

**THE SCHOOL OF SCIENCE AND ENGINEERING
GRADUATE PROGRAM CATALOG
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THE SCHOOL OF SCIENCE AND ENGINEERING

GRADUATE PROGRAM CATALOG

ADMINISTRATION
Dean of the School of Science and Engineering
Gary McPherson, Senior Associate Dean
Elizabeth H. Keith, Program Coordinator

The graduate program in the School of Science and Engineering offers research-oriented programs leading to the degrees of Doctor of Philosophy and Master of Science.

The degree of Doctor of Philosophy is offered in the fields of Biology, Biomedical Engineering, Chemical and Biomolecular Engineering, Chemistry, Earth and Environmental Science, Mathematics, Neuroscience, Physics, and Psychology. The degree of Doctor of Philosophy may also be earned in an interdisciplinary field.

The Master of Science degree is available in the fields of Biomedical Engineering, Cell and Molecular Biology, Ecology and Evolutionary Biology, Chemical and Biomolecular Engineering, Chemistry, Earth and Environmental Science, Mathematics, Neuroscience, Physics, Psychology and Statistics.

ADMISSION TO DEGREE PROGRAMS

Admission is on the basis of academic accomplishments and potential, regardless of race, sex, color, religion, national/ethnic origin, citizenship, marital status, sexual orientation, disability, or veteran status.

Application to the School of Science and Engineering is normally for admission to a degree program. An applicant may seek admission as a special student to pursue study which does not lead to a degree.

Applicants who have earned an undergraduate degree from a recognized institution may be admitted to the School of Science and Engineering if their academic records and personal attributes indicate the ability to pursue advanced study successfully. Applicants must present evidence, to the satisfaction of the department or the program committee concerned, of adequate preparation for the subjects in which they seek to specialize. All students must hold the undergraduate degree before enrolling.

Only students with undergraduate averages of B or better, or with undergraduate study of otherwise certifiable equivalent quality, ordinarily are admitted. Students may be required to make up undergraduate course deficiencies before being admitted to a graduate degree program. Graduate credit will not be awarded for any courses taken to make up undergraduate course deficiencies.

A master's degree is not prerequisite to the beginning of study for the Doctor of Philosophy degree, but a student may be required to qualify for the master's degree while working toward the doctorate.

For those requesting financial aid the application deadline is February 1 for the following fall semester. Applicants applying for admission without financial aid should meet the following deadlines: July 1 for the fall semester, December 1 for the spring semester, May 1 for the summer sessions.

Students who wish to be admitted to the School of Science and Engineering may apply on-line. Your application will be considered, however, any student cannot be recommended for admission until all the following documents have been received: (1) completed application form, (2) three completed recommendation forms, (3) official transcripts of all undergraduate records and of any previous graduate work, (4) a statement of career objective not to exceed 500 words, and (5) an official score report for the Graduate Record Examination General Test. (Certain departments require the appropriate Subject Test score as well.)

Provisional admission may be granted to students who have not completed all the application requirements, e.g., the submission of acceptable GRE or TOEFL scores.

Probationary admission may be granted upon conditions which the applicant must fulfill in the first semester or first year of enrollment in order to have the probationary status changed to regular degree status. All transcripts and other documents and material required for application for admission become the property of the School of Science and Engineering and are not returnable.

Foreign Students

A foreign applicant for admission must present satisfactory evidence of sufficient competence in English to read it, write it, speak it, and understand it when spoken. Ordinarily, the applicant will demonstrate competence by presenting an acceptable score on TSE (Test of Spoken English), normally a minimum score of 220. If TSE is not available in the applicant's area of the world, TOEFL (Test of English as a Foreign Language) may be taken instead, with a minimum score of 600 acceptable for admission. For information about these exams, write **TOEFL/TSE Services, P.O. Box 6151, Princeton, NJ 08541-6151.**

An applicant whose competence in English is unproven or insufficient may be admitted with probationary status on the condition that competence will be proven or improved. The student may be required to prove competence by earning an acceptable score on a test of English (either TSE, TOEFL, or a Tulane University test). A student who scores below the acceptable level of competence may be required to register for less than a full graduate program and to take English as a Second Language instruction without credit until the ESL program director certifies the student's competence. A foreign applicant is also required to take the Graduate Record Examination.

Special Students (non-degree)

Admission as a special student, non-degree status, ordinarily allows the student to register for a total of no more than nine semester hours of graduate credit. Applicants who wish to be admitted to special student status must submit a completed application form and official transcripts of all undergraduate records and of any previous graduate work.

After nine hours of graduate course work at Tulane have been completed, the student on special non-degree status may not register for additional graduate credit. A special student who wishes to be considered for admission to a degree program may reapply to the School of Science and Engineering.

(See requirements described under Admission to Degree Programs.) Upon the recommendation of the department chairperson and approval of the Associate Dean for Graduate Programs, graduate-level course work done as a special student may be transferred for credit to a degree program.

Candidates for Degrees in Other Graduate Schools

Candidates for advanced degrees in other graduate institutions who wish to receive graduate credit for courses taken at Tulane should secure approval of their plans for temporary study in the School of Science and Engineering from responsible authorities in their own institutions. They should then apply for admission to the School of Science and Engineering as special students (non-degree).

Graduate Record Examination

Applicants for admission must take at their own expense the General Test of the Graduate Record Examination. Certain departments also require the Subject Test. Please consult the department.

The test scores will be used, with other data, to determine eligibility for admission and to aid in counseling the applicant after admission. Students should write directly to the Graduate Record Examination, Educational Testing Service, P.O. Box 6000, Princeton, New Jersey 08541-6000 to request an examination. For more information regarding the GRE, visit the GRE web-site at: <http://www.gre.org> .

RULES AND REGULATIONS

Upon admission to the School of Science and Engineering, students are held responsible for compliance with the regulations of the School of Science and Engineering and of Tulane University as set forth in this catalog and in other current or subsequent official statements. They should familiarize themselves with these regulations.

The University reserves the right to change any of its courses and charges without advance notice and to make such changes applicable to students already registered as well as to new students.

GENERAL REQUIREMENTS

All MS with thesis and PhD students admitted to the School of Science and Engineering in a degree program must be continuously registered in a degree-granting division of the University during the academic year, including the Summer Session in one of the two registration statuses indicated below from the date of first registration until the awarding of the degree, unless the registration is terminated by resignation or by dismissal for academic or disciplinary reasons.

Under exceptional circumstances a student may be granted leave by the dean, and during such period of leave, a student will be considered in continuous registration without payment of fee.

FULL-TIME RESIDENCE STATUS

To hold a fellowship or scholarship or any of the various kinds of assistantships, a student must be registered in full-time residence status. To determine student privileges and assess tuition and fees, a student in full-time residence status must be registered for at least nine hours of graduate credit per semester, or a combination of course work and equivalent academic activities such as teaching or research.

After the student has completed the minimum hours of course work required for the degree, the student can be classified as a full-time student entitled to full student privileges. The student must register for master's or dissertation research and the department or program committee must certify that the student is engaged in academic activities equivalent to full-time residence commitment.

Any off-campus employment for remuneration may disqualify a student from receiving financial aid from the School of Science and Engineering.

PART-TIME RESIDENCE STATUS

For the purposes of determination of student privileges and for the assessment of tuition and fees, a student in part-time residence status is any student who is registered for less than nine hours of graduate credit and who is not certified by the department or the program committee as taking a total academic program. Note: Continuous registration requirements, see this page.

TENURE FOR DEGREE STUDENTS

Tenure is the maximum period of time normally permitted for the completion of all requirements for a degree, and it is determined on the basis of consecutive academic years from the date of registration for graduate study at Tulane or at another institution. Tenure is not affected by residence status. Under certain circumstances, upon the recommendation of the chairperson of a student's department or program committee, the dean may extend tenure, but a student whose period of graduate study is unduly prolonged or interrupted may be required to perform additional work. Tenure regulations are applicable to all degree students, regardless of date of first registration.

Master's Degrees

Tenure is five years, although some departments stipulate much earlier completion of all requirements for the degree in their master's programs.

Ph.D. Degree

Tenure is seven years, but completion of all requirements for the Ph.D. degree within four years of study is strongly encouraged.

CONTINUOUS REGISTRATION REQUIREMENTS

A student admitted to the School of Science and Engineering in a degree program must maintain continuous registration in a degree-granting division of the University until the awarding of the degree. Any student who is not registered for course work in a degree-granting division of the University must be registered in Master's Research or Dissertation Research in order to remain in continuous registration, including the summer semesters.

The continuous registration requirement applies both to resident and non-resident students.

Resident students who have not completed minimum course work requirements for their degrees must either enroll for a minimum of three hours per semester or register for Master's Research (998) (3 credit hours) or Dissertation Research (999) (3 credit hours). Resident or non-resident students who have completed their course work requirements are required to register for Master's Research (998) (3 credit hours) or Dissertation Research (999) (3 credit hours) in order to maintain continuous registration. This entitles students to full student privileges. Failure to be so registered is de facto withdrawal and the School of Science and Engineering reserves the right not to readmit. A student who is readmitted is obligated to pay the applicable costs required to maintain continuous registration.

REGISTRATION POLICIES AND PROCEDURES

Students registering in full-time or part-time residence status should review the University Registrar's Office website for all registration information, which includes information on TOUR, Tulane University's Online Registration, dates, times, and procedures for registration. The Schedule of Classes is also available on the WEB. Visit the Registrar's Website at: <http://www.tulane.edu/~registrar/> for registration procedures.

All admitted students are eligible to register with TOUR. All students must confirm their registration. Students assume financial obligations for their courses upon registration.

Change of Courses

Students wishing to add or drop courses should consult the Schedule of Classes for deadlines and instructions. Failure to make schedule adjustments promptly and accurately may result in financial or academic penalties.

Change of Departmental Program

A student who has been admitted to a degree program in one department and wishes to transfer to a program in another department must obtain the approval of the chair of

both departments concerned and the approval of the Associate Dean for Graduate Programs before the change is official. The necessary form for such changes is available in the dean's office.

GRADES

Grades for Science and Engineering graduate students are reported as follows:

A
4.
0
0
0
C
+
 $\frac{2}{3}$

Incomplete $\frac{2}{3}$: This grade will automatically become F unless the work is made up within 30 days after the beginning of the following semester, excluding Summer School. This grade is not to be used as an automatic extension but only for unavoidable delays caused by illness or other emergencies.

R: Research – In those cases where research or experimentation, or both, cannot be completed within the 30-day limit following the end of the semester, this grade will be given to indicate this circumstance. This grade carries a different meaning from that of IP which is given at the end of the first semester of a two-semester course.

IP: In Progress – Satisfactory progress at the end of the first semester of a year-long course; grades are assigned upon completion of the course.

W: Courses may be dropped without record within six weeks of the first day of classes. Refer to Academic Calendar for exact dates each semester. Withdrawals with the grade of W after these dates may be accomplished only if the instructor notifies the dean that the student is passing and recommends permission to withdraw.

WF (withdrawn failing) will be assigned if the student's work in a course is unsatisfactory at the time of withdrawal.

In some departments grades for certain courses are reported as follows:

S Satisfactory

U Unsatisfactory

In some departments, grades for certain other designated courses may also be reported simply as S or U at the student's option, provided that the option is declared by the student no later than the end of the second week of class.

MEDICAL EXCUSES

Students are expected to attend all classes unless they are ill or prevented from attending by exceptional circumstances. Instructors may establish policies for attendance of their classes, which are announced at the beginning of the semester. Students who find it necessary to miss class must assume responsibility for making up the work covered during that session, including quizzes, examinations, and other exercises; they also are responsible for obtaining notes on material covered in lectures or other class sessions.

Students are responsible for notifying professors about absences that result from serious illnesses, injuries, or critical personal problems. However, medical excuses are not issued by the University Health Service, except in instances of illnesses or injuries that involve hospitalization.

WITHDRAWAL

A student who has registered for a semester and plans to withdraw from the division must inform the associate dean. After appropriate action has been completed with the dean, confirmation of withdrawal will be sent to the student and to his or her parent or guardian. The official date of the withdrawal from the division must be approved by the associate dean and usually is the date of formal notification. The withdrawal date is important for determining possible refunds. Students who officially have withdrawn from the division cannot reside on campus and must surrender their student identification cards at the time of withdrawal. (See divisional sections for further information.)

After the last day to drop courses, a student withdrawing from the division without adequate reason, as determined by the associate dean, will receive WF grades. A W grade will be recorded if withdrawal has been approved for medical reasons.

Medical

A withdrawal from courses for medical reasons requires an official letter of recommendation from a physician in the Student Health Center and the approval of the dean. Students needing a medical withdrawal should, if possible, report to the associate dean before going to the health service for an evaluation. Medical withdrawal letters issued by the Student Health Center should be delivered to the Associate Dean's Office within 48 hours after they are issued. W grades are assigned when a student withdraws from one or more courses for medical reasons after the last day to drop without record. A partial medical withdrawal (from some but not all courses) or incomplete grades in one or more courses may be permitted upon the recommendation of the Student Health Center. Students requesting a partial medical withdrawal must confer with the associate dean (or designate) of their college, who makes the final decision on this matter. Withdrawals from individual courses for medical reasons are not given during the last two weeks of classes. The deadline for medical withdrawals from all courses is the last day of classes each term. Requests for retroactive medical withdrawals normally are not approved.

Required

A student may be required to withdraw from any course or from the university, temporarily or permanently, for any of the following reasons: possibility of danger to the health of the student or to that of other students if enrollment is continued; refusal to obey regulations; violation of the Honor Code or other serious misconduct; unsatisfactory class attendance; or work below the required scholastic standards.

Refunds

The deadlines for the refund of full, three-quarter, one-half, or one-quarter tuition in any semester are given in the academic calendar. Refunds are recommended by the deans in strict accord with the calendar deadlines and only when withdrawals are official. No refunds will be granted after the one-quarter refund deadline.

The established deadlines are applicable under all conditions for withdrawal. University fees, including the student activity fee, are refundable only through the last day to register or add classes.

QUALITY OF WORK REQUIREMENTS

A minimum average quality point ratio of 3.0 (B) must be maintained by a student in the School of Science and Engineering. In reviewing records, a unit of B- is compensated by a unit of B+, the two being considered the equivalent of two units of B. If a student receives one B- grade, the student is immediately considered for probation by the associate dean in consultation with the appropriate department. If a student receives two grades of B-, or one grade less than B-, during his/her tenure in the School of Science and Engineering, the student is placed on probation and considered for dismissal by the graduate dean in consultation with the appropriate department. The terms of the probation are to be worked out by the department in consultation with the associate dean. It is the department's responsibility to report to the associate dean's office any student not making reasonable progress towards the degree.

The above guidelines are to be applied to either master or doctoral degree candidates. It is also understood that these are minimum standards; some departments may impose more strenuous standards. The student must first discuss the complaint with the professor, then, if dissatisfied, submit a written complaint to the department chair.

POLICY ON INTELLECTUAL PROPERTY

The University policy on intellectual property applies to all graduate students. Any invention or discovery resulting from projects supported in whole or in part by funds, personnel, or facilities provided by or administered by the Board of Administrators of Tulane University is the property of Tulane University. The University has a policy of sharing with the inventor any income derived from such discoveries. For more information on Tulane's policy, see "Intellectual Property Policy and Procedures" in the Tulane Faculty Handbook.

TRANSFER CREDIT

Acceptance of graduate credit for work done at other graduate institutions or in another division of Tulane University must be approved by the department concerned and by the associate dean. In general, up to 12 semester hours of transfer credit may be accepted toward a master's degree, and up to 24 semester hours of transfer credit may be accepted toward the Ph.D. degree.

To be considered for transfer credit, graduate work done at another institution or in another division of Tulane University must carry a grade of B or better and must have been completed no more than four years from the date of first registration for graduate work if applied toward a master's degree and no more than six years from the date of first registration for graduate work if applied toward a Ph.D. degree. Only in unusual cases, upon the recommendation of the chair of the student's department, may the dean approve for transfer credit courses taken earlier.

The decision concerning the acceptance of all transfer of credit to the record of a graduate student will not be reached until after the student has completed at least one

semester of successful study at Tulane. After a semester (nine hours) of study at Tulane, the student should petition the department to recommend transfer credit to the School of Science and Engineering.

REGISTRATION FOR UNDERGRADUATE CREDIT AND PROVISIONAL

GRADUATE CREDIT

An undergraduate at Tulane University with a grade point average of at least 3.3 in his major program may register, normally in the senior year, for up to six credits of 600- or 700-level courses, for credit toward a baccalaureate degree. Written recommendation of the course instructor, advisor, and chair of the major department are required.

Graduate credit for such work, if passed with B or better on the graduate grading scale, may be awarded if the student is admitted to a graduate program in the School of Science and Engineering. The student must obtain a recommendation from the chair of the graduate department and approval of the Associate Dean for Graduate Programs.

A senior who completes all baccalaureate requirements before the end of the senior year and intends to enter a graduate program in the School of Science and Engineering may apply for provisional graduate credit in up to, but not more than, 12 credits of 600- and 700-level courses. These courses must be approved by the graduate department beyond the credits needed for the baccalaureate. Graduate credit for such work, if passed with B or better, will be awarded when the student is admitted to full graduate status in the School of Science and Engineering, upon recommendation of the graduate department chair. These provisions do not apply to transfer of credits to or from other graduate institutions.

REQUIRED WITHDRAWAL AND DENIAL OF ENROLLMENT

A student may be required to withdraw from any course or from the University, temporarily or permanently, for any of the following reasons:

1. Work below the standard specified by the college in which the student is enrolled.
2. Violation of the honor system or other misconduct.
3. Possibility of danger to the health of the student or to other students if enrollment is continued.

The University reserves the right to forbid any student's continued enrollment without assignment of reason. The School of Science and Engineering, however, will provide a student with a statement of reason in writing from the department. An appellate procedure has been established in cases involving academic performance or possible infringement of academic freedom. There is also appellate procedures in cases involving non-reappointment of fellowships or scholarships when the formal terms of the first award have given reasonable expectation of renewal. Such procedures may also apply to cases in which a graduate, teaching, or research assistant, is relieved of a position before the end of the term of the appointment or is not reappointed when the formal terms of the first appointment have given reasonable expectation of reappointment.

Resignation from the School of Science and Engineering must be made in writing to the Associate Dean for Graduate Programs. The student who finds it necessary to withdraw or to resign should report to the Dean's Office to complete a withdrawal or resignation form.

CONFERRING OF DEGREES

Degrees earned in the School of Science and Engineering are awarded three times a year—in December, May, and August. There is only one commencement program and that is held in May. A candidate must be present to receive the degree unless the candidate has been excused by the associate dean. A request to receive a degree in absentia must be filed in the dean's office at the time the diploma form is submitted. Candidates for degrees are required to complete an application for degree form on or before deadline dates. See calendar in this catalog.

FEES AND EXPENSES

TUITION AND FEES

Tuition and fees are due at the time of registration. Changes in charges for tuition, fees, housing, and meals will probably continue to occur, depending upon the costs incurred by the University to provide quality education. The University will make every effort to keep increases at a minimum and provide as much advance notice as possible. It should be noted that tuition never has covered more than a portion of the cost of education. The difference is made up from endowment and gifts to the University.

Tuition and Fee Schedule for 2007-08:

FULL TIME

:

Per semester

**P
e
r
y
e
a
r**

Tuition

\$17,550

**\$
3
5**

Students who have completed their course work requirements are required to register for Master's Research 998 (3 credit hours) or Dissertation Research 999 (3 credit hours) in order to maintain continuous registration.

Special tuition rates are assessed for graduate students enrolled in special master's programs. Please check with the department for information regarding the programs and the special tuition rates.

REFUNDS

The deadlines for the refund of 100, 75, 50, or 25 percent of tuition in any semester are given in the calendar of this catalog. Refunds are made only when withdrawals are official. Additionally, full tuition is refunded only if the associate dean recommends the refund. University fees, including the student activity fee, are not refundable.

FINANCIAL OBLIGATION TO THE UNIVERSITY

No diploma or certificate of credit is given to a student who is in default of any payment due to a division of the University.

FINANCIAL ASSISTANCE

Financial support for graduate students is awarded by the graduate dean based on the recommendation of the admitting department and is primarily on the basis of academic merit. Candidates for aid must ordinarily present a combined GRE verbal and quantitative score of at least 1100 and an undergraduate GPA of 3.2 or better. Financial assistance is available in the form of tuition scholarships, part-time teaching or research assistantships, fellowships, or combinations of these awards. Ordinarily, the dean will not award financial aid for the pursuit of a second Tulane degree at the same level, e.g., a second master's degree from Tulane.

To hold a fellowship or scholarship or any of the various kinds of assistantships, a student not only must be registered in full-time residence status but also must maintain an academic level of performance satisfactory to both the department and to the dean. Any other employment for remuneration may disqualify a student from receiving financial aid from the School of Science and Engineering.

If a student is applying for financial assistance, the completed application materials must be received by the School of Science and Engineering no later than February 1. Notice of awards will be sent out on or about March 15. Award decisions cannot be made on incomplete applications.

LOAN FUNDS

The University offers financial assistance to qualified students who are U.S. citizens or permanent residents through the long-term Federal Perkins Loan Program (formerly National Direct Student Loan Program). This loan may be used as a supplement to, or in lieu of other forms of aid for students with demonstrated financial need. Repayment of 5 percent interest and principal begins six to nine months after the recipient ceases to be a halftime student and may be spread over a period of up to 10 years. Such loans provide a means of transferring expenses from college years, when the student's own earning potential is low and the financial pressure may be great, to the years immediately after college, when the average graduate enjoys a substantial income. Application for these loans is through the Free Application for Federal Student Aid

(FAFSA) process. FAFSA application forms can be obtained from the Graduate School office, or can be completed on the Internet at www.fafsa.ed.gov .

Students who are enrolled at least half time and are U.S. citizens or permanent residents may also apply for federal Stafford Loans (formerly called Guaranteed Student Loans). For subsidized Stafford Loans (interest paid by the federal government), applicants must demonstrate need for the loan; need is determined through the standard FAFSA application process. General information can be obtained from the Office of Financial Aid.

Graduate students are also eligible to borrow in addition to unsubsidized Stafford Loans if they are enrolled at least half time and are U.S. citizens or permanent residents. Although a needs test is not required, applicants must have their eligibility for a subsidized Stafford Loan determined before applying for the unsubsidized loan. Additional information is available from hometown lenders or the Office of Financial Aid. Other non-need based loans that may be available to credit-worthy students are the Graduate Access Loan through National City Bank, the GradExcel Program sponsored by Nellie Mae, the Education Resources Institute (TERI), CitiAssist Loan, Educaid, Sallie Mae Signature Loans, and PNC Bank Loans.

Short term loans are available to provide for emergencies that may arise during the academic year. Ordinarily these loans are restricted to one per academic year, with a maximum of \$175, and repayment is expected by the end of the semester. Short term loans are available only during the fall and spring semesters. Applications may be obtained from the Student Loan Office.

Tuition Payment Plans

Parents can utilize facilities their ability to meet college costs by subscribing to an installment payment plan. Parents who prefer to put educational expenses on a "pay-as-you-go" basis can contact:

Academic Management Service
50 Vision Blvd.
East Providence, RI 02914
(800)635-0120

Veterans' Benefits

The Office of the University Registrar fulfills the university's obligations to students receiving benefits from the Veterans Administration. To apply for benefits, students should contact the Veterans Administration Office in their hometowns for a Certificate of Eligibility preferably before registering in a college or university. The Veterans Administration sends Certificates of Eligibility directly to students who must then bring them to the Office of the University Registrar. Students transferring from other colleges or universities should submit Change of Program or Place of Training applications at their hometown Veterans Administration Office. Student enrollments will be certified to the Veterans Administration after registration for the semester.

Dependents may qualify for assistance under the Dependents Educational Assistance

(DEA) program if either parent has died as a result of active wartime service in the armed forces.

Eligible students should apply to their hometown Veterans Administration Office. Certification procedures are similar to the process for veterans. The performance standards to continue to receive VA benefits may be different from the academic standards described elsewhere in the catalog. Students should direct specific questions to the Office of the University Registrar.

HOUSING AND MEALS

University housing for graduate students is limited and is allotted on a first come, first served basis. One-, two-, and three-bedroom apartments are available in The Papillon Apartments or the Deming Pavillion. These apartments are unfurnished except for refrigerators, stoves, and venetian blinds. All university residence halls and apartment complexes are air-conditioned. Accommodations are assigned on a lease basis. There is usually a waiting list for these facilities so applications should be submitted early.

To locate off-campus housing, plan to arrive in New Orleans at least two weeks in advance of registration or sooner, if possible. The campus is in a residential area and a variety of accommodations are usually available. For information concerning housing, contact: Director of Housing, Tulane University, Irby Hall, New Orleans, LA 70118.

Parking on campus is available for a nominal yearly fee. Details concerning parking stickers will be handled at registration. New Orleans has excellent public transportation, including the St. Charles Avenue streetcar, one of the few electric streetcars still in operation in the United States. The streetcar as well as many bus lines connect the Tulane campus with the Garden District, the Central Business District, and the French Quarter.

Meals are available on campus on a contract basis or on a cash basis. There are a number of inexpensive restaurants located within walking distance of campus. For information concerning the University food service, contact the Director of Food Services, Tulane University, New Orleans, LA 70118.

STUDENT HEALTH CENTER

The Student Health Center is located on the campus and is a component of the Tulane University Health Sciences Center. Its staff provides medical, gynecologic, psychiatric, and health education services for all full-time students on the uptown campus at no charge. Part-time students may pay a modest service fee for each semester to be eligible as well.

In addition to Primary Care, Psychiatry and Stress Management Clinic, and Gynecology Clinics, there is a Men's Clinic, a Travel Clinic for advice and preventive treatment for foreign travel, and an Allergy Clinic for administration of "allergy shots". The SHC is open 8:30 a.m. - 5:00 p.m., Monday through Friday, and there is an Urgent Care Clinic for acute illnesses and injuries on Saturdays, 9 a.m. - 12 noon. The laboratory and pharmacy are open weekdays.

A physician is on "beeper-call" when the clinics are closed.

Emergencies that occur on campus during the academic year are responded to by the Tulane Emergency Medical Service (TEMS), whose student volunteers are trained as emergency medical technicians that provide 24-hour a day ambulance service for the campus community.

Services at the Student Health Center are provided to students regardless of their insurance programs; however, all full-time students are required to have some form of medical insurance in case of hospitalization. Many students are no longer covered by their parents' policies, and for them Tulane has developed the option of a reasonably priced Tulane student health insurance program. Call 865-5255, day or night. Call 862-8121, daytime Nurse Triage Express.

EDUCATIONAL RESOURCES AND COUNSELING

Educational Resources and Counseling (ERC) offers psychotherapy, career testing, tutoring and disability services to help students thrive personally and academically. ERC services are confidential to the full extent allowed by law, and most are free of charge to currently-enrolled Tulane students.

The Center embraces a career coaching model that allows staff to work with students in an outcomes-focused manner throughout Short-term psychotherapy or counseling is available for almost any kind of personal concern (e.g., adjusting to college, relationships, stress, anxiety, depression, sexuality, career direction, choosing a major, family problems, grief/loss, traumatic events, crises). ERC professionals include psychologists, social workers, counselors, and graduate students in professional training.

Numerous workshops, as well as therapy and support groups, are offered each semester. Counselors and peer educators can help students improve time management, note-taking, test-taking, and other study strategies. Peer educators are undergraduate interns who provide study strategy assistance to other students. Drop-in tutoring is offered in over 30 subjects (including math, science, foreign language, and business courses.) The Writing Workshop provides help for papers written in the English language.

Students with disabilities may request and receive appropriate services and accommodations through the Office of Disability Services (ODS). Before accommodation decisions are made, students must register with ODS by filling out an Accommodation Packet and submitting all necessary documentation for review. Since this process can take time, students are strongly encouraged to register as soon as possible, rather than wait until a need arises.

ERC staff also advise the student organization REACH, the Rape Emergency Awareness and Coping Hotline. Trained REACH volunteers provide support to victims of sexual assault and sexual harassment.

For further information about ERC services, visit the ERC office on the first floor of the Mechanical Engineering building. A great deal of additional information and related links are available on the office's website: www.tulane.edu/~erc. Relevant phone numbers include: 865-5113, ext. 1 (Counseling Services, Career Testing)

862-8433 (Disability Services), and 862-8433 (Tutoring Center, Writing Workshop).

CAREER SERVICES CENTER

The Tulane Career Services Center (CSC), offers programs and services that encourage students to explore careers, learn and apply career decision-making skills, gain professional experiences while enrolled at Tulane, and, promotes interaction among students and members of professional communities.

By offering a comprehensive career decision making and career-planning instructional program, students are presented with opportunities and support systems that engage them actively in their own career management. Regardless of the students' level of decidedness about their career decisions, center staff work with students to help with self assessments, market and occupational exploration, gaining experiences through internships, assistantships, and community service and developing job search strategies.

Throughout any given year students can take advantage of career planning courses, job search workshops, career panels, individual career coaching, externships, internships, job fairs, and on- and off-campus recruiting programs. Students can also utilize several web-based career guidance and job searching programs hosted and monitored by the office. Alumni and friends of Tulane extend the services of the office by reaching out to Tulane students as internship hosts, mentors, and career coaches.

To find out more about the CSC visit careers.tulane.edu, stop by the CSC offices in the Collins C. Diboll Complex, or call at 504-865-5107.

RECREATION and LEISURE

Both on and off the campus there are rich cultural and recreational resources for Tulane students. Please visit http://www2.tulane.edu/student_recreation.cfm to find out more about all of these resources.

LIBRARIES

Tulane has 9 libraries, containing 2.2 million volumes, 14,000 periodicals and 1.6 million government documents. For a listing of these please visit http://www2.tulane.edu/resources_libraries.cfm .

Tulane also has two **Online Library Catalogs** which can be found at http://www2.tulane.edu/libraries_catalog.cfm .

COMPUTER SERVICES

For information on all of Tulane computer services, please visit the website at http://www2.tulane.edu/resources_computing.cfm .

PROGRAMS OF STUDY

For master's degree programs, the minimum requirement is 24 semester hours plus thesis or equivalent. For M.S. programs, one academic year must be in full-time residence status or its equivalent part-time study in this graduate program. For Ph.D. programs, the minimum requirement is 48 semester hours and a dissertation. One academic year must be in full-time residence status.

The graduate student's entire program of study will often be within a single department. In some cases, however, a student may take some of the work outside the major department with the approval of the chair of both the major department and the other department or departments concerned. Occasionally, the needs of individual students may require a special interdisciplinary Ph.D. program. For further information see Special Interdisciplinary Programs in this catalog.

Degree of Master of Science

The requirements for this degree are a minimum of 24 hours plus thesis. This degree may also be obtained by 30 hours of coursework without a thesis. Normally those students supported by the School of Science and Engineering are not eligible to apply for this degree but are required to produce a thesis.

Thesis Requirements

The subject of the thesis for all master's degrees must be in the field of major study and must have the approval of the professor by whom the thesis is to be directed. The finished thesis must have the approval of a committee appointed by the university chair of the department. The director of the thesis will serve as chair of the thesis committee. At the request of the director, a member of some other department may be added to the committee.

The original typescript of the thesis must be deposited with in the Dean's office of the School of Science and Engineering. The thesis must be on thesis paper. The title page must contain the subject of the thesis, the date on which it was submitted, the department, and the signature of the candidate, under which should be typed the candidate's full legal name. Signatures of each of the examining committee members, with the member's full legal name typed underneath, should also be listed in the lower right-hand corner.

A full list of authorities and books consulted and a short biographical sketch must be appended.

Any photostats which form a necessary part of the thesis should be positive (black on white). No abstract of the thesis is required.

A basic style sheet for use in preparing theses and dissertations is available on this website. More detailed instructions for the preparation of the theses may be obtained from *A Manual of Style*, University of Chicago Press; the M.L.A. *Style Sheet*; or *A Manual for Writers of Term Papers, Theses and Dissertations* by Kate L. Turabian, available at the University bookstore. The department chair will advise which guide is preferred. Theses of a purely scientific nature may call for a form generally accepted by that field of study. Biology uses the *Style Manual for Biological Journals*, and the

Department of Psychology prefers the *Publication Manual of the American Psychological Association* .

Check with the SSE Graduate Program website for the final submission date of theses for graduation. If the department in which a master's thesis has been written finds there is sufficient reason to protect the contents by copyright, arrangements may be made through the Dean's office.

Degree of Doctor of Philosophy

Students undertaking work for the degree of Doctor of Philosophy should understand that this degree is awarded not for an accumulation of course credits only, but for superior attainment and accomplishment. Ordinarily the student is expected to finish the course requirements in two full years of graduate study and complete the dissertation by the fourth year. The student must demonstrate in independent study and research, as evidenced in the dissertation, the ability to carry out an original investigation in the chosen field. A minimum of one year full-time study in residence at Tulane University is required.

Course Requirements

The minimum course requirements are usually 48 semester hours; however, students should refer to the specific departmental requirements. Where necessary, a department will require additional hours of course work.

Students ordinarily must complete the requirements for the Ph.D. degree within seven years from the date of matriculation in the School of Science and Engineering. Only in unusual cases, with the approval of the department chair and Associate Dean for Graduate Programs and Research, will credit be approved for courses taken more than six years before first registration for graduate work.

General Examination

Upon meeting the departmental foreign language requirement or requirements (and no earlier than the semester in which the normal course requirements for the Ph.D. are to be completed), the student shall undertake the general (preliminary) examination. Normally this examination is taken by the end of the second year of graduate study or at the beginning of the third year. A student who fails to take the test within a reasonable length of time will be advised by the department not to continue graduate study.

The test is a comprehensive examination over the student's field of study. It covers the student's subjects and courses and is a rigorous test of scholarly competence and knowledge.

The examination also tests acquaintance with the scholarship in the field and powers of bibliographical criticism. Finally, the examination affords the examiners the basis for constructive recommendations on any subsequent program of studies to be undertaken by the student. It should be noted that in some departments cumulative examinations are used in lieu of the general or preliminary examination.

Prospectus and Dissertation Committee

A student should choose a dissertation topic or project in consultation with a qualified

faculty member in the major department who will undertake to direct the dissertation. With a topic or project agreed on, the department chair appoints a committee of at least three members, with the director as chair, to serve as a prospectus committee. If the prospectus is approved by this committee and the dean, the prospectus committee will serve as the dissertation committee.

Normally the student's prospectus-dissertation committee consists of members of the major department, but, with the approval of the dean, the department chair may appoint a member from another department or even a faculty member from another institution. The approval of the prospectus as described above also serves as approval of the committee.

The responsibilities of the dissertation committee are specified below under Dissertation and Final Examination.

Prospectus

Until a student's prospectus has been approved by the prospectus committee and the dean, dissertation work has no official status. Normally, a student will not submit a prospectus until the student has completed course requirements, satisfied the foreign language and research requirements, and passed the general examination. Upon the recommendation of the department, however, the student may submit a prospectus any time after completion of one year of full-time residence. The department recommendation for approval of the prospectus should include three copies of the prospectus itself. The prospectus should be approximately three doubled-spaced typewritten pages. The cover sheet should state the student's name, department, the title of the proposed dissertation, and the name of the chair and the other members of the committee. The introduction of the prospectus should contain a summary of earlier work on the problem. The body should include an orderly description of the plan for the investigation. The conclusion should clearly state the anticipated nature of the investigation results. Major sources of information should be indicated and a selective bibliography attached.

Admission to Candidacy

Admission to the School of Science and Engineering in a Ph.D. program does not constitute official admission to candidacy for the Ph.D. To be admitted officially to candidacy for the Ph.D., a student must have completed course requirements, satisfied departmental foreign language and teaching and research requirements, passed general examinations, and submitted a prospectus of the dissertation approved by the student's dissertation committee and the dean. The recommendation for admission to candidacy is made by the department and must bear the signatures of both the chair of the student's dissertation committee and the chair of the department. The recommendation for admission to candidacy must be submitted to the School of Science and Engineering no later than September 15 for those expecting to receive the degree in December, or December 15 for those expecting to receive the degree in May, or March 15 for those expecting to receive the degree at the end of the Summer Session.

The Dissertation

The dissertation not only is an essential part of the candidate's degree work but is the appropriate culmination of the Ph.D. degree. The dissertation is the necessary demonstration that the candidate is worthy of taking a place among research scholars in the discipline. It must demonstrate not only mastery of the literature of the subject, but also the ability to carry on independent research that results in a genuine contribution to knowledge or an original interpretation of existing knowledge, and it must do so in a literate and lucid fashion. The dissertation committee shall pass on the acceptability of the dissertation before it is submitted to the SSE Graduate Programs office in final form. (For deadline dates for the appropriate award of degrees, see Calendar.) Acceptability, however, is not final approval. The candidate must defend the dissertation successfully before the degree is awarded. For details, see Final Examination.

The dissertation should be printed on paper approved by the School of Science and Engineering. The title page of both the abstract and the dissertation must contain the subject of the dissertation, the date on which it was submitted, the department and the signature of the candidate, with the candidate's full legal name typed underneath. Signatures of the examining committee members should be listed in the lower right-hand corner; the full name of the committee chair must be typed under the signature. A full list of authorities and books consulted and a short biographical sketch must be appended. A basic style sheet for use in preparing theses and dissertations is available on this website. More detailed instructions for the preparation of the dissertation may be obtained from *A Manual of Style*, University of Chicago Press; the M.L.A. *Style Sheet*; or *A Manual for Writers of Term Papers, Theses and Dissertations*, by Kate L. Turabian. The department chair will advise which guide is preferred. Dissertations of a purely scientific nature may call for a format generally accepted by that field of study. Biology uses the *Style Manual for Biological Journals*, and the Department of Psychology prefers the *Publication Manual of the American Psychological Association*. On or before deadline dates for dissertation submission, the student must hand into the Dean's office the original copy of the dissertation (unbound), one abstract of the dissertation (not more than 350 words), application for degree, and Microfilming Agreement and Earned Doctorate forms. Each Ph.D. student will be required to have the dissertation microfilmed by University Microfilms in Ann Arbor, Michigan. The SSE Graduate Programs office will forward the dissertation and microfilming form to University Microfilms. After it is microfilmed, University Microfilms will return the manuscript to the School of Science and Engineering (about two months after it is submitted); the School of Science and Engineering will then send it to the Library for binding, cataloging, and shelving. The charge made for these services is \$55.00, and must be paid to the Dean's office when the student submits the material.

University Microfilms publishes the abstract in its Dissertation Abstracts, and retains the master negative of the dissertation. Positive film copies of the dissertation may be secured from University Microfilms. One positive copy of the dissertation on film is deposited by University Microfilms in the Library of Congress, and the dissertation is listed in that library's subject and author catalog. The student should keep a copy of the dissertation and submit another copy to the department in which it is written.

The decision to copyright the dissertation must be made at the time the student submits the material to the Dean's office. Copyright may be obtained through University

Microfilms for \$35. Two positive film copies of the dissertation are then deposited in the Copyright Office.

Final Examination

All candidates must take a final examination for the Ph.D. degree. Normally this examination consists primarily of an oral defense of the dissertation, but it may be extended to include course material or any other relevant material at the discretion of the examining committee.

This examination should be scheduled after the dissertation is in its final form and reviewed and approved by the committee but not later than the deadline for submission of the dissertation to the Dean's office. The requirement for final examination will not be waived, unless the candidate and the department can establish a case of hardship in extremis subject to review and approval of the associate dean.

The final examination committee is appointed by the department chair and approved by the associate dean; it must include the members of the dissertation committee but may include any other members of the Graduate Faculty, including members of other departments or other universities.

COURSES

Courses numbered from 600 to 699 are for graduates and advanced undergraduates. Courses numbered 700 and above are exclusively for graduates. Odd numbers are usually given to courses offered in the first semester, and even numbers to those offered in the second semester. Graduate credit is not given for courses numbered lower than 600. The credit for each course is indicated in semester hours by a numeral in parentheses. Schedules of classes are given in the official timetable available at registration.

SPECIAL INTERDISCIPLINARY PROGRAMS

In addition to the regular disciplinary programs leading to the Ph.D. degree, the School of Science and Engineering recognizes that individual student needs may require interdisciplinary programs.

Frequently, these can be arranged by a candidate's major department simply by incorporating courses or fields from other departments in the candidate's program. The School of Science and Engineering also recognizes that a special interdisciplinary Ph.D. program may occasionally become desirable to meet the educational and career needs of an individual student using university resources not reflected in any single department (e.g., it might occasionally be desirable to approve a program leading to the Ph.D. degree in biophysics even though there is no regular degree program in biophysics or organized department in that field in the university).

The following provisions are made for the development, approval, and supervision of special programs leading to the Ph.D. degree:

A Special Interdisciplinary Program is a formal ad hoc interdepartmental program leading toward the Ph.D. It will consist of work taken in two or more departments, one of which has a doctoral program. Although the specific requirements for each ad hoc program will differ, the formal requirements for the Ph.D. are: one-year residence, a

minimum of 48 semester hours of course work (including up to 24 semester hours transfer credit), general examination, dissertation, and final examination.

For such a program to be feasible, there must be at least one member of the Graduate Faculty who is a specialist in the interdisciplinary area of the student's interest and a sufficient number of faculty in at least two departments who are prepared to supervise work in it. To determine feasibility, an eligible student should consult with the appropriate faculty before making a formal application.

To be eligible for such a program, a student must have a bachelor's degree with a major in one of the departmental disciplines which will be a major constituent of the proposed program; or have completed at least one semester of full-time graduate work in such a discipline and be in good standing either at Tulane or at another graduate institution; or have a master's degree in such a discipline from another graduate institution.

Formal application to such a program depends upon the applicant's Tulane residence status:

1. A student not currently registered in the School of Science and Engineering must apply to the SSE for admission in the normal way, except that the student must specify the interdisciplinary nature of interest, the professor the student wishes to direct the dissertation, and at least two of the departments to be involved. If an ad hoc committee of that professor (who shall serve as adviser pro tem) and representatives of at least two of the departments involved recommend it, the associate dean will offer admission with the understanding that the Graduate Studies Committee has approved the program before the applicant begins work.

2. A student currently in residence in the School of Science and Engineering need only petition a qualified member of the Graduate Faculty, citing the student's own interests and qualifications. If the professor considers the student qualified for work in the area of interest, the professor shall become the major advisor-pro tem and shall give formal notification to the student, the appropriate department chairs, and the Associate Dean for Graduate Programs and Research.

Upon notification, the associate dean appoints a committee consisting of at least five members of the Graduate Faculty recommended to the associate dean by the major advisor.

Normally, the major advisor acts as chair of this committee. The committee draws up a study plan setting forth requirements including courses and examinations; probable dissertation topic; and the proposed title of the degree (e.g., Engineering Economics, or Philosophy of Science). The chair of the committee forwards the study plan and a statement of the student's qualifications to the Associate Dean for Graduate Programs and Research and to the chairs of those departments concerned.

The Associate Dean for Graduate Programs and Research then presents the proposal and any views of departments concerned to the Graduate Studies Committee for its consideration. Approval by the Graduate Studies Committee authorizes the student to follow the special interdepartmental program.

The committee constitutes the student's dissertation committee and performs all the functions normally carried out by departmental faculty in a regular Ph.D. program. The committee chair serves as the chief sponsor of the candidate's Ph.D. dissertation and performs functions normally carried out by a department chair (supervision of financial assistance in cooperation with the Associate Dean for Graduate Programs and

Research and the chairs of those departments concerned, coordination of faculty, supervision of the student's academic work, and recommendation for formal admission to candidacy for the Ph.D.).