. Lecturer of Spanish BA (2009), MA (2011) University of California Irvine

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Geurts, Franciscus Johannes Maria, 2008. Associate Professor of Physics and Astronomy Propedeuse Physics (1988), MS (1992), PhD (1998) Universiteit Utrecht, The Netherlands

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- Girault, Vivette Claire, 2014. Visiting Professor of Computational and Applied Mathematics BS (1963) McGill University; PhD (1996) Faculté des Sciences de Paris; Habilitation (2002) Université Pierre et Marie Curie
- Glassberg, Jeffrey, 2007. Adjunct Professor of Ecology and Evolutionary Biology BS (1969) Tufts University; PhD (1976) Rice University; JD (1993) Columbia University School of Law

Glick, William H., 2005. H. J. Nelson III Professor of Management AB (1975) University of Michigan; PhD (1981) University of California–Berkeley

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Gonnermann, Helge, 2009. Associate Professor of Earth Science BA (1992) University of Montana; MS (1995) University of Arizona–Tucson; PhD (2004) University of California– Berkeley

Gonzalez, Ramon, 2005. Professor of Chemical and Biomolecular Engineering, Professor of Bioengineering

BS (1993) Central University of Las Villas, Cuba; MS (1999) Catholic University of Valparaiso, Chile; PhD (2001) University of Chile

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Gordon, Richard G., 1995. W. M. Keck Professor of Earth Science, Associate of Lovett College BA (1975) University of California–Santa Cruz; MS (1977), PhD (1979) Stanford University

Gorlova, Olga Y., (2004) Adjunct Associate Professor of Statistics MSc (1992) Novosibirsk University; PhD (2000) Novosibirsk University

Gorman, Bridget K., 2002. Professor of Sociology, Department Chair of Sociology, Master of Will Rice College BA (1994) Western Washington University; MA (1996), PhD (2000) Pennsylvania State University

Gottschalk, Arthur W., 1977. Professor of Composition and Theory BMus (1974), MA (1975), DMA (1978) University of Michigan

Grande-Allen, Kathryn Jane, 2003. Professor of Bioengineering BA (1991) Transylvania University; PhD (1998) University of Washington

Grandy, Richard E., 1980. Carolyn and Fred McManis Professor of Philosophy, Professor of Philosophy BA (1963) University of Pittsburgh; MA (1965), PhD (1968) Princeton University

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Greiner, John, 1997. Lecturer of Computer Science BA (1989) Rice University; MS (1992), PhD (1997) Carnegie Mellon University

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Griffin, Robert, J., 2008. Professor of Civil and Environmental Engineering, Department Chair of Civil and Environmental Engineering

BS (1993) Tufts University; MS (1997), PhD (2000) California Institute of Technology

Gruber, Ira Dempsey, 1966. Research Professor of History AB (1955), MA (1959), PhD (1961) Duke University

Grullon, Gustavo, 1998. Jesse H. Jones Professor of Finance BBA (1991) University of Puerto Rico; PhD (1998) Cornell University

Guerra, Rudy, 2001. Professor of Statistics BS (1984) University of Texas–San Antonio; MA (1987), PhD (1992) University of California–Berkeley

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Guindani, Michele, 2011. Adjunct Professor of Statistics BS (2001), MS (2001), PhD (2005) Universita Commerciale Luigi Bocconi

Gürcanlı, Özge, 2012. Lecturer of Psychology BA (2002), MA (2006) Boğaziçi University; PhD (2012) Johns Hopkins University

Gurewitz, Omer, 2012. Adjunct Lecturer in Electrical and Computer Engineering BA (1990) Ben Gurion University of the Negev-Beer Sheva; MS (2000), PhD (2005) Technion-Israel Institute of Technology-Haifa

- Gustin, Michael C., 1988. Professor of Biochemistry and Cell Biology AB (1974) Johns Hopkins University; PhD (1981) Yale University
- Guthrie Shimizu, Sayuri, 2014. Dunlevie Family Chair in History and Professor of History BA (1982) Sophia University; JD (1987) Hitosubashi University; MA (1989), PhD (1992) Cornell University
- Gutiérrez, Manuel, 2010. Assistant Professor of Spanish, Portuguese and Latin American Studies BA (2001), MA (2003) University of California–Santa Cruz; MA (2007), PhD (2009) University of California–Los Angeles
- Hafner, Jason H., 2001. Associate Professor of Physics and Astronomy and of Chemistry BS (1993) Trinity University; MA (1996), PhD (1998) Rice University
- Halas, Naomi J., 1989. Stanley C. Moore Professor of Electrical and Computer Engineering, Professor of Chemistry, of Bioengineering, of Physics and Astronomy, and of Materials Science and NanoEngineering BA (1980) La Salle College; MA (1984), PhD (1986) Bryn Mawr College
- Halen, Eric, 2008. Artist Teacher of Violin Orchestral Repertoire BM (1977) Central Missouri State University; MM (1979) University of Illinois
- Hall, Randal L., 2008. Associate Professor of History BA (1994) Wake Forest University; MA (1997), PhD (1998) Rice University
- Hamadeh, Shirine T., 2003. Associate Professor of Art History BArch (1984) American University of Beirut; MArch (1987) Rice University; PhD (1999) Massachusetts Institute of Technology
- Hamm, Keith Edward, 1988. Thomas Cook and Mary Elizabeth Edwards Memorial Chair in American Government, Professor of Political Science

AB (1969) Franklin and Marshall College; MA (1972) Florida Atlantic University; PhD (1977) University of Wisconsin– Milwaukee

- Han, Jung Won, 2005. Lecturer of Korean BA (1968), Taejun Presbyterian College, Korea; MA (1997) University of Houston
- Hand, Paul, 2014. Assistant Professor of Computational and Applied Mathematics BS (2004) California Institute of Technology; PhD (2009) New York University
- Hanten, Gerri R., 2011. Adjunct Associate Professor of Psychology BS (1974) Oklahoma State University; MA (1997), PhD (2000) Rice University
- Haptonstall, Clark D., 2003. Professor in the Practice of Sport Management, Director of the Sport Management Program, Department Chair of Sport Management BA (1991), MS (1993) Marshall University; PhD (2005) Florida State University
- Haque, Moyeen, 1988. Lecturer of Civil and Environmental Engineering
 BS (1978) Aligark Muslim University; MS (1982) University of Petroleum and Minerals; PhD (1988) University of Texas–Austin
- Hardt, Robert M., 1988. W. L. Moody Professor of Mathematics BS (1967) Massachusetts Institute of Technology; PhD (1971) Brown University
- Harrington, Daniel A., 2009. Faculty Fellow in Biochemistry and Cell Biology BS (1996), PhD (2004) Northwestern University
- Harris, Paul M. "Mitch," 2000. Adjunct Professor of Earth Science BS (1971), MS (1973) West Virginia University; PhD (1977) University of Miami
- Harter, Deborah A., 1990. Associate Professor of French BA (1973) University of California–Los Angeles; MA (1980), PhD (1989) University of California–Berkeley

Hartgerink, Jeffrey D., 2002. Professor of Chemistry and of Bioengineering, Associate Department Chair for Graduate Studies

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Hartigan, Patrick M., 1994. Professor of Physics and Astronomy BS (1981) University of Minnesota; PhD (1987) University of Arizona

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Hawley, Richard, 2011. Professor of Clarinet BM (1992) Curtis Institute of Music

Hazzard, Kaden, 2014. Assistant Professor of Physics and Astronomy BS (2004) Ohio State University; MS (2009), PhD (2010) Cornell University

He, Yinghua, 2016. Assistant Professor of Economics BA (2001) University of International Business and Economics, Beijing; MA (2004) Peking University; PhD (2011) Columbia University

Hebl, Michelle "Mikki" R., 1998. Martha and Henry Malcolm Lovett Chair of Psychology, Professor of Psychology, Professor of Management

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Heinkenschloss, Matthias, 1996. Professor of Computational and Applied Mathematics BS (1988), PhD (1991) Universität Trier, Germany

Hemmer, Thomas, 2009. Houston Endowment Professor of Accounting BA (1984), MBA (1986), PhD (1990) Odense University, Denmark

Hennessy, Rosemary, 2006. L.V. Favrot Chair in Humanities, Professor of English Literature, Department Chair of English Director of the Center for the Study of Women, Gender, and Sexuality BA (1972) University of Pennsylvania; MA (1976) Temple University; PhD (1990) Syracuse University

Henze, Matthias, 1997. Isla Carroll and Percy E. Turner Professor of Biblical Studies and Professor of Religion MDiv (1992) University of Heidelberg; PhD (1997) Harvard University

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Hewitt, Janice, 1999. Senior Lecturer of Professional Communications in the School of Engineering BA, University of Michigan; MA (1986) PhD (1997) Rice University

Heydorn, Richard P., 1998. Adjunct Professor of Statistics BEE (1958), MA (1964) University of Akron; PhD (1971) Ohio State University

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BS (1995) Tennessee State University, MS (1997), PhD (2001) Rensselaer Polytechnic University

Hight, Christopher, 2003. Associate Professor of Architecture BA (1993), BArch (1995) Rice University; MA (1997) Architectural Association; PhD (2003) University of London

Hill, N. Ross, 2010. Adjunct Professor of Earth Science BS (1971) Louisiana State University; MS (1973) University of New Orleans; PhD (1978) University of Virginia

- Hirasaki, George J., 1989. Research Professor of Chemical and Biomolecular Engineering BS (1963) Lamar University; PhD (1967) Rice University
- Hirschi, Kendal, 2003. Adjunct Professor of Biochemistry and Cell Biology BA (1984) University of Arizona; MS (1988) Arizona State University; PhD (1993) University of Arizona
- Ho, Vivian, 2004. James A. Baker III Institute Chair in Health Economics, Professor of Economics BA (1984) Harvard; PhD (1992) Stanford University
- Hobby, William P., 1989. Radoslav A. Tsanoff Professor of Public Affairs BA (1953) Rice Institute
- Hochberg, Scott, 2013. Lecturer of Education BA (1975), MEE (1976) Rice University
- Hochberg, Yael, 2013. Ralph S. O'Connor Associate Professor in Finance and Entrepreneurship BSc (1997) Israel Institute of Technology; MA (2000), PhD (2003) Stanford University
- Hoebig, Desmond, 2008. Professor of Cello BM (1982), MM (1983) The Juilliard School of Music
- Hohl, Detlef, 2016. Adjunct Professor of Computational and Applied Mathematics
 MS (1985) Technical University Munich, Germany; PhD (1989); Habilitation (1997) Technical University Aachen, Germany
- Hokanson, David A., 2000. Adjunct Assistant Professor of Chemical and Biomolecular Engineering BS (1977), MChE (1978) Rice University
- Hopkins, John, 2013. Assistant Professor of Art History and Classical and European Studies BS (2001) Northwestern University, MA (2004), PhD (2010) University of Texas-Austin
- Hoskisson, Robert E., 2009. George R. Brown Professor of Strategic Management BS (1973), MA (1975) Brigham Young University; PhD (1984) University of California–Irvine
- Hotez, Peter Jay, 2011. Adjunct Professor of Bioengineering BA (1980) Yale University; PhD (1986) Rockefeller University; MD (1987) Cornell University
- Hou, Jerry, 2014. Associate Conductor
 BM (1999) University of Minnisota; MM (2003) Rice University; Performance Certificate (2008) Royal Northern
 College of Music; DMA (2014) Eastman School of Music
- Houchens, Brent C., 2005. Adjunct Assistant Professor of Materials Science and NanoEngineering BS (2000), MS (2002), PhD (2005) University of Illinois–Urbana-Champaign
- Houlik-Ritchey, Emily, 2015. Assistant Professor of English BA (2002) The University of the South; MA (2007), PhD (2013) Indiana University
- House, Waylon V., 1986. Adjunct Associate Professor of Chemical and Biomolecular Engineering BS (1966) Massachusetts Institute of Technology; MS (1969), PhD (1974) University of Pittsburgh
- Howe, A. Cymene, 2009. Associate Professor of Anthropology BA (1992) University of California–Berkeley; MA (1999), PhD (2003) University of New Mexico
- Huang, Huey W., 1973. Sam and Helen Worden Chair of Physics and Astronomy BS (1962) National Taiwan University; PhD (1967) Cornell University

Huang, Shih-Shan, Susan, 2006. Associate Professor of Art History

- BA (1991) National Taiwan University; MA (1995) National University of Taiwan; PhD(2002) Yale University
- Huang, Wen, 2016. Pfeiffer Postdoctoral Instructor of Computational and Applied Mathematics BS (2007) University of Science and Technology of China; MS (2011), PhD (2014) Florida State University
- Huang, Xuelin, 2008. Adjunct Associate Professor of Statistics BS (1994) Peking University, China; MS (1997) Texas A&M University; PhD (2002) University of Michigan
- Huberman, Brian Michael, 1975. Associate Professor of Visual Arts MFA Equivalent (1974) National Film School of Great Britain
- Hudspeth, C. M., 1947. Lecturer of Political Science BA (1940) Rice Institute; JD (1946) University of Texas–Austin
- Hughes, Gordon, 2008. Mellon Associate Professor of Art History
 BFA (1989) Nova Scotia College of Art and Design; MFA (1992) University of Illinois–Chicago; MA (1996) University
 of Western Ontario; PhD (2004) Princeton University
- Hughes, Thomas J. R., 2002. Adjunct Professor of Mechanical Engineering BS (1965), MS (1967) Pratt Institute; MS (1974), PhD (1974) University of California–Berkeley
- Hulet, Randall G., 1987. Fayez Sarofim Professor of Physics and Astronomy BS (1978) Stanford University; PhD (1984) Massachusetts Institute of Technology
- Hund, John, 2006. Visiting Assistant Professor of Finance BA (1987) Williams College; PhD (2000) University of Texas-Austin
- Hunter, Allison, 2012. Artist in Residence in Visual and Dramatic Arts BFA (1989) Ecole Cantonale d'Art Lausanne; MFA (1990) Ecole Cantonale d'Art Lausanne, MFA (1997) Rensselaer Polytechnic Institute
- Hutchinson, John S., 1983. Dean of Undergraduates, Professor of Chemistry BS (1977), PhD (1981) University of Texas–Austin
- Iammarino, Nicholas K., 1978. Professor of Kinesiology, Department Chair of Kinesiology BS (1973) University of Dayton; MEd (1975) University of Toledo; PhD (1978) Ohio State University
- Igoshin, Oleg A., 2006. Associate Professor of Bioengineering BSc (1998) Novosibirsk State University; MSc (2000) Weizmann Institute of Science, Israel; PhD (2004) University of California at Berkeley
- Irish, Maya Soifer, 2010. Assistant Professor of History BA (1995), MA (2000) University of Colorado–Colorado Springs; PhD (2007) Princeton University
- Isella, Andrea, 2014. Assistant Professor of Physics and Astronomy MS (2003), PhD (2006) Università degli Studi di Milano
- Jaber, Thomas I., 1988. Professor of Music, Director of Choral Ensembles BME (1974) Arkansas State University; MMus (1976) Indiana University; Performer's Certificate (1977) Curtis Institute of Music
- Jacot, Jeffrey G., 2008. Associate Professor of Bioengineering BS (1994) University of Colorado–Boulder; PhD (2005) Boston University
- Jalbert, Pierre D., 1996. Professor of Composition and Theory BM (1989) Oberlin Conservatory of Music; PhD (1993) University of Pennsylvania
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- Ji, Yuan, 2008. Adjunct Associate Professor of Statistics BS (1997) Fudan University; MS (1999) University of Minnesota; PhD (2003) University of Wisconsin
- Jimenez, Carlos, 1997. Professor of Architecture BArch (1981) University of Houston
- John, Randy, 2015. Lecturer in Materials Science and NanoEngineering BS (1976), MS (1977), PhD (1979) Ohio State University
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- Johnson, David B., 2000. Professor of Computer Science and of Electrical and Computer Engineering BA (1982), MS (1985), PhD (1990) Rice University
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- Jones Jr, B. Frank, 1962. Noah Harding Professor of Mathematics BA (1958) Rice Institute; PhD (1961) Rice University
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- Jones, Steven L., 2015. Lecturer in Kinesiology BS (1977) Baylor University; MA (2002) Bryn Mawr College; PhD (2008) University of Texas–Austin
- Jones, Thomas A., 2003. Adjunct Professor of Earth Science BS (1964), MS (1967) Colorado State University; MS (1968), PhD (1969) Northwestern University
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Ostdiek, Donald, 1995. Policy Studies Director, Associate Dean of Undergraduates BA (1988), MA (1990) University of Nebraska; PhD (1995) University of North Carolina

Ostherr, Kirsten, 2002. Professor of English BA (1993) Reed College; MA (1997), PhD (2001) Brown University

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Overall, John E., 1983. Adjunct Professor of Psychology BS (1954) Trinity University; MA (1956), PhD (1958) University of Texas–Austin

Ozaki, Naoko, 2015. Lecturer of Japanese BA (1997) University of Arizona; MS (2005), PhD (2011) Indiana University

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Padley, B. Paul, 1996. Professor of Physics and Astronomy BS (1981) York University; MS (1984), PhD (1987) University of Toronto

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Pai, Mallesh, 2016. Assistant Professor of Economics BTech (2004) Indian Institute of Technology; PhD (2010) Northwestern University

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Panahi, Hesam, 2016. Lecturer in Management BBA (2005) University of Houston; PhD (2010) University of Houston

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Parker, Jon Kimura, 2000. Professor of Piano BMus, MMus (1981), DMA (1989) Juilliard School of Music

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Parsons, Spencer W., 1969. Associate Professor of Architecture BA (1953) University of Michigan; MArch (1963) Harvard University

- Parsons, William B., 1993. Professor of Religion, Associate of Brown College BA (1979) Brandeis University; MDiv (1982) Yale University; PhD (1993) University of Chicago
- Pasquali, Matteo, 1999. Professor of Chemical and Biomolecular Engineering, of Materials Science and NanoEngineering, and of Chemistry, Department Chair of Chemistry MS (1992) University of Bologna; PhD (1999) University of Minnesota
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- Pazgal, Amit, 2006. Friedkin Chair in Management, Professor of Marketing BS (1987), MS (1992) Tel Aviv University; PhD (1997) Northwestern University
- Peaceman, Donald W., 1983. Adjunct Professor of Computational and Applied Mathematics BChE (1947) College of the City of New York; ScD (1952) Massachusetts Institute of Technology
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- Pellis, Neil R., 1997. Adjunct Professor in the Mabee Laboratory
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- Perrigne, Isabelle, 2012. Professor of Economics BS (1984) Université de Toulouse; MS (1985) Université de Toulouse; PhD (1991) Université de Toulouse
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 - BA (1986) Columbia University; MDiv (1989) Harvard Divinity School; MA (1991), PhD (1994) Harvard University
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 University
- Rosenberg, Susan M., 2009. Adjunct Professor of Biochemistry and Cell Biology BA (1980) State University of New York–Potsdam; MS (1981), PhD (1986) University of Oregon
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- Rountree, Brian R., 2003. Associate Professor of Accounting BS (1996) Babson College; PhD (2003) University of North Carolina–Chapel Hill
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- Rudolf, Volker H. W., 2007. Associate Professor of Ecology and Evolutionary Biology BS (2000) University of Regensburg; MS (2003) Julius-Maximilians-Universität Wurzburg; PhD (2007) University of Virginia
- Rusin, Craig, 2013. Adjunct Assistant Professor of Computational and Applied Mathematics BSE (2001) Princeton University; PhD (2009) University of Virginia
- Rusk, Jerrold G., 2006. Professor of Political Science BS (1963) Brigham Young University; PhD (1968) University of Michigan
- Ryang, Sonia, 2014. T.T. and W.F. Chao Center Professor of Asian Studies, Director of the Chao Center for Asian Studies

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- Sabharwal, Ashutosh, 2001.Professor of Electrical and Computer Engineering BTech (1993) Indian Institute of Technology; MS (1995), PhD (1999) Ohio State University
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- Santos, Helede, 2014. Lecturer of Spanish

BS (1994), BA (2000), MA (2005) Universidade de São Paulo; PhD (2013) University of Illinois at Urbana-Champaign

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 BTech (1981) Indian Institute of Technology, Kanpur, India; MS (1982) University of Wisconsin–Madison; PhD (1987) Stanford University
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- Sawyer, Dale S., 1988. Professor of Earth Science, Master of Sid Richardson College BS (1976) Purdue University; PhD (1982) Massachusetts Institute of Technology
- Saxer Quance, Gerda, 2011. Faculty Fellow, Biochemistry and Cell Biology MS (1998) University of Zurich; PhD (2005) University of Houston
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- Sazykin, Stanislav, 2005. Senior Faculty Fellow in Physics and Astronomy
 BS (1994) Utah State University; MS (1996) Moscow Institute of Physics and Technology; PhD (2000) Utah State University
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- Schanding, G. Thomas, 2013. Lecturer of Education BA (2001) Western Kentucky University; MA (2004), PhD (2006) University of Southern Mississippi
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- Schuler, Douglas A., 1992. Associate Professor of Business and Public Policy BS (1985) University of California–Berkeley; PhD (1992) University of Minnesota
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 BS (1979), PhD (1983) University of Buenos Aires
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 BS (2002) Sharif University of Technology, Iran; MS (2005) McGill University, Canada; PhD (2010)
 Massachusetts Institute of Technology
- Shamoo, Yousif, 1998.Vice Provost for Research, Professor of Biochemistry and Cell Biology BS (1983) Carnegie Mellon University; PhD (1988) Yale University
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- Shanks, Jacqueline, 2002, Adjunct Professor of Bioengineering BS (1983) Iowa State University; PhD (1989) California Institute of Technology
- Shaw, Chad A., 2004. Adjunct Assistant Professor of Statistics BS (1995) Duke University; PhD (2001) Rice University
- Sheafor, Stephen J., 2002. Adjunct Professor of Electrical and Computer Engineering BS (1972), MEE (1972), Rice University; PhD (1974) University of Illinois; MBA (1979) Santa Clara University
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- Sher, George, 1991. Herbert S. Autrey Professor of Philosophy, Professor of Philosophy BA (1964) Brandeis University; PhD (1972) Columbia University
- Shete, Sanjay S., 2007. Adjunct Professor of Statistics BS (1987), MS (1989), M.Phil (1993) Shivaji University, India; PhD (1998) University of Georgia
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- Shipp, Stephanie S., 2000. Adjunct Assistant Professor of Earth Science BS (1988) University of Maine; PhD (1999) Rice University
- Shouval, Harel, 2004. Adjunct Associate Professor of Computational and Applied Mathematics BSc (1987) Tel Aviv University; MSc (1990) Weizmann Institute; PhD (1994) Brown University
- Shrivastava, Anshumali, 2015. Assistant Professor of Computer Science BS, MS (2008) Indian Institute of Technology, Kharagpur; PhD (2015) Cornell University
- Shumway, Nicolas, 2010. Dean of the School of Humanities, Frances Moody Newman Professor of Humanities, Professor of Spanish, Portuguese and Latin American Studies BA (1969) Brigham Young University; MA (1971), PhD (1976) University of California–Los Angeles
- Si, Qimiao, 1994. Harry C. and Olga K. Wiess Professor of Physics and Astronomy BS (1986) University of Science and Technology of China; PhD (1991) University of Chicago
- Sickles, Robin, 1985. Reginald Henry Hargrove Chair in Economics and Professor of Statistics BS (1972) Georgia Institute of Technology; PhD (1976) University of North Carolina
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- Siemann, Evan, 1998. Harry C. and Olga K. Wiess Professor of Ecology and Evolutionary Biology AB (1989) Cornell University; PhD (1997) University of Minnesota
- Siewert, Charles, 2010. Robert Alan and Kathryn Dunlevie Hayes Chair of Humanities, Professor of Philosophy BA (1983) Reed College; PhD (1994) University of California– Berkeley
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- Sonenshein, Scott, 2007. Henry Gardiner Symonds Professor of Management BA (1998) University of Virginia; MPhil (1999) University of Cambridge; PhD (2007) University of Michigan
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Stotts, Angela L., 2007. Adjunct Professor of Psychology BA (1986) University of Northern Iowa; MA (1989) Mankato State University; MA (1993), PhD (1996) University of Houston

Strait, Richard B., 2007. Adjunct Professor of Chemical and Biomolecular Engineering BS (1970) Ohio State University; MBA (1978) University of Tulsa

Strassmann, Diana, 2004. Carolyn & Fred McManis Distinguished Professor in the Practice of Humanities AB (1977) Princeton University; MA (1982), PhD (1983) Harvard University

Strauss, Matthew, 2015. Associate Professor of Percussion BMus (1966) Juilliard School of Music; MMus (1998) Temple University Stringer, Tish, 2012. Lecturer of Film, Film Program Manager BA (1997) University of Minnesota; PhD (2006) Rice University

Stroup, John M., 1988. Harry and Hazel Chavanne Professor of Religion, Professor of Religion AB (1968) Washington University; MDiv (1972) Concordia Seminary; MPhil (1975), PhD (1980) Yale University

Studer, Christoph, 2013. Adjunct Assistant Professor of Electrical and Computer Engineering MSc (2005), DrSc (2009) ETZ Zurich

St-Cyr, Amik, 2012. Adjunct Associate Professor of Computational and Applied Mathematics BS (1997), MS (1998), PhD (2002) University of Montreal

St-Pierre, François, 2016. Assistant Professor of Electrical and Computer Engineering BA (2002), MA (2005) University of Cambridge; PhD (2009) Massachusetts Institute of Technology

Subramanian, Devika, 1995. Professor of Computer Science and of Electrical and Computer Engineering BTech (1982) Indian Institute of Technology; MS (1984), PhD (1989) Stanford University

Suh, Junghae, (2007). Associate Professor of Bioengineering BS (1999) Massachusetts Institute of Technology; PhD (2004) Johns Hopkins University

Sumners, Carolyn, 1999. Adjunct Professor of Physics and Astronomy BA (1970) Vanderbilt University; MEd (1977), EdD (1979) University of Houston

Swint, John Michael, 1977. Adjunct Professor of Economics BA (1968) California State University–Humboldt; MA, PhD (1972) Rice University

Symes, William W., 1984. Noah Harding Chair of Computational and Applied Mathematics, Professor of Computational and Applied Mathematics, Professor of Earth Science BA (1971) University of California–Berkeley; PhD (1975) Harvard University

Tabor, Jeffrey J., 2010. Assistant Professor of Bioengineering BA (2001), PhD (2006) University of Texas–Austin

Taghikhani, Vahid, 2015. Adjunct Professor of Chemical and Biomolecular Engineering BS (1993), MS (1995), PhD (1998) Amirkabir University of Technology

Takizawa, Kenji, 2011. Adjunct Associate Professor in Mechanical Engineering BS (2001), MA (2002), PhD (2005) Tokyo Institute of Technology

Tandon, Nitin, 2012. Adjunct Professor of Electrical and Computer Engineering MBBS (1992) Armed Forces Medical College

Tang, Ming, 2014. Assistant Professor of Materials Science and NanoEngineering
 BS (1999), MS (2002) Shanghai Jiao Tong University, PhD (2008) Massachusetts Institute of Technology

Tang, Xun, 2014. Associate Professor of Economics
 BA (1998) Beijing Foreign Studies University; MPP (2003) University of Chicago; MA (2004), PhD (2008)
 Northwestern University

Tao, Yizhi Jane, 2002. Associate Professor of Biochemistry and Cell Biology BS (1992) Peking University; PhD (1999) Purdue University

Tapia, Richard A., 1970. University Professor, Maxfield-Oshman Professor of Computational and Applied Mathematics RA (1961) MA (1966). DhD (1967) University of California Las Appeles

BA (1961), MA (1966), PhD (1967) University of California–Los Angeles

Taylor, Matthew D., 2005. Associate Vice-Provost for Academic Affairs, Associate Dean of Undergraduates BA (1985) Southern Methodist University; MA (1989) Rice University; Ph.D. (1992) Rice University

Taylor, Rives T., 2003. Lecturer of Architecture BA (1982), BArch (1984) Rice University; MS (1988) Massachusetts Institute of Technology

- Tezduyar, Tayfun E., 1998. James F. Barbour Professor of Mechanical Engineering MS (1978), PhD (1982) California Institute of Technology
- Thomann, Isabell, 2012. Assistant Professor of Electrical and Computer Engineering and of Materials Science and NanoEngineering

MS (2001) Swiss Federal Institute of Technology; PhD (2009) University of Colorado at Boulder

Thomas, Edwin L., 2011. William and Stephanie Sick Dean of the George R. Brown School of Engineering, Professor of Materials Science and NanoEngineering and of Chemical and Biomolecular Engineering BS (1969) University of Massachusetts; PhD (1974) Cornell University

Thompson, Ewa M., 1970. Research Professor of Slavic Studies BA (1963) University of Warsaw; MFA (1963) Sopot Conservatory of Music, Poland; PhD (1967) Vanderbilt University

Thompson, Travis B., 2015. Pfeiffer Postdoctoral Instructor of Computational and Applied Mathematics BSc (2005) University of Texas–Dallas; MSc (2007) University of Iowa; PhD (2013) Texas A&M University

- Tittel, Frank K., 1967. J. S. Abercrombie Professor of Electrical and Computer Engineering BA (1955), MA, PhD (1959) Oxford University
- Tkaczyk, Tomasz, 2007. Associate Professor of Bioengineering MS (1994), PhD (2000) Warsaw University of Technology
- Tobin, David H., 2007. Senior Lecturer of Communications BA (1972) University of Michigan; MA (1974), PhD (1977) Princeton University
- Toffoletto, Frank R., 1996. Professor of Physics and Astronomy, Master of Martel College BS (1981) La Trobe University; PhD (1987) Rice University

Tolias, Andreas S., 2006. Adjunct Assistant Professor of Computational and Applied Mathematics and of Electrical and Computer Engineering

BA (1993), MA (1995) Cambridge University, U.K.; PhD (2000) Massachusetts Institute of Technology

Tomson, Mason B., 1977. Professor of Civil and Environmental Engineering BS (1967) Southwestern State College; PhD (1972) Oklahoma State University

- Torres, Mark, 2016. Assistant Professor of Earth Science BA (2010) Pitzer College; PhD (2015) University of Southern California
- Tour, James M., 1999. T. T. and W. F. Chao Professor of Chemistry, Computer Science, and of Materials Science and NanoEngineering
 BS (1981) Syracuse University; PhD (1986) Purdue University
- Tsai, Ah-Lim, 2007. Adjunct Professor of Biochemistry and Cell Biology BS (1974) National Taiwan University; PhD (1983) Rice University
- Tsai, Pei-Ting, 2006. Lecturer of Chinese BA (1997), MA (2005) National Central University, Taiwan
- Turi, Luziris Pineda, 2010. Lecturer of Spanish BA (2003), MA (2005) University of Houston
- Turley, Ruth N. Lopez, 2010. Professor of Sociology BA (1996) Stanford University; MA (1999), PhD (2001) Harvard University
- Vajtai, Robert, 2008. Senior Faculty Fellow in Materials Science and NanoEngineering MSc (1986) Jate University; PhD (1997) Szeged University, Hungary
- Van der Werff, Ivo-Jan, 2007. Professor of Viola, Master of Baker College Associate Hons (1980) Royal College of Music

VanHorn, David, 2007. Associate Professor in the Practice of Operations Management

- BS (1989); MEng (1990) Iowa State University; MBA (2000) Rice University
- Vannucci, Marina, 2006. Professor of Statistics, Department Chair of Statistics BS (1982), PhD (1996) University of Florence, Italy
- Vardi, Moshe, 1993. Karen Ostrum George Distinguished Service Professor of Computational Engineering, Professor of Computer Science
 BS (1975) Bar-Ilan University; MS (1980) Feinberg Graduate School of the Weizmann Institute of Science; PhD (1982) Hebrew University
- Vargas Arreola, Francisco M., 2013. Assistant Professor of Chemical and Biomolecular Engineering BS (1999), MS (2002) Technologico de Monterrey, Mexico; PhD (2009) Rice University
- Varilly-Alvarado, Anthony, 2009. Associate Professor of Mathematics AB (2003) Harvard University; PhD (2009) University of California–Berkeley
- Varman, Peter J., 1983. Professor of Electrical and Computer Engineering and Computer Science BTech (1978) Indian Institute of Technology, Kanpur; MSEE (1980), PhD (1983) University of Texas–Austin
- Vassallo Fernando, Jesus, 2013. Assistant Professor of Architecture BArch (2004) Escuela Superior de Architectura de Madrid, MA (2007) Harvard University, PhD (2014) Escuela Superior de Architetura de Madrid
- Vasudevan, Venu, 2009. Adjunct Assistant Professor of Electrical and Computer Engineering BS (1984) Indian Institute of Technology, New Delhi; PhD (1990) Ohio State University
- Veeraraghavan, Ashok, 2010. Assistant Professor of Electrical and Computer Engineering BS (2002) Indian Institute of Technology, Madras; MS (2004), PhD (2008) University of Maryland-- College Park
- Verduzco, Rafael, 2009. Associate Professor of Chemical and Biomolecular Engineering, and of Materials Science and NanoEngineering BS (2001) Rice University; MS (2003), PhD (2006) California Institute of Technology
- Verm, Karen Roethlisberger, 2016. Artist Teacher of Opera Studies BMus (1998) Syracuse University; MMus (2001), MMus (2002), Artist Diploma (2004) University of Cincinnati College-Conservatory of Music
- VerMeulen, William, 1990. Professor of French Horn
- Videa, Marcelo Vargas, 2011. Adjunct Associate Professor of Chemistry BSc (1993) Instituto Technologico y de Estudios Superiores de Monterrey; PhD (1999) Arizona State University
- Vieux, Baxter, 2003. Adjunct Professor of Civil and Environmental Engineering BS (1978) University of Kansas; MS (1982) Kansas State University; PhD (1988) Michigan State University
- Volz, Tracy, 1999. Professor of the Practice in Professional Communication, Director of the Program for Writing and Communication RA (1999) University of Jawa: MA (1998) RbD (2001) Rise University
 - BA (1989) University of Iowa; MA (1998), PhD (2001) Rice University
- Wagner, Daniel S., 2003. Associate Professor of Biochemistry and Cell Biology BA (1990) University of Texas; PhD (1997) University of Texas Health Science Center
- Waligora-Davis, Nicole, 2008. Associate Professor of English BA (1995) University of North Carolina–Chapel Hill; MA (1998), PhD (2001) Duke University
- Wallach, Dan Seth, 1998. Professor of Computer Science and of Electrical and Computer Engineering BS (1993) University of California–Berkeley; MA (1995), PhD (1998) Princeton University
- Wallach, Steve, 2010. Adjunct Professor of Computer Science BSEE (1966) Polytechnic University; MSEE (1967) University of Pennsylvania; MBA (1973) Boston University
- Wamble, Mark S., 1991. Professor in the Practice of Architecture BDes (1983) Texas A&M University; DiplSt (1987) Cambridge; MArch (1988) Harvard University

Wang, Sean, 2016. Visiting Assistant Professor of Finance BA (1996) Duke University; MA (1999) University of South Florida; MBA (2002) New York University; PhD (2009) Cornell University

Ward, Kerry R., 2001. Associate Professor of History, Associate of Lovett College BA (1983) University of Adelaide; BA (1985), MA (1992) University of Cape Town; PhD (2002) University of Michigan, Ann Arbor

Warren, Joe D., 1986. Professor of Computer Science BA (1983), MS (1985) Rice University; PhD (1986) Cornell University

Warren, Scott K., 1979. Adjunct Assistant Professor of Computer Science BA (1972), MA (1974), PhD (1976) Rice University

Watkins, Cornelia, 2009. Lecturer of Music BM (1983) The Hartt School, University of Hartford; MM (1974) University of Houston

Webster, Michael, 1997. Professor of Music BM (1966), MM (1967), DMA (1975) Eastman School of Music

Weckstrom Kantor, Virginia, 2012. Artist Teacher of Piano Chamber Music and Accompanying BA (1969) Western College of Women; MMus (1971) Yale University School of Music

Weininger, Melissa, 2015. Anna Smith Fine Lecturer in Jewish Studies BA (1996) Harvard University; PhD (2010) University of Chicago

Weisman, R. Bruce, 1979. Professor of Chemistry and of Materials Science and NanoEngineering BA (1971) Johns Hopkins University; PhD (1977) University of Chicago

Weissenberger, Klaus H. M., 1971. Professor of German Studies MA (1965) University of Hamburg, Germany; PhD (1967) University of Southern California

Wellington, Scott, 2011. Distinguished Faculty Fellow in Chemical and Biomolecular Engineering BA (1966) Hiram College; MS (1968) John Carroll University; PhD (1972) Case Western Reserve University

Westbrook, Robert A., 1989. William Alexander Kirkland Professor of Marketing AB (1969), MBA (1971), PhD (1975) University of Michigan

Weston, James P., 2000. Harmon Whittington Chair in Finance BA (1993) Trinity College; MA (1996), PhD (2000) University of Virginia

Wetter, David W., 2014. Elma W. Schneider Chair in Psychology, Professor of Psychology BA (1982) Whitman College; MS (1988) University of Oregon; MS, PhD (1993) University of Wisconsin–Madison

Whitaker, Jarrett Reid, 2013. Professor in the Practice in Digital Learning BS (2002) University of Texas-Austin, MEd (2004) University of St. Thomas, PhD (2002) University of Texas-Austin

White, Frank S., 1982. Lecturer of Architecture BS (1977) Rochester Institute of Technology

Whitehead, Kerry, 2001. Visiting Critic of Architecture BS (1993) Cornell University; MArch (1997) Rice University

Whitford, Sheila, 2013. Lecturer of Education BA (1970) Texas Woman's University; MBA (1983) University of Houston, Clear Lake

Whiting, Sarah, 2010. Dean of the School of Architecture, William Ward Watkin Professor of Architecture BA (1986) Yale University; MArch (1990) Princeton University; PhD (2001) Massachusetts Institute of Technology

 Whitmire, Kenton H., 1982. Associate Dean of the Wiess School of Natural Sciences, Professor of Chemistry, Department Chair of Kinesiology, Master of Sid Richardson College
 BS (1977) Roanoke College; MS (1978), PhD (1982) Northwestern University Whitmore, Mihriban, 1999. Adjunct Assistant Professor of Psychology BS (1983) Middle East Technical University; MS (1988), PhD (1991) Wichita State University

Whitson, Peggy, 1997. Adjunct Associate Professor of Biochemistry and Cell Biology BS (1981) Iowa Wesleyan College; PhD (1986) Rice University

Wiener, Martin J., 1967. Mary Gibbs Jones Professor of History, Professor of History BA (1962) Brandeis University; MA (1963), PhD (1967) Harvard University

Wildenthal, Lora, 2003. Associate Dean of Humanities, Professor of History, Associate of Will Rice College, Department Chair of History

BA (1987) Rice University; MA (1991), PhD (1994) University of Michigan

Wilkerson, Steven M., 2010. Adjunct Professor in Civil and Environmental Engineering BS (1984), MCE (2005) Rice University

Wilkinson, Harry E., 1990. Professor in Professional Sciences Masters Program BA (1952), MBA (1957) Washington University, St. Louis; DBA (1960) Harvard Business School

Wilson, Jennifer S., 2012. Senior Lecturer, Program in Writing and Communication, Director of the Center for Written, Oral, and Visual Communication BA (1993) Rice University; MA (2004) University of Houston; Ph.D. (2012) University of Toronto

Wilson, Lon J., 1973. Professor of Chemistry BA (1966) Iowa State University; PhD (1971) University of Washington–Seattle

Wilson, Patrick "Burke", 2015. Lecturer in Kinesiology BA (2003) Texas A&M University; DPT (2012) UT Southwestern Medical Center

Wilson, Rick K., 1983. Herbert S. Autrey Professor of Political Science, Professor of Statistics and of Psychology BA (1975), MA (1977) Creighton University; PhD (1982) Indiana University

Windsor, Duane, 1977. Lynette S. Autrey Professor of Management BA (1969) Rice University; AM (1973), PhD (1978) Harvard University

Winer, Rachel T., 2004. Adjunct Assistant Professor of Psychology BA (1992) Barnard College; MA (2000), PhD (2002) St. John's University

Winkler, Kathleen, 1992. Dorothy Richard Starling Professor of Classical Violin BMus (1972) Indiana University; MMus (1974) University of Michigan

Winningham, Geoffrey L., 1969. Lynette S. Autrey Professor of Humanities, Professor of Visual Arts, Honorary Associate of Wiess College BA (1965) Rice University; MS (1968) Illinois Institute of Technology

Witte, Ron, 2010. Associate Professor of Architecture BA (1984) California Polytechnic State University; MArch (1989) Princeton University

Wittenberg Jr, Gordon G., 1979. Professor of Architecture BFA (1968) Trinity College, Connecticut; MArch (1972) Washington University

Woffinden, David, 2015. Adjunct Professor of Mechanical Engineering BS (2002) Arizona State University; MS (2004) Massachusetts Institute of Technology; PhD (2008) Utah State University

Wolf, Michael, 1988. Professor of Mathematics BS (1981) Yale University; PhD (1986) Stanford University

Wolfe, Cary E., 2003. Bruce and Elizabeth Dunlevie Professor of English, Professor of English BA (1984), MA (1986) University of North Carolina–Chapel Hill; PhD (1990) Duke University

Wolfthal, Diane, 2008. David and Caroline Minter Professor of Humanities, Professor of Art History BA (1970) City College; MA (1973) Queens College; PhD (1983) New York University

Wolpin, Kenneth, 2014. Lay Family Chair in Economics and Distinguished Research Professor BS (1967) City College of New York; PhD (1974) Graduate School of the City University of New York

- Wolynes, Peter C., 2011. D.R.Bullard-Welch Foundation Professor of Science, Professor of Chemistry, of Biochemistry and Cell Biology, of Physics and Astronomy and of Materials Science and NanoEngineering AB (1971) Indiana University; AM (1972) Harvard University; PhD (1976) Harvard University
- **Wong, Michael S**., 2001. Professor of Chemical and Biomolecular Engineering, of Chemistry, and of Materials Science and NanoEngineering, of Civil and Environmental Engineering, Department Chair of Chemical and Biomolecular Engineering

BS (1994) California Institute of Technology; MS (1997), PhD (2000) Massachusetts Institute of Technology

- Wong, Stephen B., 2001. Lecturer of Computer Science BA (1981) Swarthmore College; PhD (1988) Massachusetts Institute of Technology
- Wood, Philip R., 1990. Associate Professor of French BA (1974) University of Cape Town; MA (1980) University of York; PhD (1988) Yale University
- Woods, Gary L., 2008. Professor in the Practice of Computer Technology and Electrical and Computer Engineering BA, BSEE (1988) Rice University; MS (1991), PhD (1997) Stanford University
- Wool, Zoë, 2015. Assistant Professor of Anthropology BA (2004) York University; MA (2005), PhD (2011) University of Toronto
- Wooten, Kevin C., 1994. Adjunct Professor of Psychology BA (1976), MA (1978) University of Houston–Clear Lake; PhD (1991) Tulane University
- Worth, David S., 2002. Senior Lecturer of Humanities, Director of Forensics BA (1992), MA (1995) Texas Tech University; PhD (2003) University of Oklahoma
- Wright, Anthony A., 1980. Adjunct Professor of Psychology BA (1965) Stanford University; MA (1970), PhD (1971) Columbia University
- Xing, Yuhang, 2003. Associate Professor of Finance, Faculty Director of the El Paso Finance Center BA (1997) Peking University; MS (1998) Northwestern University; PhD (2003) Columbia University
- Yakobson, Boris I., 1999. Karl F. Hasselmann Professor of Materials Science and NanoEngineering and of Chemistry

MS (1978) Novosibirsk State University; PhD (1982) Russian Acadamy of Sciences

- Yao, Vida, 2016. Assistant Professor of Philosophy BA (2009) University of British Columbia; MA (2012), (PhD (2016) University of North Carolina–Chapel Hill
- Yarbrough, Fay, 2013. Associate Professor of History BA (1997) Rice University, MA (2000), PhD (2003) Emory University
- Yeh, Meng, 2001. Senior Lecturer of Chinese BA (1986) Tamkang University; MA (1988), PhD (1993) University of Texas–Austin
- Yekovich, Robert A., 2003. Dean of the Shepherd School of Music, Elma Schneider Professor of Music BMus (1978), MMus (1980) University of Denver; DMA (1991) Columbia University
- Yepes, Pablo P., 1994. Senior Faculty Fellow in Physics and Astronomy BS (1982), MS (1983), PhD (1988) University of Santiago de Compostela
- Yeung, Laurence, 2015. Assistant Professor of Earth Science BA (2004) Oberlin College; PhD (2010) California Institute of Technology
- Yost, Julianne M., 2011. Wiess Instructor of Chemistry BS (2003) Cedar Crest College; PhD (2009) Duke University
- Young, James, 1990. Research Professor of Electrical and Computer Engineering BS (1965), MS (1966) Massachusetts Institute of Technology; PhD (1970) Stanford University

Yuan, Ying, 2010. Adjunct Associate Professor of Statistics BS (1995) Huazhong University of Science and Technology, China; MA, MS (2000) Brandeis University; PhD (2005) University of Michigan

- Yunis, Harvey E., 1987. Andrew W. Mellon Chair in Humanities, Professor of Classics BA (1978) Dartmouth College; BA (1982), MA (1985) University of Cambridge; PhD (1987) Harvard University
- Zammito, John H., 1994. John Antony Weir Professor of History, Associate of Hanszen College BA (1970) University of Texas–Austin; PhD (1978) University of California–Berkeley
- Zanetti, Renato, 2012. Adjunct Assistant Professor of Mechanical Engineering PhD (2007) University of Texas–Austin
- Zavyalova, Anastasiya, 2012. Assistant Professor of Strategic Management BS (2006) Methodist University; PhD (2012) University of Maryland, College Park
- Zeff, Stephen A., 1978. Keith Anderson Professorship in Business and Professor of Accounting BS (1955), MS (1957) University of Colorado; MBA (1960), PhD (1962) University of Michigan; Dr. Econ. (Hon.) (1990) Turku School of Economics and Business Administration, Finland; DLitt (Hon.) (2010) University of Waterloo, Canada; Dr. Econ. Mgmt Sci (Hon.) (2011) Universidad de Alcalá, Spain
- Zelt, Colin A., 1995. Professor of Earth Science BS (1984) University of Victoria; PhD (1989) University of British Columbia
- Zhang, David, 2013. Assistant Professor of Bioengineering BS (2005), PhD (2010) California Institute of Technology
- Zhang, Yan Anthea, 2001. Fayez Sarofim Vanguard Professor of Management BA (1992), MA (1995) Nanjing University; MA (1997) City University of Hong Kong; PhD (2001) University of Southern California
- Zhang, Yin, 1996. Professor of Computational and Applied Mathematics BS (1977), MS (1981) Chongqing Institute of Architecture and Engineering, China; PhD (1987) State University of New York–Stony Brook
- Zheng, Junrong, 2008. Assistant Professor of Chemistry BS (1997), MS (2000) Peking University; MS (2003) Rensselaer Polytechnic Institute; PhD (2007) Stanford University
- Zhong, Lin, 2005. Professor of Electrical and Computer Engineering BS (1998), MS (2000) Tsinghua University, Beijing, China; PhD (2005) Princeton University
- Zhong, Weiwei, 2008. Assistant Professor of Biochemistry and Cell Biology
 BS (1997) University of Science and Technology of China; MS (2003), PhD (2002) University of Georgia
- **Zhou, Jing**, 2003. Houston Endowment Professor of Organizational Behavior, Professor of Psychology BS (1987), MA (1990) Peking University; PhD (1996) University of Illinois–Urbana
- **Zhu, Jian-Xin**, 2010. Adjunct Associate Professor of Physics and Astronomy BS (1990), MS (1993) Nanjing University; PhD (1997) University of Hong Kong
- Zimmerman Espinosa, Carissa A., 2011. Lecturer of Psychology BA (2005) Trinity University; MS (2008), PhD (2010) Florida State University
- Zodrow, George, 1979. Professor of Economics BA, MME (1973) Rice University; MA (1977), PhD (1980) Princeton University
- **Zoghbi, Huda Y**., 2011. Adjunct Professor of Biochemistry and Cell Biology BSc (1975) American University of Beirut; MD (1979) Meharry Medical College
- Zubarev, Eugene, 2005. Associate Professor of Chemistry and of Materials Science and NanoEngineering MS (1993) Moscow State University; PhD (1996) Russian Academy of Sciences

Zygourakis, Kyriacos, 1980. A.J. Hartsook Professor of Chemical and Biomolecular Engineering, Professor of Bioengineering

Diploma (1975) National Technical University of Athens; PhD (1981) University of Minnesota

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RICE

906 of 923

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Administration and Faculty > Emeritus Faculty

Undergraduate Students	Emeritus Faculty							
Graduate Students	Akers, William Walter, 1947–93. Professor Emeritus of Chemical and Biomolecular Engineering BS (1943) Texas Technological College; MS (1944) University of Texas at Austin; PhD (1950) University of Michigan							
Non-Traditional Students	Ambler, John S., 1964–2003. Professor Emeritus of Political Science							
▶ Faculty	BA (1953) Willamette University; MA (1954) Stanford University; Certificat d'etudes politiques (1955) University of Bordeaux; PhD (1964) University of California–Berkeley							
Programs of Study	Andrews, John F., 1982–91. Professor Emeritus of Environmental Science and Engineering BSCE (1951), MS (1954) University of Arkansas; PhD (1964) University of California–Berkeley							
 Administration and Faculty 	Apple Max 1072 2001 Cladva Louise Fey Professor Empritus of English							
- Board of Trustees	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							
 Administration Faculty Emeritus Faculty 	Armeniades, 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							
Important Notices	Avé Lallemant, Hans G., 1970–2006. Professor Emeritus of Earth Science, Associate of Sid Richardson College BA (1960), MA (1964), PhD (1967) University of Leiden							
	Bailar, Benjamin F., 1987–97. H. Joe Nelson III Professor Emeritus of Administration BA (1955) University of Colorado; MBA (1959) Harvard Graduate School of Business Administration							
	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–Austin							
	Billups, W. E., 1970-2016. Professor Emeritus of Chemistry BS (1961), MS (1965) Marshall University; PhD (1970) Pennsylvania State University							
	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							
	Black, Earl, 1993-2012. Herbert S. Autrey Professor Emeritus of Political Science BA (1964) University of Texas–Austin; PhD (1968) Harvard University							
	Bonner, Billy E., 1985–2009. Professor Emeritus of Physics and Astronomy BS (1961) Louisiana Polytechnic Institute; MA (1963), PhD (1965) Rice University							
	Boterf, Chester Arthur, 1973–93. Professor Emeritus of Art BA (1959) Kansas University; MFA (1965) Columbia University							
	Brown, Katherine Tsanoff, 1963–89. Professor Emerita of Art History, Honorary Associate of Will Rice College BA (1938) Rice Institute; MFA (1940) Cornell University							
	Bryant, John B., 1981-2016. Henry S. Fox, Sr. Professor Emeritus of Economics BA (1969) Oberlin College; MS (1973), PhD (1975) Carnegie Mellon University							

- Burnett, Sarah A., 1972–2012. Professor Emerita of Psychology
 BS (1966) Memphis State University; MA (1970), PhD (1972) Tulane University
- Burrus, C. Sidney, 1965–2005. Maxfield and Oshman Professor Emeritus of Electrical and Computer Engineering, Research Professor 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. Joseph and Joanna Nazro Mullen Professor Emeritus of Art History AB (1957) Princeton University; MA (1961), PhD (1964) Yale University
- Cason, Carolyn, 1956–74. Lecturer Emerita of Dietetics BS (1934) University of Texas at Austin; MA (1939) Columbia University
- Chance, Jane, 1973–2011. Mellon Distinguished Professor Emerita of English BA (1967) Purdue University; MA (1968), PhD (1971) University of Illinois

Citron, Marcia J., 1976-2015. Martha and Henry Malcolm Lovett Distinguished Service Professor Emerita and Professor Emerita of Musicology and Music History

BA (1966) Brooklyn College; MA (1968), PhD (1971) University of North Carolina

- 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

Cloutier, Paul A., 1967–2008. Professor Emeritus of Physics and Astronomy BS (1964) University of Southwestern Louisiana; PhD (1967) Rice University

Colvin, Vicki, 1996-2015. Professor Emerita of Chemistry BS (1988) Stanford University; PhD (1994) University of California–Berkeley

- **Copeland, James E.**, 1966–2001. Professor Emeritus of Linguistics and German BA (1961) University of Colorado; PhD (1965) Cornell University
- Cox, Edward L., 1989-2016. Associate Professor Emeritus of History BA (1970) University of the West Indies; MA (1973), PhD (1977) Johns Hopkins University

Curl Jr, Robert F., 1958–2005. University Professor Emeritus, Kenneth S. Pitzer-Schlumberger Professor Emeritus of Natural Sciences BA (1954) Rice Institute; PhD (1957) University of California–Berkeley

- Daichman, Graciela S., 1973–99. Lecturer Emerita of Spanish and Portuguese Profesorado (1959) Instituto Nacional del Profesorado en Lenguas Vivas, Argentina; MA (1975), PhD (1983) Rice University
- Datta, Evelyne D., 1987-2012. Senior Lecturer Emerita of French Maîtrise de Philologie romane (1966) University of Ghent, Belgium; MA (1979) University of Houston; PhD (1987) Rice University
- Davidson, Chandler, 1966–2003. Radoslav A. Tsanoff Professor Emeritus of Public Affairs and Sociology 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 of Chemical Biomolecular Engineering and Computational and Applied Mathematics
 BA (1952), BS (1953) Rice Institute; ScD (1957) Massachusetts Institute of Technology

- Dennis, John E., 1979–2002. Noah Harding Professor Emeritus of Computational and Applied Mathematics 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
- Dharan, Bala G., 1982–2009. J. Howard Creekmore Professor Emeritus of Accounting BTech (1973) Indian Institute of Technology, India; MBA (1975) Indian Institute of Management, India; MS (1977), PhD (1981) Carnegie Mellon University
- Drew, Katherine Fischer, 1950–96. Lynette S. Autrey Professor Emerita of History BA (1944), MA (1945) Rice Institute; PhD (1950) Cornell University
- Driskill, Linda P., 1970–2013. Professor Emerita of English BA (1961), MA (1968), PhD (1970) Rice University
- Dufour, Reginald J., 1975–2015. Professor Emeritus of Physics and Astronomy BS (1970) Louisiana State University; MS (1971), PhD (1974) University of Wisconsin–Madison
- Durrani, Ahmad J., 1982–2008. Professor Emeritus of Civil and Environmental Engineering BSCE (1968) Engineering University, Pakistan; MS (1975) Asian Institute of Technology, Thailand; PhD (1982) University of Michigan; MBA (1999) University of Houston
- **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 Studies BA (1962), MA (1964), PhD (1969) University of California–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
- Few Jr, Arthur A., 1970–2008. Professor Emeritus of Physics and Astronomy and Environmental Science BS (1962) Southwestern University; MBS (1965) University of Colorado; PhD (1969) Rice University
- Fisher Jr, Frank M., 1963–2002. Professor Emeritus of Biology BA (1953) Hanover College; MS (1958), PhD (1961) Purdue University
- Forman, Robin, 1987–2010. Professor Emeritus of Mathematics BA (1981), MA (1981) University of Pennsylvania; PhD (1985) Harvard University
- Freeman, John W., 1964–2000. Professor Emeritus of Space Physics and Astronomy, Research Professor, Associate of Lovett College BS (1957) Beloit College; MS (1961), PhD (1963) University of Iowa
- Fultz, Lucille P., 1990–2007. Associate Professor Emeritus of English AB (1959) Spellman College; MA (1968) University of Iowa; PhD (1990) Emory University
- Gardner, Gerald H. F., 1990–93. Professor Emeritus of Geophysics BS (1948) Trinity College, Dublin; MSc (1949) Carnegie Mellon University; PhD (1953) Princeton University
- Gillis, Malcolm, 1993–2004. President Emeritus BA (1962), MA (1963) University of Florida; PhD (1968) University of Illinois
- Glantz, Raymond M., 1969–2006. Professor Emeritus of Biochemistry and Cell Biology, Research Professor BA (1963) Brooklyn College; MS (1964), PhD (1966) Syracuse University
- Glass, Graham P., 1967–2005. Professor Emeritus of Chemistry BS (1959) Birmingham University, England; PhD (1963) Cambridge University

- Gorry, G. Anthony, 1976-2016. Friedkin Professor Emeritus of Management BE (1962) Yale University; MS (1963) University of California–Berkeley; PhD (1967) Massachusetts Institute of Technology
- Goux, Jean-Joseph, 1990–2011. Laurence H. Favrot Professor Emeritus of French Studies Licence de Philosophie (1965), DES Philosophie (1966), Doctorat du 3ème cycle de Philosophie (1973), Doctorat d'Elat es Lettres et Sciences Humaines (1988) Sorbonne, Paris
- Gruber, Ira Dempsey, 1966–2009. Harris Masterson, Jr. Professor Emeritus of History AB (1955), MA (1959), PhD (1961) Duke University
- Hansz, Ingrid, 1987–2000. Lecturer Emerita of Spanish and Portuguese, 2001 Language Consultant for School of Continuing Studies

BA (1952) Universidad de la Republica; MA (1987) Rice University

- Harcombe, Paul A, 1972–2007. Professor Emeritus of Ecology and Evolutionary Biology BS (1967) Michigan State University; PhD (1973) Yale University
- Harvey, F. Reese, 1968–2003. Professor Emeritus of Mathematics BS, MA (1963) Carnegie Institute of Technology; PhD (1966) Stanford University
- Haskell, Thomas L., 1970–2009. Samuel G. McCann Professor Emeritus of History BA (1961) Princeton University; PhD (1973) 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
- Hempel, John, 1964-2013. Milton B. Porter Professor of Mathematics BS (1957) University of Utah; MS (1959), PhD (1962) University of Wisconsin at Madison
- Heymann, Dieter, 1966–98. Professor Emeritus of Geology and Geophysics, Adjunct Professor of Chemistry MS (1954), PhD (1957) University of Amsterdam, The Netherlands
- Hirasaki, George J., 1989 2013. A. J. Hartsook Professor Emeritus of Chemical and Biomolecular Engineering BS (1963) Lamar University; PhD (1967) Rice University
- Hodges, Lee, 1930–71. Professor Emeritus of French 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–Los Angeles; PhD (1964) Vanderbilt University
- Hyman, Harold M., 1968–97. William P. Hobby Professor Emeritus of History BA (1948) University of California–Los Angeles; MA (1950), PhD (1952) Columbia University
- Jitcoff, Andrew N., 1950–72. Professor Emeritus of Russian Bachelor (1928), Master (1931) Prague Institute of Technology, Czechoslovakia
- Johnson, Don Herrick, 1977–2008. J.S. Abercrombie Professor Emeritus of Electrical and Computer Engineering, Professor of Statistics SB, SM (1970), EE (1971), PhD (1974) Massachusetts Institute of Technology
- Jones, Samuel, 1973–97. Professor Emeritus of Music BA (1957) Millsaps College; MA (1958), PhD (1960) Eastman School of Music, University of Rochester
- Jump, J. Robert, 1968–2003. Professor Emeritus of Electrical and Computer Engineering, Professor of Computer Science, Honorary Master of Lovett College BS (1960), MS (1962) University of Cincinnati; MS (1965), PhD (1968) University of Michigan

- Kanatas, George, 1994–2015. Jesse H. Jones Professor Emeritusof Finance
 BS (1966) City College of New York; PhD (1971) University of Kansas; PhD (1978) Johns Hopkins University
- Kauffmann, Robert Lane, 1976–2015. Professor Emeritus of Spanish BA (1970) Princeton University; PhD (1981) University of California–San Diego
- Kaun, Kathleen, 1998–2013. Lynette S. Autrey Professor Emerita of Voice BM (1966) Indiana University; MM (1970) University of Texas–Austin
- Kecht, Maria-Regina, 1997–2010. Associate Professor Emerita of German Studies Teacher's Diploma (1978) Pushkin Institute, Moscow State University; MA (1979) University of Illinois–Urbana-Champaign; PhD (1982) Innsbruck University
- Keeton, Darra, 1994-2012. Professor Emerita of Visual Arts BFA (1974) Miami University, Ohio; MFA (1979) Queens College, New York
- Kelber, Werner H., 1973–2005. Isla Carroll Turner and Percy E. Turner Professor Emeritus of Religion MT (1963) Princeton Theological Seminary; MA (1967), PhD (1970) University of Chicago
- Kiperman, Anita, 1976–98. Lecturer Emerita of Spanish BA (1957) Universidad Nacional de Buenos Aires; MA (1971) University of Houston
- Konisky, Jordan, 1996–2007. Professor Emeritus of Biochemistry and Cell Biology BS (1963), Providence College; PhD (1968) University of Wisconsin
- Kulstad, Mark, 1975–2015. Professor Emeritus of Philosophy BA (1969) Macalester College; PhD (1975) University of Michigan
- Lamb, Sydney M., 1981–98. Agnes Cullen Arnold Professor Emeritus of Linguistics and Cognitive Sciences BA (1951) Yale University; PhD (1958) University of California–Berkeley
- Lane, Neal F., 1996–2014. Malcolm Gillis University Professor Emeritus, Professor Emeritus of Physics and Astronomy BS (1960), MS (1962), PhD (1964) University of Oklahoma
- Laughery, Kenneth R., 1982–2002. Herbert S. Autrey Professor Emeritus of Psychology, Research Professor BS (1957), MS (1959), PhD (1961) Carnegie Mellon University
- Leal, Maria Teresa, 1965–96. Professor Emerita of Spanish and Portuguese BA (1946) Pontifícia Universidade Católica, Brazil; PhD (1963) Universidade Federal de Rio de Janeiro, Brazil
- Lecuyer, Maurice Antoine, 1962–79. Professor Emeritus of French Baccalaureat es lettres (1937), Licence es lettres (1943), Diplome d'etudes superieures (1944) Universite de Paris, France; PhD (1954) Yale University
- Lee, Eva J., 1969–2000. Professor Emerita of Kinesiology BS (1962) North Texas State University; MEd (1967) Sam Houston State University; EdD (1974) Louisiana State University
- Leeds Jr, J. Venn, 1964–89. Professor Emeritus of Electrical and Computer Engineering 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
- Long, Elizabeth, 1978-2014. Professor Emerita of Sociology, Department Chair of Sociology, Associate of Baker College BA (1966) Stanford University; MA (1974), PhD (1979) Brandeis University
- Lüttge, Andreas, 1999-2013. Professor Emeritus of Earth Science, Professor Emeritus of Chemistry, Associate of Will Rice College
 - BS (1982) Technische University Carolo Wilhelmina; MS (1985), PhD (1990) Eberhard-Karls Universitat

- Marcus, George E., 1975–2006. Professor Emeritus of Anthropology BA (1968) Yale University; PhD (1976) Harvard University
- Martin, William, 1968–2005. Harry & Hazel Chavanne Professor Emeritus of Religion and Public Policy and Sociology BA (1958), MA (1960) Abilene Christian University; BD (1963) Harvard Divinity School; PhD (1969) Harvard University

Matusow, Allen J., 1963–2015. William Gaines Twyman Professor Emeritus of History, Associate Director Emeritus for Academic Programs of the James A. Baker III Institute for Public Policy; Research Professor in History BA (1958) Ursinus College; MA (1959), PhD (1963) Harvard University

McEvilley, Thomas, 1969–2005. Distinguished Lecturer Emeritus of Art History BA (1963) University of Cincinnati; MA (1965) University of Washington; MA (1968) University of Cincinnati

- McIntosh, Roderick J., 1980. Professor Emeritus of Anthropology BA (1973) Yale University; MLITT (1975), PhD (1979) Trinity College, University of Cambridge
- McLellan, Rex B., 1964–2013. Professor Emeritus of Materials Science and NanoEngineering BMet (1957) Sheffield University; PhD (1962) Leeds University

McLendon, George, 2010-2016. Professor Emeritus of Chemistry BS (1972) University of Texas–El Paso; PhD (1976) Texas A&M University

Mieszkowski, Peter, 1981–2009. Professor Emeritus of Economics BS (1957), MA (1959) McGill University; PhD (1963) Johns Hopkins University

Miettinen, Hannu E., 1977–2009. Professor Emeritus of Physics and Astronomy Fil. Kand. (1967), Fil. Lic. (1971) University of Helsinki; PhD (1975) University of Michigan

Miller, Clarence A., 1981–2008. Louis Calder Professor Emeritus of Chemical and Biomolecular Engineering BA, BS (1961) Rice University; PhD (1969) University of Minnesota

Minter, David Lee, 1967–80 and 1990–2002. Bruce and Elizabeth Dunlevie Professor Emeritus of English BA (1957), MA (1959) North Texas State University; BD (1961), PhD (1965) Yale University

 Murray, William, 1992–2003. Associate Professor Emeritus of Voice
 BA (1956) Adelphi University; Certificate (1958) Universita de Perugia; Certificate (1958) Yale University School of Languages; Certificate (1960) Goethe Institute, Blaubeuren, Germany

- Napier, H. Albert, 1983-2016. Professor Emeritus of Management BA (1966), MBA (1968), PhD (1971) University of Texas–Austin
- Nielsen Jr, Niels C., 1951–91. Professor Emeritus of Philosophy and Religious Thought, Honorary Associate of Will Rice College

BA (1942) George Pepperdine University; BD (1946), PhD (1951) Yale University

Nordgren, Ronald P., 1989–2000. Herman and George R. Brown Professor Emeritus of Civil and Environmental Engineering RS (1957) MS (1958) University of Michigan: PhD (1962) University of California, Berkeley

BS (1957), MS (1958) University of Michigan; PhD (1962) University of California–Berkeley

O'Dell, Charles Robert, 1982–2000. Andrew Hays Buchanan Professor Emeritus of Astrophysics BSEd (1959) Illinois State University; PhD (1962) University of Wisconsin–Madison

Palmer, Graham A., 1974–2000. Professor Emeritus of Biochemistry and Cell Biology BS (1957), PhD (1962) University of Sheffield

Parry, Ronald J., 1978–2012. Professor Emeritus of Chemistry and of Biochemistry and Cell Biology BA (1964) Occidental College; PhD (1968) Brandeis University

Parsons, Spencer W., 1969-2015. Associate Professor Emeritus of Architecture BA (1953) University of Michigan; MArch (1963) Harvard University

Patten, Robert L., 1969–2012. Lynette S. Autry Professor Emeritus in Humanities, Professor Emeritus of English

BA (1960) Swarthmore College; MA (1962), PhD (1965) Princeton University

- Pearson Jr, James Boyd, 1965–99. J. S. Abercrombie Professor Emeritus of Electrical and Computer Engineering BSEE (1958), MSEE (1959) University of Arkansas; PhD (1962) Purdue University
- Pfeiffer, Paul E., 1947–97. Professor Emeritus of Computational and Applied Mathematics BSEE (1938) Rice Institute; BD (1943) Southern Methodist University; MSEE (1948), PhD (1952) Rice Institute

Philpott, Charles William, 1964–96. Professor Emeritus of Ecology and Evolutionary Biology BA (1957), MS (1958) Texas Technological College; PhD (1962) Tulane University

Piper, William Bowman, 1969–1999. Professor Emeritus of English BA (1951) Harvard University; MA (1952) Columbia University; PhD (1958) University of Wisconsin–Madison

Polking, John C., 1968–2004. Professor Emeritus of Mathematics, Research Professor BS (1956) University of Notre Dame; MS (1961), PhD (1966) University of Chicago

Poulos, Basilios N., 1975–2008. Professor Emeritus of Visual Arts BFA (1965) Atlanta School of Art; MFA (1968) Tulane University

Queller, David, 1989–2011. Professor Emeritus of BioSciences BA (1976) University of Illinois; PhD (1982) University of Michigan

Rachford Jr, Henry H., 1964–82. Professor Emeritus of Mathematical Sciences BS (1945), MA (1947) Rice Institute; ScD (1950) Massachusetts Institute of Technology

Rea, Joan, 1968–2000. Professor Emerita of Spanish and Portuguese BA (1954) New York University; MA (1964) University of Houston; PhD (1970) University of Texas–Austin

Sass, Ronald L., 1958–2005. Harry C. and Olga Keith Wiess Professor Emeritus of Ecology and Evolutionary Biology BA (1954) Augustana College; PhD (1957) University of Southern California

Schneider, David J., 1989–2009. Professor Emeritus of Psychology BA (1962) Wabash College; PhD (1966) Stanford University

Schnoebelen, Anne, 1974–2004. Joseph and Ida Kirkland Mullen Professor Emerita of Music BA (1958) Rosary College; MMus (1960), PhD (1966) University of Illinois

Seed, Patricia, 1982–2006. Professor Emerita of History BA (1971) Fordham University; MA (1975) University of Texas–Austin; PhD (1980) University of Wisconsin– Madison

Sellers, James, 1971–1993. Former Professor of Religion BEE (1947) Georgia Institute of Technology; MS (1952) Florida State University; PhD (1958) Vanderbilt University

Smith, George, 1981–2010. Professor Emeritus of Visual and Dramatic Arts BFA (1969) San Francisco Art Institute; MA (1972) Hunter College

Soligo, Ronald, 1967-2012. Professor Emeritus of Economics BA (1958) University of British Columbia; PhD (1964) Yale University

Sorensen, Danny C., 1989-2016. Noah Harding Professor Emeritus of Computational and Applied Mathematics and Research Professor

BS (1972) University of California–Davis; MA (1975), PhD (1977) University of California–San Diego

Spence, Dale W., 1963. Professor Emeritus of Kinesiology BS (1956) Rice Institute; MS (1959) North Texas State University; EdD (1966) Louisiana State University

Speziale, Marie, 2002–2013. Professor Emerita of Trumpet BM (1964) College Conservatory of Music, University of Cincinnati

Spuler, Richard, 1992-2013. Senior Lecturer Emeritus of German BA (1975), MA (1976) Washington State University; PhD (1980) Ohio State University

- Stebbings, Ronald F., 1968–95. Professor Emeritus of Space Physics and Astronomy BSc (1952), PhD (1956) University College, London
- Stevenson, Paul M., 1984–2015. Professor Emeritus of Physics and Astronomy BA (1976) Cambridge University; PhD (1979) Imperial College
- Strassmann, Joan, 1980–2011. Professor Emerita of BioSciences BS (1974) University of Michigan; Ph.D. (1979) University of Texas–Austin
- Stormer Jr, John C., 1983–95. Croneis Professor Emeritus of Geology AB (1963) Dartmouth College; PhD (1971) University of California–Berkeley
- Subtelny, Stephen, 1968–2000. Professor Emeritus of Ecology and Evolutionary Biology BA (1949) Hobart College; MA (1952), PhD (1955) University of Missouri
- Talwani, Manik, 1985–2006. Professor Emeritus of Advanced Studies and Research in Earth Science, Research Professor
 BScHons (1951), MSc (1953) Delhi University; PhD (1959) Columbia University; PhD (Honoris Causa) (1981) Oslo University
- Taylor, Julie M., 1981–2005. Professor Emerita of Anthropology BA (1966) Harvard University; Diploma (1969), PhD (1973) Oxford University
- Taylor, Ronald N., 1983–2009. Professor Emeritus of Management BA (1960) Westminster College; MA (1964) University of Nebraska; PhD (1970) University of Minnesota
- Thompson, Ewa M., 1970–2012. Professor Emerita of Slavic Studies BA (1963) University of Warsaw; MFA (1963) Sopot Conservatory of Music, Poland; PhD (1967) Vanderbilt University
- Thompson, James R., 1970-2016. Noah Harding Professor Emeritus of Statistics BEng (1960) Vanderbilt University; MA (1963), PhD (1965) Princeton University
- **Todd, Anderson**, 1949–92. Gus Sessions Wortham Professor Emeritus of Architecture BA (1943), MFA (1949) Princeton University
- Trammell, George T., 1961–93. Professor Emeritus of Physics BA (1944) Rice Institute; PhD (1950) Cornell University
- Trepel, Shirley, 1975–94. Professor Emerita of Violoncello BMus (1945) Curtis Institute of Music
- Tyler, Stephen A., 1970–2011. Herbert S. Autry Professor Emeritus of Anthropology and Linguistics BA (1957) Simpson College; MA (1962), PhD (1964) Stanford University
- Uecker, Wilfred C., 1984–2012. Professor Emeritus of Management BA (1968), MBA (1970), PhD (1973) University of Texas–Austin
- Urrutibéheity, Hector N., 1967–2000. Professor Emeritus of Spanish and Portuguese Profesorado (1956) La Plata National University, Argentina; PhD (1968) Stanford University
- Vail, Peter R., 1986–2001. W. Maurice Ewing Professor Emeritus of Oceanography AB (1952) Dartmouth College; MS (1953), PhD (1959) Northwestern University
- Van Helden, Albert, 1970–2001. Lynette S. Autrey Professor Emeritus of History BEng (1962), MS (1964) Stevens Institute of Technology; MA (1967) University of Michigan; PhD (1970) University of London
- Veletsos, Anestis S., 1964–2008. Brown and Root Professor Emeritus of Civil and Environmental Engineering BS (1948) Robert College, Turkey; MS (1950), PhD (1953) University of Illinois
- von der Mehden, Fred R., 1968–97. Albert Thomas Professor Emeritus of Political Science BA (1948) University of the Pacific; MA (1950) Claremont Graduate School; PhD (1957) University of California–

Berkeley

- Wadsworth, Philip A., 1964–73. Professor Emeritus of French AB (1935), PhD (1939) Yale University
- Wall, Frederick T., 1972–79. Professor Emeritus of Chemistry BC (1933), PhD (1937) University of Minnesota
- Wallace, Kristine Gilmartin, 1969–2006. Lecturer Emerita of Classics BA (1963) Bryn Mawr; MA (1965), PhD (1967) Stanford University
- Wang, Chao-Cheng, 1968–2000. Noah Harding Professor Emeritus of Computational and Applied Mathematics, Associate Professor of Mechanical Engineering and Materials Science BS (1959) National Taiwan University; PhD (1965) Johns Hopkins University
- Ward, Calvin H., 1966–2014. Professor Emeritus of Civil and Environmental Engineering
 BS (1955) New Mexico State University; MS (1958), PhD (1960) Cornell University; MPH (1978) University of Texas
 School of Public Health
- Wells Jr, Raymond O., 1965–2000. Professor Emeritus of Mathematics BA (1962) Rice University; MS (1964), PhD (1965) New York University
- Widrig, Walter M., 1969–2000. Professor Emeritus of Art History BA (1951) Yale University; MA (1956) Columbia University; PhD (1975) New York University
- Williams, Edward E., 1978-2014. Professor Emeritus of Entrepreneurship, Professor Emeritus of Statistics BS (1966) University of Pennsylvania; PhD (1968) University of Texas–Austin
- Wilson, Joseph B., 1954–98. Professor Emeritus of German Studies BA (1950), MA (1953) Rice Institute; PhD (1960) Stanford University
- Winkler, Michael, 1967–2000. Professor Emeritus of German Studies BA (1961) St. Benedict's College; MA (1963), PhD (1966) University of Colorado
- Wolf, Richard A., 1967–2002. Professor Emeritus of Physics and Astronomy, Research Professor BEngPhys (1962) Cornell University; PhD (1966) California Institute of Technology
- Wood, Susan, 1981–2013. Gladys Louise Fox Professor Emerita of English BA (1968) East Texas State University; MA (1970) University of Texas–Arlington
- Young, James F., 1990–2011. Professor Emeritus of Electrical and Computer Engineering BS (1965), MS (1966) Massachusetts Institute of Technology; PhD (1970) Stanford University
- Young, Richard D., 1965–92. Professor Emeritus of Economics and Mathematical Sciences BA (1951), MA (1954) University of Minnesota; PhD (1965) Carnegie Institute of Technology

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 Rice Home
 Web Services
 University Calendar
 Rice A-Z
 Maps-Directions
 Feedback

 va17
 va17
 Val
 Val</td

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Important Notices > Important Notices Landing Page

Undergraduate Students

Graduate Students

RICE

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty

Important Notices

- Message from the President
- Contact Information
- Accreditation
- Complaints Process
- Disclaimer
- Ethical Concerns
- Equal Opportunity Notice



Important Notices

Please use the menu at left to locate helpful and important notices regarding the General Announcements.

Rice A-Z

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Web Services

University Calendar va17

Feedback Maps-Directions

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Important Notices > Message from the President

Message from the President

Graduate Students

RICE

Non-Traditional Students

Undergraduate Students

- Faculty
- Programs of Study
- Administration and Faculty
- Important Notices
 - Message from the President
 - Contact Information
 - Accreditation
 - Complaints Process
 - Disclaimer
 - Ethical Concerns
 - Equal Opportunity Notice

Now barely into our second century, Rice University has changed a tremendous amount since 59 students and 12 faculty members participated in the first matriculation in the early fall of 1912. We have remained true to our founding ideals and ambitions, building over the course of a century one of the great universities of America. Rice's mission and aspirations are captured in our mission statement:

As a leading research university with a distinctive commitment to undergraduate education, Rice University aspires to pathbreaking research, unsurpassed teaching and contributions to the betterment of our world. It seeks to fulfill this mission by cultivating a diverse community of learning and discovery that produces leaders across the spectrum of human endeavor.

We are indeed an unusual university. While we are among the renowned research universities of the world, we also are among the smallest. And although comparatively small, we are committed to a wide spectrum of endeavors ranging across our eight schools and many inter-disciplinary institutes and centers. Our success is built on the contributions of every part of our community: graduate and undergraduate students, faculty and staff, alumni and other supporters across our city and around the world.

Our ambition and our standards are not constrained by our size. We strive to be bold in our aspirations and entrepreneurial in our approach. We seek to make a distinctive contribution to our home city of Houston while achieving a global impact through education, research and service. We are committed to enriching understanding, creating opportunity, discovering knowledge and improving our world.

The General Announcements of the University sets forth the immense array of opportunities for our students, as well as the rules and policies which govern their participation as students in the university. But we demand more of each other than just adherence to rules and policies. We expect that all members of our community will be guided in all their endeavors by the core Rice values: Responsibility, Integrity, Community and Excellence. These values are just as important as the academic offerings and rules included in these announcements.

We take great pride in the diversity of our community. Our success requires thoughtfulness and respect in every interaction on our campus, whether with members of the Rice community or the visitors we welcome. Our "culture of care" demands not only that we not cause harm to others, but also that we look out for each other and provide or seek help when needed.

We are pleased that you have chosen to become a part of this dynamic university as it embarks on its second century of excellence and achievement. On behalf of our faculty and staff, I wish you every success as you pursue your educational endeavors. We take pride in the special community of Rice, and look forward to working with you as you seize the opportunities of Rice to achieve your aspirations and dreams.

David W. Leebron President Rice University

Last Revised : August 03, 2015

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Web Services

Maps-Directions

University Calendar Rice A-Z Maps va17 ns Feedback

SEARCH GA

Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Important Notices > Contact Information

Undergrad	uate S	tudents
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Non-Traditional Students

Administration and Faculty

- Message from the President

Graduate Students

Programs of Study

Important Notices

- Contact Information

- Complaints Process

- Equal Opportunity Notice

- Accreditation

- Disclaimer - Ethical Concerns

Faculty

RICE

Contact Information

William Marsh Rice University

Physical Address: 6100 Main Street, Houston, Texas 77005 Mailing Address: P.O. Box 1892, Houston Texas 77251-1892 Telephone: Campus Operator 713-348-0000 Homepage Address: www.rice.edu

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

Admissions

Office of Admission-MS 17 109 Lovett Hall, 713-348-7423

Business Matters

Office of the Cashier-MS 55 110 Allen Center, 713-348-4946

Career Services

Center for Career Development-MS 521 Huff House, 713-348-4055

Credits, Transcripts

Office of the Registrar-MS 57 116 Allen Center, 713-348-4999

Financial Aid, Scholarships, Part-time Employment on Campus

Office of Financial Aid-MS 12 250 Allen Center, 713-348-4958

Graduate Studies

Chair of the appropriate department (see Graduate Degree Chart) or Office of Graduate and Postdoctoral Studies-MS 13 323 Allen Center, 713-348-4002

Undergraduates and Undergraduate Curricula

For questions about the organization or technical editing of the General Announcements, please email vpaa@rice.edu.

Last Revised : August 12, 2013

Office of the Dean of Undergraduates-MS 6 101 Lovett Hall. 713-348-4996

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Important Notices > Accreditation

RICE

Undergraduate Students	Accreditation								
Graduate Students	Rice University is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award baccalaureate, masters, and doctorate degrees.								
Non-Traditional Students	Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 (http://www.sacscoc.org 🗗) or call 404-								
▶ Faculty	679-4500 for questions about the accreditation of Rice University or allegations of significant non-compliance with a requirement standard. All other inquiries should be addressed directly to the appropriate office at Rice University.								
Programs of Study									
Administration and Faculty	Last Revised : August 03, 2015								
 Important Notices 									
- Message from the President									
- Contact Information									
- Accreditation									
- Complaints Process									
- Disclaimer									
- Ethical Concerns									
- Equal Opportunity Notice									

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Important Notices > Complaints Process

Undergraduate Students

Graduate Students

RICE

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty

Important Notices

- Message from the President
- Contact Information
- Accreditation
- Complaints Process
- Disclaimer
- Ethical Concerns
- Equal Opportunity Notice

Complaints Process

Rice University's "Program Integrity"-Compliant Student Complaint Process

The Texas Higher Education Coordinating Board (THECB) and the Texas Administrative Code (19 TAC § 1.110-1.120) require Rice University -- and all other Texas universities -- to provide a student complaint procedure that complies with the U.S. Department of Education's "Program Integrity" regulations as part of the university's eligibility for Title IV federal funds.

The requisite complaint process must inform current, former or prospective students who have exhausted Rice's grievance, complaint or appeal processes how to initiate a complaint outside of Rice with THECB. The THECB's procedures for such complaints are found here \mathcal{P} . Students wishing to use this outside process should ensure they have first addressed their complaint to the appropriate Rice University complaint process. If Rice is unable to resolve the matter after the student has exhausted internal complaint and appeal processes, the student may then file a complaint with THECB according to the following:

1. The THECB's complaint process can be found here 🗗. Students start THECB complaint process by sending the first three forms linked below either by electronic mail to StudentComplaints@thecb.state.tx.us or by regular mail to the Texas Higher Education Coordinating Board, Office of General Counsel, P.O. Box 12788, Austin TX 78711-2788 (fax forms are not accepted). The fourth form must also be included for complaints regarding a student with a disability.

(a) THECB Student Complaint Form ¹/₂
(b) FERPA Consent and Release Form ¹/₂
(c) THECB Consent and Agreement Form ¹/₂
(d) Authorization to Disclose Medical Record Information ¹/₂

- 2. Complainants should understand that the THECB does not handle, investigate, or attempt to resolve complaints concerning actions that occurred more than two years prior to the filing of a student complaint form with the THECB (unless the delay in filing the THECB complaint was caused by the complainant exhausting Rice's grievance procedures). The THECB also does not handle the various types of complaints listed in 19 TAC § 1.113.
- 3. Former students must file a complaint with the THECB no later than one year after the student's last date of attendance at Rice, or within 6 months of discovering the grounds for complaint, unless the delay in filing the THECB complaint was caused by the complainant exhausting Rice's grievance procedures.
- 4. The THECB will refer complaints alleging that Rice has violated state consumer protection laws to the Consumer Protection Division of the Office of the Attorney General of Texas for investigation and resolution. If THECB determines that a complaint is appropriate for investigation and resolution by Rice's accrediting agency (SACSCOC -- the Southern Associations of Colleges and Schools Commission on Colleges) or an educational association such as ICUT (Independent Colleges & Universities of Texas), the THECB may refer the complaint to the appropriate entity and may terminate the referral of the complaint to those entities at any time and proceed to investigate and adjudicate the complaint.
- 5. If a person wishes to file a complaint against Rice through the university's accrediting agency, SACSCOC, that agency's complaint process can be found here A. A complainant should complete SACSCOC's Complaint Form and send two print copies to the President, Southern Association of Colleges and Schools Commission on Colleges, 1866 Southern Lane, Decatur, GA 30033-4097. The details of the agency's complaint process explain that it is intended to address significant, documented, alleged non-compliance with SACSCOC accreditation standards, policies or procedures. Complainants are expected to have attempted to resolve the issue through Rice's complaint processes before filing a complaint with SACSCOC.
- 6. If the complaint concerns compliance with statutes or regulations administered by the THECB and the complaint has not been referred to another entity, the THECB Office of General Counsel staff, often assisted by other staff of THECB, will initiate an investigation. The student must provide documentation that all Rice grievance, complaint or appeal procedures have been exhausted.
- 7. The THECB, as part of its investigation, may request a Rice response, and may also contact other persons or entities named in the complaint or in Rice's response, in order to ascertain relevant facts. The THECB will also, where appropriate, attempt to facilitate an informal resolution acceptable to both the student and Rice. When this is not feasible, the THECB will evaluate

investigation results and recommend action by the Commissioner of the THECB, who after considering any recommendations will render a written determination dismissing the complaint or requiring Rice to take specific actions to remedy the complaint. The Commissioner may also request the THECB to review and decide issues regarding institutional integrity.

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Important Notices > Disclaimer

Disclaimer

Graduate Students

RICE

Non-Traditional Students

Undergraduate Students

- Faculty
- Programs of Study
- Administration and Faculty

Important Notices

- Message from the President
- Contact Information
- Accreditation
- Complaints Process
- Disclaimer
- Ethical Concerns
- Equal Opportunity Notice

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

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

Ethical Concerns

2016-2017 > Important Notices > Ethical Concerns

Undergraduate Students

Graduate Students

RICE

- Non-Traditional Students
- Faculty
- Programs of Study
- Administration and Faculty

Important Notices

- Message from the President
- Contact Information
- Accreditation
- Complaints Process
- Disclaimer
- Ethical Concerns
- Equal Opportunity Notice

Rice University pursues excellence at all levels and strives to practice the highest standards of ethical conduct. Rice students are

encouraged, as are all community members, to communicate ethical concerns or questions to officials in their schools or departments, to the dean of undergraduates, or to the dean of graduate & postdoctoral studies. They may also contact the offices of Human Resources, Internal Audit, General Counsel, Equal Employment Opportunity Programs/Affirmative Action or Risk Management, all of which are listed in the university directory or on its website. The University also provides an ethics reporting mechanism through the EthicsPoint website (a third-party agent) that allows students and other community members a simple, riskfree way to report activities that may involve potential criminal conduct, ethical breaches, or violations of university policies. (Follow the EthicsPoint link at http://internalaudit.rice.edu/ 🔄 Persons making reports through EthicsPoint may elect not to provide their names in making a complaint or raising a concern. Rice treats the investigation of any report as a confidential matter. Reports submitted to EthicsPoint are forwarded to the proper university officials for appropriate action. No person will be subjected to retaliation or reprisal for making a report or inquiry in good faith or for seeking guidance on dealing with potential or suspected improper behavior.

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Previous Editions

GENERAL ANNOUNCEMENTS 2016-2017

2016-2017 > Important Notices > Equal Opportunity Notice

Undergraduate Students

Graduate Students

RICE

- Non-Traditional Students
- Faculty
- Programs of Study

Administration and Faculty

Important Notices

- Message from the President
- Contact Information
- Accreditation
- Complaints Process
- Disclaimer
- Ethical Concerns
- Equal Opportunity Notice

Equal Opportunity Notice

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. Rice University does not discriminate against any individual on the basis of race, color, religion, sex, sexual orientation, gender identity, national or ethnic origin, ancestry, age, disability, or veteran status in its admissions, educational programs, or employment. In employment, the university seeks to recruit, hire, and advance qualified candidates, including women, members of underrepresented minority groups, individuals with disabilities, and certain classes of military veterans specified by law.

Last Revised : August 11, 2014

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