

Biomolecular Engineering and the Department of Chemistry,

3. The *Division of Earth and Ecological Science* consists of the Department of Earth and Environmental Science and the Department of Ecology and Evolutionary Biology,
4. The *Division of Mathematics and Computational Science* consists of the Department of Mathematics,
5. The *Division of Physical and Materials Science* consists of the Department of Physics, and the *Division of Behavioral Science* consists of the Department of Psychology.

PROGRAMS OF STUDY

The School of Science and Engineering offers one degree at the undergraduate level, the Bachelor of Science (B.S.), and two graduate degrees, the Masters of Science (M.S.) and the Doctor of Philosophy (Ph.D.). Students seeking a degree from the School of Science and Engineering must have a primary major offered by the school. Students may major or minor in a second program in addition to the primary major; however, special programs such as teacher certification and ROTC are not major or minor programs and are undertaken in addition to a major program.

To qualify for graduation, a student must satisfy the requirements of the core curriculum, of the school specific core and of the major program and meet the residency and quality of work requirements of the Newcomb-Tulane College and as outlined under Academic Policies.

DEGREES

The School of Science and Engineering offers the Bachelor of Science (B.S.) degree in the following programs:

Biological Chemistry
Biomedical Engineering
Cell and Molecular Biology
Chemical Engineering
Chemistry
Ecology and Evolutionary Biology
Engineering Physics

The School of Science and Engineering

Mailing Address

School of Science and Engineering
201 Lindy Boggs Center
Tulane University
New Orleans, LA 70118

Telephone Numbers

Phone: (504) 865-5764
Fax: (504) 862-8747

Nicholas J. Altiero

Ph.D., University of Michigan
Dean

Gary L. McPherson

Ph.D., University of Illinois
Senior Associate Dean

Carol Burdsal

Ph.D., Duke University
Associate Dean for Undergraduate Programs

Daniel C. R. De Kee

Ph.D., University of Montreal
Associate Dean for Graduate Programs and Research

Sandra P. Parker

M.B.A., Tulane University
Assistant Dean for Finance and Personnel

MISSION STATEMENT

The mission of the Tulane University School of Science and Engineering is to provide an environment that is student-focused, research-intensive, entrepreneurial, and responsive to the needs of the community.

INTRODUCTION

The School of Science and Engineering consists of six divisions:

1. The *Division of Biological Science and Engineering* consists of the Department of Biomedical Engineering and the Department of Cell and Molecular Biology,
2. The *Division of Chemical Science and Engineering* consists of the Department of Chemical and

Environmental Biology
 Environmental Science
 Geology
 Mathematics
 Neuroscience
 Physics
 Psychology

The School also offers the Master of Science (M.S.) degree in the following programs:

Biomedical Engineering
 Cell and Molecular Biology
 Chemical and Biomolecular Engineering
 Chemistry
 Earth and Environmental Science
 Ecology and Evolutionary Biology
 Environmental Science
 Mathematics
 Neuroscience
 Physics
 Psychology
 Statistics

and the Doctor of Philosophy (Ph.D.) degree in the following programs:

Biology
 Biomedical Engineering
 Chemical and Biomolecular Engineering
 Chemistry
 Earth and Environmental Science
 Mathematics
 Neuroscience
 Physics
 Psychology

The Ph.D. program in biology has tracks in cell and molecular biology and ecology and evolutionary biology.

CORE CURRICULUM

All Tulane undergraduates will share a common **Core Curriculum** designed to ensure basic competency in the following areas:

- Writing (4 hours);

- Foreign language (4-8 hours) at least one foreign language course at Tulane **and** competency in the language (102/112)*;
- Scientific inquiry (9-12 hours comprising quantitative reasoning, physical science and a life science, one of which contains a laboratory component);
- Cultural knowledge (12 hours comprising six hours of Humanities and Fine Arts and six of Social Sciences);
- Public service (2-3 hours);
- Understanding interdisciplinary scholarship (1 hour-TIDES seminar); and
- Capstone experience (3 or more hours).

**Chemical engineering, biomedical engineering, and engineering physics majors are exempt from the language requirement*

SCHOOL SPECIFIC CORE CURRICULUM

Students seeking a B.S. should satisfy all core requirements in the section “Core Curriculum” and meet the school-specific and major requirements in this section.

Writing (same as the general core)

Competency in writing may be satisfied with a passing grade in an approved first-year writing course, by an Advanced Placement score of 4 or 5, or by a score of 5, 6, or 7 on the higher-level International Baccalaureate English exam. First-year students who have an AP score of 4 or 5 or an IB score of 5, 6 or 7 receive four credits and are not required to take further work in English. First-year students who have not taken the AP examination but have a verbal SAT of 670 or better or a verbal ACT score of 29 or better and excellent secondary school grades in English are invited to take an English department proficiency examination during orientation. Those who score the equivalent of B+ or better receive four credits and are not required to take further work in English.

Credit earned in UENG 099 or UENG 100 does not satisfy the proficiency requirement and may not be applied toward a degree from the School of Science and Engineering.

Students must complete the first-year writing requirement by the end of the second semester of enrollment in the Undergraduate College. Students who have not complete the requirement and

who are not enrolled in an appropriate first-year writing course in the second semester may not participate in early registration for the following semester and may not return to the school until this requirement has been fulfilled.

Foreign Language (same as general core)

All students enrolled in the School of Science and Engineering, with the exception of those whose primary major is biomedical engineering, chemical engineering, or engineering physics are expected to take at least one foreign language course at Tulane University and demonstrate competency in a foreign language. Competency in a foreign language may be satisfied with passing grades in language courses at the 102 or 112 level or through advanced placement or exemption. A student may satisfy the language requirement with an AP score of 4 or 5, with an SAT II Subject Test score of 640 or above, or with the equivalent score on a Tulane-administered test.

To receive credit in foreign language courses, a student must be placed by the appropriate department in an initial course. Only the department chair or designate may change a student's placement. After placement or the successful completion of a competency-level course, a student cannot earn credit in a lower-level course in the same language.

Students should register for an appropriate foreign language course in the first semester and remain enrolled each semester until they have fulfilled the competency requirement.

Students must complete the foreign language competency requirement by the end of their fifth semester of enrollment in the Undergraduate College. Students who have not completed the language requirement by the end of their fifth semester will not be permitted to register for the following semester.

Mathematics and Science

Candidates for the B.S. degree in the School of Science and Engineering must take a minimum of 32 credits of science and mathematics with a minimum of six credits of mathematics.

A minimum of six credits of mathematics are required, excluding symbolic logic and MATH 115, MATH 119, and MATH 140; however, the combination of MATH 115 and MATH 116 (subject to the restrictions listed in Mathematics Introductory Courses) may count as one course toward this requirement. Students may satisfy all or part of the requirement with the

appropriate AP score (s). A score of 4 or 5 on the Advanced Placement AB exam or a score of 3 on the BC exam earns credit for MATH 121. A score of 4 or 5 on the BC exam earns credit for MATH 121 and 122.

A minimum of 32 credits in mathematics and science are required, selected from at least two different disciplines: cell and molecular biology, chemistry, ecology and evolutionary biology, earth and environmental sciences, mathematics, neuroscience, physics and psychology. At least one of these courses must include a laboratory.

Departments may recommend particular mathematics or science courses to supplement their majors, and students are advised to consult the major department's listing in this catalog.

Humanities, Fine Arts and Social Sciences (same as general core)

To ensure that each student receives exposure to a broad range of knowledge, students seeking the B.S. from the School of Science and Engineering except those majoring in biomedical or chemical engineering must complete a minimum of 12 credits in the humanities, fine arts and social sciences with at least six credits of humanities and fine arts and six credits of social sciences. Students majoring in either biomedical or chemical engineering must take a total of 18 credits of humanities, fine arts and social sciences. Courses satisfying this requirement may also count toward major or minor requirements or the foreign language and cultural knowledge requirements of the core curriculum. First-year writing may not be used to satisfy this requirement. While a course may be included in more than one category, students may apply a course to only one category. Courses should be selected to meet the following requirements:

Humanities and Fine Arts

Two courses (at least six credits) in addition to those used to satisfy the foreign language requirement must be selected from at least two different disciplines in the humanities and fine arts: African and African Diaspora Studies, Art, Asian Studies, Classical Studies, Communication, English, French and Italian, Germanic and Slavic Studies, Italian, Jewish Studies, Linguistics, Music, Philosophy, Spanish and Portuguese, or Theater and Dance. Multiple one- and two-credit courses in dance or in applied music totaling at least three credits may count as a fine arts course.

Social Sciences

Two courses (at least six credits) must be selected from at least two different social science disciplines: Anthropology, Economics, History, International Development, Latin American Studies, Political Economy, Political Science, Sociology, Urban Studies, and Women's Studies.

European and Non-European Tradition

At least one course (three credits) must be chosen from a list of courses in Perspectives in the European Tradition, and at least one course (three credits) must be chosen from a list of courses in Perspectives outside the European Tradition or Comparative Cultures and International Perspectives.

Writing Intensive Requirement

The Writing Intensive Requirement may be satisfied with a passing grade in at least one approved Writing Course beyond the proficiency requirement in English. Students normally satisfy this requirement by taking one of the courses on the approved list of writing courses. Completion of the first-year writing competency requirement is a prerequisite to enrollment in a writing intensive course.

Additional Requirements for Engineering Majors

Students majoring in biomedical engineering, chemical engineering and engineering physics must take an additional six credits (for a total of 18 credits) of humanities, fine arts and social sciences.

Major Component

A student enrolled in the School of Science and Engineering must select a major offered by the school no later than the beginning of a student's fourth semester of college study.

SCIENCE AND ENGINEERING GENERAL COURSES**SCEN 303/703 Anatomy and Physiology (3)**

Prof. Dacisak. Prerequisites: MATH 224, BMEN 260, CELL 101. The course objectives are to learn to identify the principal components of the musculoskeletal, peripheral nervous, central nervous, visual and auditory systems and to be able to relate the structures and their functions.

SCEN 304/704 Quantitative Physiology (3)

Staff. Prerequisite: BMEN 303/313 or BMEN 703/713. Corequisite: SCEN 314/714. The course places emphasis upon

the chemical basis of life; cells and cellular metabolism; histology and tissues; the endocrine, skeletal and nervous systems; respiratory, digestive, cardiovascular, lymphatic and reproductive systems; nutrition and metabolism; water, electrolyte and acid-base balance, and human growth and development.

SCEN 313/713 Anatomy and Physiology Lab (1)

Prof. Dacisak. Corequisite: SCEN 303/703. This course involves students in learning the principles and applications of anatomy and physiology. Dissection and exploration of preserved animals and cadavers are integral components of the lab. Computer software is used to explore the three-dimensional aspects of human anatomy. Physiological instruments will be used to demonstrate the interaction of physiological systems through electrocardiography, Spirometry, pO₂ and pCO₂, and for body composition analysis. Subject matter will include levels of organization, metabolism, histology, and the integumentary skeletal, muscular, neurological and endocrine systems.

SCEN 314/714 Quantitative Physiology Lab (1)

Staff. Corequisite: SCEN 304/704. Subject matter will include blood, nutrition and metabolism; and the cardiovascular, lymphatic, digestive, respiratory, urinary, and reproductive systems.

SPECIAL PROGRAMS**Self-Designed Majors**

A student with a 3.000 cumulative grade-point average may construct a major program by grouping courses from different academic departments. Such self-designed majors must include at least 10 courses, more than half of which must be at the 300 level or above; no more than two courses below the 300 level may be taken in any one department. A student wishing approval of a self-designed major must prepare a proposal including the title of the major, courses, rationale, and appropriate departmental approval. This proposal must be submitted for review to the associate dean of the School of Science and Engineering before the end of the student's sixth semester. As these proposals often require revision and resubmission, they should be submitted earlier than this deadline.

Second Majors and Minors

Students in the School of Science and Engineering may elect to complete a second major. They must complete all courses for

each major and a total of at least 18 different courses in the two majors. Students declaring a second major must submit their programs of study to the associate dean of the School of Science and Engineering for approval. At least half of the coursework required for majors must be completed at Tulane University, and students must have a grade-point average of at least 2.000 in all coursework applied to the major. Students who satisfy the requirements for two majors in the School of Science and Engineering will receive one bachelor's degree, and their transcript will reflect that a double major has been completed. Second majors from an outside division are subject to the conditions set by requirements for that major as designated by the home division or department.

Science and engineering students may also pursue one or two minors. The minor is intended to give structure to the study of a secondary field of interest chosen by the student. Students must complete at least 24 credits in their major that do not overlap with the minor. Students who elect to complete the requirements for a minor must earn a grade-point average of at least 2.000 in courses counting toward that minor. No courses counting toward the student's first minor will count toward the student's second minor.

Individual departments may have additional restrictions on major-minor overlap. Students should consult the department listings for additional information.

Joint-Degree Programs

The School of Science and Engineering offers a number of joint-degree programs. Students may concurrently pursue bachelor's degrees in the School of Architecture, the School of Business, the School of Public Health and Tropical Medicine, or in the School of Liberal Arts. To receive degrees from two schools, a student must complete 96 credits in courses described in the School of Science and Engineering section of the catalog and fulfill all core curriculum and major requirements. At least 30 credits counting for the major in the School of Science and Engineering must be independent of credits used to satisfy requirements in the other degree program.

To be eligible for these programs, students must obtain approval from the associate dean by the sixth semester of enrollment. Joint-degree candidates must earn both degrees concurrently, and the degree in Science and Engineering will not be awarded until

the requirements for the second degree have been met. Students who do not complete a second degree in one of the other schools must meet all requirements for a degree from the School of Science and Engineering

Joint-Degree Programs in Business, Law, Medicine, and Public Health and Tropical Medicine

Qualified students in the School of Science and Engineering, who have completed three years of undergraduate work, may begin studies in the Tulane Schools of Business, Law, Medicine, or Public Health and Tropical Medicine. A student who completes the junior year in residence in the School of Science and Engineering (not on a study abroad program) and then begins study in one of these school may receive the bachelor of science or bachelor of arts degree from the School of Science and Engineering after satisfactorily completing one year of full-time professional study.

To enter one of these programs, students are required to be accepted by the professional school and to obtain approval from the associate dean by the end of the sixth semester of study. Joint-degree candidates are required to complete 90 credits during three years of study in the School of Science and Engineering before starting work in the professional school. Candidates must meet all proficiency, distribution, and major requirements for their degree programs in the School of Science and Engineering. Students in the joint-degree programs must have completed 120 credits by the close of their fourth year of study in order to receive a degree from the School of Science and Engineering. Students who fail to do so will be required to attend Tulane Summer School to make up their credit deficiency before beginning their second year in the professional school.

Transfer students must complete two years of undergraduate work at Tulane to be eligible for a joint-degree program. All students must file an application for degree at least two semesters prior to the anticipated date of graduation. Joint-degree candidates for May graduation may have to defer graduation until August if grades from the professional school are not available in time for degree certification in May.

Every course taken during the first year in the Schools of Business, Law, Medicine, or Public Health and Tropical Medicine must be passed, and the student's performance in the first year's work in the professional school must be of sufficient

quality for advancement to the second year. A student who fails to meet this requirement may become a candidate for a degree in the School of Science and Engineering after satisfactorily completing the second year in the Schools of Business, Law, Medicine, or Public Health and Tropical Medicine. If a student in a joint-degree program is a candidate for honors, the grade-point average used to determine the eligibility includes the applicable work done in the professional school.

Premedical and Preprofessional Health Programs

While students are completing the regular baccalaureate curriculum of their choice, they may work concurrently to complete the courses required to enter programs in the health professions, including dentistry, medicine, optometry, osteopathy, podiatry, and veterinary medicine. Preparation for such programs normally includes two semesters each of biology (with laboratory), general chemistry (with laboratory), organic chemistry (with laboratory), and physics (with laboratory). Many schools have additional entrance requirements including mathematics and upper-level science courses. Because of variations in course requirements imposed by the professions, students should request specific information from schools in their fields of interest or from the health professions adviser.

Students interested in one of these professions may pursue a baccalaureate degree in any discipline; however, they should plan a course of study to meet the basic requirements of the professional school in the first three years. Students considering a career in a medically related field should begin consulting the health professions adviser early in their undergraduate career to discuss available options in their choice of and preparation for a future profession.

Premedical Early Acceptance Program

Particularly well-motivated and well-qualified sophomores may apply to the School of Medicine through the Premedical Early Acceptance Program. Successful candidates complete the full four years of the normal baccalaureate program but are guaranteed admission to the School of Medicine upon graduation and enjoy special opportunities for study with its faculty while still undergraduates. Students are expected to follow an academically rigorous program while maintaining a high level of academic performance throughout their college careers. Only sophomores who complete both first and sophomore years at Tulane are eligible.

To be considered, students must complete two semesters (with laboratory) for each of the following: biology, general chemistry, organic chemistry, and physics. These courses must be completed at Tulane during the regular academic first and sophomore years with a cumulative grade-point average of 3.600 or better. Students with Advanced Placement (AP) credit in biology should discuss their status with the health professions adviser.

Prelaw Program

There is no standard prelaw curriculum that must be followed to qualify for admission into law school. Students considering law school are encouraged to begin consulting with the prelaw adviser early in their undergraduate career.

Prelaw Acceptance Program

Particularly well-motivated and well-qualified juniors may apply to Tulane Law School through the Prelaw Acceptance Program. Prelaw Acceptance Program candidates complete the full four years of the normal baccalaureate program, and are guaranteed admission to the Law School upon graduation. Students are expected to follow an academically rigorous program while maintaining a high level of academic performance throughout their college careers. Only students who complete all four years of college at Tulane (with the exception of the study abroad programs through Tulane) are eligible. (This program should not be confused with the 3-3 program, in which Tulane students are accepted to the Law School during the junior year and permitted to enroll at the Law School during what would otherwise be the student's senior year, receiving the baccalaureate degree after the first year of law school and the law degree after two additional years of law school).

To be considered, students must provide a Tulane transcript showing normal progress (at least 30 credits per year) for at least five regular, full-time semesters of Tulane coursework, and evidence of in-depth study in at least one area. Students must present a cumulative grade-point average of at least 3.400 and a score on the Law School Admission Test (LSAT) of at least 161. Applications should be submitted between October 1 of the junior year and February 1 of the senior year. The LSAT may be taken anytime between June after the sophomore year and December of the senior year. The earliest point at which the Law School will offer admission occurs after the fall semester of the junior year.

Internships for Academic Credit

Some departments offer internships for academic credit as part of the major. An internship combines a relevant academic component with experiential learning. The academic component may, for example, consist of a term paper, a number of short papers, or discussions of a number of books. Internships ordinarily are open only to those students completing a major in the department that will award the credit. Students participating in internships register for Internship Studies (course numbers 456, 457) within the appropriate department after having made initial arrangements with a professor who will sponsor the internship. Registration is completed in the academic department sponsoring the internship.

A student may not take a salaried position outside the university while earning credit for an internship, except where such an arrangement is required by the cooperating organization for insurance purposes. If a student must take a salaried position for this reason, a letter to this effect from the cooperating organization must be filed with the chair of the sponsoring department prior to the end of the add period.

Only one internship may be completed each semester. Students may earn a maximum of six credits for internships. The sponsoring professor will assign a grade for the internship at the close of the semester after evaluating its academic and experiential aspects. Internships offered through Science and Engineering departments are open only to juniors and seniors in good standing.

An alternative internship experience is offered to students through the Undergraduate College. This internship was created to accommodate students seeking internships with organizations which require that interns earn credit for their experience. INTR 199 carries one credit, which will apply toward the degree but will not apply toward any core curriculum, major, or minor requirement. Only one credit of INTR 199 may be applied toward the degree. INTR 199 must be taken on a satisfactory/unsatisfactory (S/U) basis. Students who have completed fewer than 30 credits may not register for this course.

Students desiring to register for INTR 199 must receive approval in the associate dean's office before registering for the course.

Independent Studies

Many departments offer to a limited number of students creative opportunities for independent study under the direction of a faculty member. The work may take the form of directed readings, laboratory or library research, or original composition. Instead of traditional class attendance, the student substitutes conferences, as needed, with the director.

Provisional Graduate Credit

A senior who completes all baccalaureate requirements before the end of the senior year and intends to enter a graduate program of Tulane may apply for provisional graduate credit in up to, but not more than, 12 credits of both 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, upon recommendation of the graduate department chair and approval of the dean. These provisions do not apply to transfer of credits to or from other graduate institutions.

4+1 Programs

The School of Science and Engineering has developed "4+1" programs in which students can obtain a master's degree within one year of completing the bachelor's degree. Students who pursue this option take courses in the fifth year at a substantially reduced tuition rate.

ACADEMIC ADVISING

Students in the School of Science and Engineering have several advising resources available to them. All students will maintain an adviser in the Newcomb-Tulane College throughout their time as undergraduates. These advisers are able to answer questions that often arise during the initial period of adjustment to the college environment. The academic advisers offer their students information and advice about matters such as selecting appropriate courses, maintaining satisfactory progress, choosing a major, and ensuring that all degree requirements are being met. Academic advisers also direct students to other resources on campus that can help them deal with specific problems.

Each department and program within the university has a faculty member available each semester to provide students who have not declared majors with information about courses, majors, and opportunities available within that department or program. These

departmental advisors are available to meet with interested students at a scheduled time each week. When students declare a major, which they must do by the start of their fourth semester, they are assigned to a faculty adviser in the major department or program. The faculty adviser helps students design programs in their chosen fields of study. Students should continue to consult with their academic adviser in their dean's office regarding college requirements and progress toward degree.

The following groups have special advisers in addition to their regular faculty advisers and academic advisers: students from other countries—the director of the International Student Center; prelaw students—the prelaw adviser; premedical students—the health professions adviser; service personnel and veterans—the registrar.

At any time, students can access an automated degree audit from the Registrar's website showing all completed courses and indicating the general degree requirements and major requirements that remain to be fulfilled before graduation. Students should discuss their degree audits with their college advisers and report errors to the Undergraduate College dean's office as soon as possible. Each student is responsible for knowing the exact degree requirements as stated in the School of Science and Engineering section of this catalog and for enrolling in appropriate courses to satisfy those requirements.

The role of advisers is to give information and, when appropriate, to offer opinions or make recommendations. Students have responsibility for making their own decisions, monitoring their progress toward the baccalaureate degree, and meeting all degree requirements.

The university reserves the right to change any of its rules, courses, regulations, and charges without notice and to make such changes applicable to students already registered as well as to new students. Although all possible aid and direction should be sought from and given by faculty advisers, academic advisers, and deans, each student must accept full responsibility for knowledge of and compliance with the policies of the School of Science and Engineering and the Undergraduate College and for the fulfillment of requirements for the course of study selected.

ACADEMIC POLICIES

Code of Academic Conduct

The Code of Academic Conduct is administered by the Newcomb-Tulane College Honor Board and the appeal committee, each composed of students and faculty. The Honor Board convenes to hear cases when a violation of the Code of Academic Conduct is alleged. The board considers the evidence, determines guilt or innocence, and recommends penalties, ranging from probation to expulsion from the university. An Honor Board conviction becomes part of a student's permanent record.

Cross Registration

Students in the School of Science and Engineering may register for courses within the Arts and Sciences division of Loyola University, provided that the same course has not been offered at Tulane within the past year. Students must be registered for at least nine credits of coursework at Tulane in the semester of Loyola registration and may not use the Loyola credits to satisfy core curriculum requirements. Additional restrictions also apply. Interested students should contact their associate dean's office.

Class Attendance

A student who has excessive absences or ceases to attend a course without an official withdrawal will, at the instructor's request anytime during the semester and with the approval of the associate dean, be withdrawn from the course and receive a grade of WF. The instructor must have sent a notice of excessive absences before requesting that a student receive a WF grade.

Dean's List

The Dean's List is prepared after each semester and recognizes students who have earned a distinguished record in all of their subjects throughout the semester. A 3.500 average is required for freshmen and sophomores and a 3.667 for juniors and seniors. To qualify a student must have been enrolled in 14 credits of letter graded work excluding courses taken on a satisfactory/unsatisfactory basis.

Transfer Credit

College credits earned by Tulane students when they were enrolled in high school will be considered for transfer to Tulane only when these credits were earned in courses composed primarily of degree-seeking college students and listed in a college catalog. Courses sponsored by a college or university but taught at high schools by high school teachers in a class composed primarily of high school students will not be

considered for Tulane credit even if a college transcript is issued for these courses.

Continuing or returning students in academic good standing are eligible to earn credit in transfer from other regionally accredited four-year institutions in the United States. Engineering courses will only be accepted for transfer from ABET accredited programs. To be eligible for transfer credit from study-abroad programs, students must have at least a 2.70 cumulative grade-point average at Tulane.

Transfer credit is given only for courses approved by the appropriate departments and completed with a minimum grade of C- or its equivalent. Students should obtain prior approval of their choice of institution and proposed program if they wish to be certain their credits will be accepted. Credit for acceptable work is transferred at the value or amount of credit shown on the official transcript from the other college. Grades earned at another institution are not transferred and are not computed in the student's cumulative grade-point average. Credits taken on a P/F or S/U basis do not transfer unless the transcript states that P or S is equivalent to C- or better. Students are required to have an official transcript sent to the Registrar's office prior to their return.

To be allowed to return to the School of Science and Engineering, students must satisfactorily complete their academic program and leave the other institution in good standing.

Requirements for Graduation

Degree Requirements

The credits presented for the degree must satisfy the requirements of the core curriculum described under "The Core Curriculum" along with other requirements that are described under "School Specific Curriculum."

Each candidate for the Bachelor of Science or Bachelor of Arts degree must have completed 120 credits of academic work applicable to the degree and to have achieved a 2.000 cumulative grade-point average at Tulane and in each major and minor awarded. At least 66 of the 120 credits must be earned in courses above the 100 level. To qualify for two baccalaureate degrees a student must complete a minimum of 150 credits (75 credits completed at Tulane) at least 82 of which must be above the 100 level, and satisfy all requirements for each degree and each

major. A candidate also must file a degree application for each degree at least two semesters prior to the anticipated date of graduation.

A candidate for a degree from the School of Science and Engineering must have completed the last 27 credits of coursework in residence in the school and a minimum of 60 credits at Tulane University. Students who participate in a Tulane University study abroad program or in the Washington Semester program through Tulane in the senior year are considered to be meeting the senior residency requirement, as they are earning Tulane grades and credits.

Students may count a maximum of 12 credits of summer work at Tulane, or up to six credits of summer work from other institutions, as part of their last 27 credits that must be completed in residence.

GRADUATE DEGREE PROGRAMS

Students at Tulane University may pursue a Master of Science (M.S.) or Doctor of Philosophy (Ph.D.) program in the School of Science and Engineering of Tulane University. The M.S. degree is awarded with a minimum of 24 credit hours plus a thesis. With approval, a student may also elect to pursue a non-thesis M.S. that requires a minimum of 30 credit hours. The Ph.D. degree is awarded with a minimum of 48 credit hours plus a dissertation. The 4+1 Bachelor's Master's program allows students in the School of Science and Engineering to complete the requirements for both the bachelor's and master's degree in five years. Some summer research work may be required for the timely completion of the program.

All graduate students must demonstrate competence in teaching as part of the requirements for a graduate degree. This requirement must be fulfilled regardless of whether or not the student receives financial support from the university. The form of teaching experience can vary with the individual, and may consist of teaching, recitation sections, teaching laboratory courses, grading papers, presentation of seminars, etc.

If candidates for an advanced degree at other universities wish to receive graduate credit for courses to be taken at Tulane, they should secure approval from authorities in the home institution. The student should then apply for admission as a special graduate student (non-degree) in the School of Science and Engineering.

An individual who does not desire to pursue a degree at the present time also may apply for admission as a special student, but if the student decides at a later date to work toward a graduate degree in the School of Science and Engineering, no more than 12 credits taken on a non-degree or provisional basis may be applied toward the degree.

ADMISSIONS

Applicants holding the equivalent of a bachelor's degree in mathematics, science or engineering or a related field from recognized institutions may be admitted to the graduate program of the School of Science and Engineering if their academic records and personal attributes indicated ability to pursue advanced study successfully. Students must present to the appropriate department satisfactory evidence of adequate preparation for the subjects in which they seek to specialize.

Ordinarily, only students whose undergraduate average is B or above are admitted. Students required to make up undergraduate course deficiencies before being admitted to the graduate program of the School of Science and Engineering may be asked to enroll in an undergraduate program as special students. Graduate credit is not awarded for courses taken to make up deficiencies.

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

FINANCIAL AID AND SCHOLARSHIPS

The School of Science and Engineering awards financial support for graduate students primarily on the basis of academic merit. For full-time students, financial assistance is available in the form of teaching assistantships, research assistantships, fellowships as well as partial and full tuition scholarships.

ACADEMIC REGULATIONS

Registration Requirement

To maintain full time status all graduate students must enroll for a minimum of 9 credit hours in the Fall Semester and a minimum of 9 credit hours in the Spring Semester. Ph.D. and M.S. with thesis students must enroll for a minimum of 3 credit hours of

“Masters Research” or 3 credits of “Dissertation Research” during the Summer Semester.

Ph.D. and M.S. with thesis students who have completed all of their required course work must maintain continuous enrollment and enroll for 3 credit hours of “Master's Research” or 3 credit hours of “Dissertation Research,” whichever is applicable, each semester until all degree requirements are complete.

Course Credits

Graduate work is measured in terms of credits. A credit represents a measurement of academic progress in terms of work undertaken and satisfactorily completed and is not specifically related to an hour concept for class lecture or recitation. For purposes of evaluating graduate transfer credit, in most cases a credit is equal to a semester hour.

Grades and Grade Points

The same grading system is used throughout Tulane University. A course in which a grade of C+ or less is earned cannot be counted toward a graduate degree in the School of Science and Engineering.

Conferring of Degrees

A student who has completed all of the requirements for a degree will have that degree conferred at the annual spring commencement, in May. Degrees are also conferred at the close of the fall semester in December and at the close of Summer School, in mid August.

Transfer Credit

In general, up to 12 transfer credits may be accepted toward a master's degree, and up to 24 transfer credits may be accepted toward the doctorate. Only grades of B or better will be considered for transfer credit. The courses must be graduate courses, which were taken while the student was classified as a graduate student and after all requirements for the bachelor's degree have been met. The appropriate department and the Associate Dean for Graduate Programs and Research must approve credit for graduate work done at other institutions.

The decision concerning the acceptance of all transfer credit to the record of a graduate student will not be made until after the

student has completed at least one semester of successful study in the School of Science and Engineering.

Students ordinarily must complete the requirements for the doctorate within seven years from the original date of registration. Only in unusual cases, and 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 the date of the general or preliminary examination.

Credit for 600-level courses taken by a senior undergraduate beyond the credits needed for an undergraduate degree at Tulane University and passed with a grade of B or better may be transferred to a graduate degree program in the School of Science and Engineering on the recommendation of the department Chair and with the approval of the Associate Dean for Graduate Programs and Research. Normally, no more than 12 credits should be earned before admission to a graduate program. These credits may not be counted toward requirements for the bachelor's degree.

Transfer between Programs

To transfer from one graduate program to another offered by the School of Science and Engineering, a student must submit an application for admission to the new program. Transferring students must fulfill any obligations they have incurred in the first program prior to receiving their degrees from the second programs.

Required Withdrawal, Probation and Exclusion

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

- Work below the standard specified by the School of Science and Engineering
- Violation of the Code of Academic Conduct or other misconduct
- Possibility of danger to the health of the student or to other students if enrollment is continued.

A minimum grade point average of 3.00 (B) must be maintained by all students to remain in good standing in any graduate degree

program. Students whose grade-point average falls below 3.00 will be considered for a probationary semester in consultation with the chair of the appropriate department. Students who receive a grade below B- or two grades of B- will also be considered for probation in consultation with the chair of the appropriate department. The terms of the probation are determined by the department chair, in consultation with the Associate Dean for Graduate Programs and Research. Students who fail to meet the terms of their probation in two consecutive semesters will be required to withdraw from the program.

Students are subject to exclusion in consultation with the appropriate department if they receive two grades below B- in a given semester. To grades of B- are considered equivalent to one grade below B-. If a student becomes subject to exclusion during the semester in which other graduation requirements are met, the student will be excluded and will not receive the degree. Courses with grades below B- may not be used to meet degree requirements. It is the department's responsibility to report to the Associate Dean for Graduate Programs and Research any student not making reasonable progress toward the degree.

The School of Science and Engineering and the University reserve the right to deny admission to any applicant or to forbid any student's continued enrollment without assignment of reason; to change any of its rules, courses, regulations, and charges without notice, and to make such changes applicable to students already registered as well as to new students.

AWARDS

Alpha Eta Mu Beta Award

This award, given by the biomedical engineering honor society, is presented to a junior for outstanding performance as a student in the biomedical engineering curriculum.

AICHE Awards

Several awards are offered. Two are scholastic awards, one offered by the New Orleans Section to the senior in chemical - engineering with the highest scholastic average, and one by the National Society to the junior in chemical engineering who made the highest average in the freshman and sophomore years. The annual chapter award is for outstanding participation in chapter activities, particularly participation in the student paper

presentation. The student chapter award is for outstanding services to the profession.

American Chemical Society Prizes were established in 1930 by the Louisiana section of the American Chemical Society and are awarded for excellence in chemistry.

American Institute of Chemists Award

Established to honor seniors in chemistry, chemical engineering, or biochemistry. Given in recognition of potential advancement of the chemical professions on the basis of a student's demonstrated record of leadership, ability, character, and scholastic achievement.

Biomedical Engineering Society Scholarship Award

Awarded to the graduating senior with the highest scholastic average in biomedical engineering.

Glendy Burke Medals were established in 1848 (oratory) and 1879 (mathematics) by Glendy Burke. They are awarded for excellence in the fields of speech and mathematics.

Fred R. Cagle Memorial Prize was established in 1981 in memory of the former chairman of the Department of Zoology. It is awarded for excellence in biology.

Chairman's Award is given to a graduating senior who is outstanding in geology or earth science.

Arnold Gerall Award in Neuroscience.

Merck Index Awards are awarded for excellence in Chemistry.

New Orleans Geological Society Memorial Foundation Scholarships are awarded annually to the outstanding freshman, sophomore, junior, and senior geology or earth science majors, upon recommendation of the faculty of the Department of Earth and Environmental Science.

Nissim Nathan Cohen Memorial Award

Awarded to a graduating senior in biomedical engineering. Selected by fellow students for contributions to the class, to the School of Engineering, and to the profession of biomedical engineering.

National Society of Black Engineers

There are two awards. One is awarded to the Outstanding Executive Board member and the other is to the graduating senior with the highest grade point average.

Randall K. Nichols Award

Awarded to a chemical engineering junior who has special talents worthy of recognition and encouragement.

ROTC Awards encompass many prizes and honors, including the President's Cup, for ROTC work.

Sigma Gamma Epsilon Prize, established in memory of W. A. Tarr by the national geology honor society, is awarded for scholarship and service in the Department of Earth and Environmental Science.

R. A. Steinmayer Award was established in 1957 by the Tulane geological alumni in honor of R. A. Steinmayer, emeritus professor of geology, for the outstanding graduating student in Earth and Environmental Science.

Tri Beta/Erik G. Ellgaard Memorial Award for the outstanding thesis in Cell and Molecular Biology.

Omega Chi Epsilon Award

This award, presented by the chemical engineering honor society, is given to the member of the student chapter who best exemplifies the ideals of Omega Chi Epsilon.

James Marshall Robert Leadership Award

Established in 1957 by the Society of Tulane Engineers and named in honor of Dean Emeritus Robert. Additional gifts from alumni and friends after Dean Robert's death in 1964 have made possible the award of a medal and cash to a senior in engineering in recognition of scholarship, collegiate activities, and leadership.

Stuart S. Bamforth Prize for Excellence in Environmental Studies.

Leon H. Scherck Memorial Award

The oldest award presented by the School of Engineering was established in 1922 by the late Mrs. Albert H. Scherck of New Orleans in memory of her brother, Leon H. Scherck, class of 1894, for excellence in engineering. Awarded to a member of the senior class in an engineering program.

Francis M. Taylor Award

Established in 1971 by chemical engineering alumni to honor Professor Emeritus Taylor. Awarded to a senior in chemical engineering for outstanding citizenship, professional attitudes, and accomplishments.

Harold E. Vokes Award was established in 1992 by the faculty of the Department of Geology in honor of Harold E. Vokes, professor emeritus of geology, for the outstanding graduating senior in Earth and Environmental Studies.

Daniel H. Vliet Award

Established in 1989 to honor Dr. Daniel H. Vliet who served on the faculty of Electrical Engineering for 37 years, including four years as head of the department, before his retirement in 1986. The award goes to a sophomore in an engineering program who has demonstrated superior performance in freshman physics.