Table of Contents

INTRODUCTION .................................................................................................................. 3

PROGRAM OF STUDY ........................................................................................................ 3
  The Doctor of Philosophy (Ph.D.) Degree ........................................................................ 3
     Learning Outcomes ....................................................................................................... 3
     Degree Requirements ................................................................................................... 3
     Departmental Seminars ................................................................................................. 5
     Timeline for Ph.D. Degree Completion ....................................................................... 5
     Minimum Academic Standards .................................................................................... 6
  Ph.D. Qualifying Examination ......................................................................................... 7
  Ph.D. Prospectus .............................................................................................................. 10
  Ph.D. Dissertation/Thesis Requirements ........................................................................ 12
  Tenure for Degree Students ............................................................................................ 13
  The Master of Science (M.S.) Degree ............................................................................. 13
     Tenure for Degree Students ....................................................................................... 13
  Selection of Thesis/Academic Advisor .......................................................................... 13
  Formation of the Thesis Committee .............................................................................. 15
  Student Conduct and Conflict Resolution .................................................................. 15
  Research ......................................................................................................................... 16
  Financial Support ........................................................................................................... 17
  Outside Employment ....................................................................................................... 17
  Travel Support ................................................................................................................. 18
  Graduate Student Awards ............................................................................................... 18

UNIVERSITY POLICIES AFFECTING GRADUATE STUDY .............................................. 19
  Academic Integrity ......................................................................................................... 19
  Student Record Policy ................................................................................................... 19
  Research Oversight ......................................................................................................... 20
  Lab Safety ...................................................................................................................... 20
  Americans with Disabilities Act ..................................................................................... 20
  Student Conduct ............................................................................................................ 20
  Equal Opportunity, Harassment, and Anti-Discrimination ........................................... 21

RESOURCES ..................................................................................................................... 21
  Professional Development ............................................................................................... 21
  Student Resources & Support Services ........................................................................... 21
Campus Resources ................................................................................................................................................. 22
DEPARTMENTAL INFORMATION ............................................................................................................................... 22
Clubs/Organizations ................................................................................................................................................... 22
Facilities & Services .................................................................................................................................................. 22
  Hours ..................................................................................................................................................................... 23
  Computing Facilities .............................................................................................................................................. 23
  Coordinated Instrumentation Facility ................................................................................................................ 23
Safety Information ..................................................................................................................................................... 23
  General Information ............................................................................................................................................ 23
  Fire Safety ............................................................................................................................................................ 24
  Eye and Safety Washes ......................................................................................................................................... 24
  Gas Cylinders ....................................................................................................................................................... 24
  Hazardous Materials ............................................................................................................................................ 24
  Emergencies ........................................................................................................................................................ 25
  Injuries or Illnesses .............................................................................................................................................. 25
  StormReady/Emergency Preparedness ................................................................................................................ 25
Contact Information ................................................................................................................................................ 25
INTRODUCTION

Welcome to Tulane University's Department of Chemical and Biomolecular Engineering. This handbook is a collection of guidelines and other useful information especially designed for graduate students in the Chemical and Biomolecular Engineering Department. Its purpose is to:

1) provide the student with a clear description of the graduate programs of study within the department and the academic requirements that the student is expected to follow for those programs
2) describe the facilities and support available to the student within the Department and University

This handbook supplements the information in the University Catalog, particularly the Graduate Studies section, and the School of Science and Engineering Graduate Program Catalog. Students are responsible for familiarizing themselves with the contents of all of these documents.

Over time, this handbook will undergo constant revision and updates. The goal is for this to occur prior to the fall semester of each academic year. Any suggestions on useful information that should be in the handbook that has been overlooked should be directed to the Graduate Student Ombudsman.

PROGRAMS OF STUDY

The Doctor of Philosophy (Ph.D.) and Master of Science (M.S.) degree programs are administered through the School of Science and Engineering (see Graduate Program Catalog for degree requirements). A master's degree is not a prerequisite to the beginning of study for the Doctor of Philosophy degree. Completing the Ph.D. requirements normally requires five years of full-time study beyond the B.S. degree.

The Doctor of Philosophy (Ph.D.) Degree

Learning Outcomes
The Ph.D. degree requires a student to demonstrate mastery of the scientific and engineering principles underlying their field of interest. In addition, the student must demonstrate the ability to independently conduct an intensive research project and document their results in the form of refereed publications, presentations, and a final thesis dissertation. Specifically, candidates for the Ph.D. degree must:

- Complete a minimum of 48 credit hours of approved course work
- Pass a qualifying examination
- Present an acceptable dissertation prospectus to a dissertation committee
- Make an original contribution to the field of chemical engineering in the form of a dissertation suitable for publication
- Defend the dissertation during a public presentation

Degree Requirements
The Ph.D. degree at Tulane requires 48 hours of approved graduate course work plus a thesis. There are three types of courses that meet these requirements:
1) **Core graduate chemical engineering** courses. Three required from:
   a. Reactor Design (CENG 7150) or Biomolecular and Cellular Engineering (CENG 6870)
   b. Advanced Transport Phenomena (CENG 7320)
   c. Modern Thermodynamics (CENG 7110)

2) **Elective courses**
   A minimum of 12 credits required at the 6000 level or higher in addition to the “Core graduate chemical engineering” courses and “Graduate mentoring seminar”. These courses may be within the Department, or within related fields, and should be chosen in consultation with the faculty advisor. A minimum of 12 credits is required.

3) **Graduate mentoring seminar**
   Students must take CENG 7010 and CENG 7020, the Graduate mentoring seminars. It is anticipated students will take this in their first year of residency.

4) **Independent Study**
   Independent study refers to a research project in the laboratory, where three (3) credit hours generally corresponds to 8-15 hours per week in the laboratory. Faculty expectations for the project vary, and should be established at the beginning of each semester. They may include submission of a written paper or a summary of research in relevant area. For each semester, a student will need to complete an Independent Study Registration and turn it in to the Department Program Coordinator. The course number is CENG 7810, and the Course Title should begin “Adv Res in …”. Ph.D. candidates are allowed a maximum of 25 independent study credits toward the 48-credit requirement.

Also, for students who have not received a degree from an institution where English is the primary language, they must fulfill three English as a Second Language (ESL) courses to satisfy the School of Science and Engineering requirements:

1. Intensive English for International Teaching Assistants (summer prior to enrollment)
2. ESL speaking course (SCEN 7650 (speaking), Fall semester - 1 credit)
3. ESL writing course (SCEN 7660 (writing), Spring semester - 3 credits)

Incoming students with non-Chemical Engineering backgrounds may be required to take compensatory courses in the basic areas of Thermodynamics, Transport Phenomena, and Reaction Engineering, unless they demonstrate proficiency in these areas. Compensatory courses are cross-listed at the graduate level with the corresponding undergraduate course, and at the discretion of the advisor, they may count as electives toward the total graduate-level credit requirement for the advanced degree if taken at the 6000-level.

For students who transfer to the graduate program, or who already have a M.S. or equivalent degree, a maximum of 24 graduate credits may be transferred from another institution toward the Ph.D. at Tulane (and the 48 credit hour requirement). Transfer credits can include up to 9 credits of independent study. A Transfer Credit Form needs to be completed, and be approved by the research advisor, Department Chair, and the Associate Dean for Graduate Studies.

Students interested in receiving an interdisciplinary degree, or Combined Degree students, by earning a M.S. with thesis from the Biomedical Sciences Program (BSP) and Ph.D. from the Chemical and Biomolecular Engineering Department (CBE) should apply to this program after entering the chemical engineering program. They may utilize the following guidelines in course selection, but are strongly encouraged to discuss the program with Dr. Kim O’Connor:

- CBE core courses (9 credits, as listed above)
- CBE course cross-listed as a BSP elective (3 credits)
  - For example: CENG 6770 (3 credits) Advances in Biotechnology
• BSP courses (21 credits)
  o GBCH 6010 (4 credits) Biochemistry
  o BMSP 6070 (3 credits) Advanced Cell Biology
  o EPID 7810 (3 credits) Human Molecular Genetics
  o BMSP 7770 (3 credits) Systems Biology
• 1 credit of either BMSP 7100 (Fall, 1 credit) or BMSP 7110 (Spring, 1 credit) Workshop
• 1 credit of either BMSP 7140 (Fall, 1 credit) or BMSP 7150 (Spring, 1 credit) Seminar
• BMSP 7120 Research Methods (4 credits total: 2 for course, 2 for rotation)
  o CENG 7810 Advanced Independent Research, CELL 6035 (1 credit) Molecular Biology Laboratory, CELL 6755 (1 credit) Cell Biology Laboratory, and/or other molecular or cellular laboratory course can be substituted for the rotation.
• 2-3 credits of a biomedical sciences elective [example: GBCH 7250 (2 credits) Biostatistics]
• Independent Study (15 credits)
  o CENG 7810 (1-9 credits per course for a total of 15 credits) Advanced Independent Research [Compensatory CENG courses can be substituted for Independent Research credits.]

More information can be found at [http://tulane.edu/som/biomedical-sciences/bmscorecurriculum.cfm](http://tulane.edu/som/biomedical-sciences/bmscorecurriculum.cfm).

**Departmental Seminars**

During the Fall and Spring semesters, the Chemical and Biomolecular Engineering Department invites various professionals from academia, industry, and government to visit the department and present their work. Typically, a seminar will be presented every other week; however, this will change to accommodate the particular scheduling needs of each visitor and the department. These departmental seminars are a vital part of the graduate program and attendance by all students, whether M.S. or Ph.D., is mandatory. These seminars are part of the broadening experience for students, offer networking and professional development opportunities, and are an opportunity to share the success of the department more broadly within the chemical engineering community. Generally, students who have yet to complete their prospectus examination should register for the CENG 6000 Chemical Engineering Seminar Course each semester.

**Timeline for Ph.D. Degree Completion**

- Year 1 – Select thesis advisor in Fall; Take and complete core coursework*; Begin research; Take qualifying exam
- Year 2 – Take and complete elective coursework*; Continue research
- Year 3 – Select Thesis Committee in consultation with advisor; Continue research; Defend Prospectus
- Years 4-5 – Carry out additional research; Write and defend Dissertation

*Timing may differ for students transferring from other programs, or who are non-chemical engineering undergraduate majors.

Sample program of study by year for an incoming student for the first two years provided below. Also note that all international students must take ESL courses, which are in addition to the courses listed below.

**Year 1**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>CENG 7320 (3)</td>
<td>CENG 6150 or CENG 6870 (3)</td>
<td></td>
</tr>
<tr>
<td>CENG 7110 (3)</td>
<td>CENG 7020 (1)</td>
<td></td>
</tr>
<tr>
<td>CENG 7010 (1)</td>
<td>Elective (3)</td>
<td></td>
</tr>
</tbody>
</table>
The Department requires that students be enrolled full time prior to completion of their prospectus, i.e. nine hours for each fall and spring term and three hours for summer (see below). If a student wishes to enroll for more than nine hours (excluding ESL courses) they must submit with their registration request to the Department Chair a letter explaining the rationale for going above full-time enrollment. Their advisor must also sign the letter. The Department Chair evaluates such requests on a case-by-case basis.

**Minimum Academic Standards**
A minimum average GPA of 3.0 (B) must be maintained by a student in the School of Science and Engineering. For students who have a GPA that falls below a 3.0, a one-semester probationary period may be granted at the discretion of the Associate Dean for Graduate Studies.

If a student receives one grade of B-, the student is considered for probation, regardless of overall GPA. If a student receives two grades of B- or one grade of C+ or less, the student is automatically placed on probation and considered for immediate dismissal. Immediate dismissal can result from a consistent record of poor academic performance, or for violations of personal or professional misconduct, as outlined in the Tulane **Student Guide for Policies and Procedures**. Violations include (but are not limited to) cheating, plagiarism, sabotage, harassment, abusive or disorderly conduct, incompetence, failure to carry out assigned duties, theft or misuse of University property, use of professional authority to exploit others, or violation of law and/or University rules and regulations.

In addition, a course grade of C+ or less cannot be counted towards a degree in the School of Science and Engineering.

Grades in the School of Science and Engineering are reported as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality Points</th>
<th>Grade</th>
<th>Quality Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.000</td>
<td>C</td>
<td>2.000</td>
</tr>
<tr>
<td>A-</td>
<td>3.667</td>
<td>C-</td>
<td>1.667</td>
</tr>
<tr>
<td>B+</td>
<td>3.333</td>
<td>D+</td>
<td>1.333</td>
</tr>
<tr>
<td>B</td>
<td>3.000</td>
<td>D</td>
<td>1.000</td>
</tr>
<tr>
<td>B-</td>
<td>2.667</td>
<td>D-</td>
<td>0.667</td>
</tr>
<tr>
<td>C+</td>
<td>2.333</td>
<td>F</td>
<td>0.000</td>
</tr>
</tbody>
</table>

I   Incomplete – Automatically becomes 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.

W   Withdrawn – Courses may be dropped without record prior to the stated withdrawal date. (See schedule of classes for the last day to drop classes with no record during semester.)
Withdrawals with the grade of W after these dates may be accomplished only in consultation and with the approval of the Associate Dean for Graduate Studies, and necessitates that the student is passing. WF (Withdrawn Failing) will be assigned if the student's work in a course in unsatisfactory at the time of withdrawal.

**Ph.D. Qualifying Examination**

**Purpose**
The Ph.D. oral qualifying examination is designed to test a student’s preparedness to conduct an independent research project. Since the Ph.D. is a research degree, a student’s ability to think independently, organize work, and properly evaluate results is vital to its successful completion, and the qualifying examination is an initial method to gauge maturity and preparedness for these steps toward the degree. Successful candidates should demonstrate the ability to apply fundamental chemical engineering principles to research design and analysis, organize information, think critically and independently, evaluate results, and communicate ideas effectively in written and oral presentations.

**Description**
The Ph.D. oral qualifying examination will require the student to prepare and defend a research proposal on a topic selected by the student, in consultation with his/her research advisor. To prepare the research proposal, the student is expected to read peer-reviewed literature on the topic, to innovate a project idea that builds upon prior work and tests a new hypothesis within the field, and to describe the plan of attack he/she would follow to perform the research.

**Topic selection**
The topic selected must
- Demonstrate knowledge of chemical engineering concepts
- Be in the broad area of the student’s current research
- Have a different set of specific aims from the student’s current research
- Be different from the student's master's thesis topic, if the student has previously earned a master's degree
- Be different from all projects presented as part of a core or elective course at Tulane

Communication on topic selection is permitted once advisor assignments are finalized (see Timing section below).

**Guidelines for Exam Proposal Document**
The proposal should focus on two major components:

**Significance**
- Explain the importance of the problem or critical barrier to progress that the proposed project addresses.
- Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields.
- Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved.

**Approach**
• Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Include how the data will be collected, analyzed, and interpreted as well as any resource sharing plans as appropriate.
• Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims.
• If the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high-risk aspects of the proposed work.
• Point out any procedures, situations, or materials that may be hazardous to personnel and the precautions to be exercised.
• Use of figures to convey information is encouraged.

The project summary and abstract should be one page single spaced, and in addition to summarizing the proposal should have one paragraph describing the Intellectual Merit of the proposed work and one paragraph describing the Broader Impact of the proposed work. Per NSF, the Intellectual Merit criterion encompasses the potential to advance knowledge, and the Broader Impact criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

**Page Limits**

<table>
<thead>
<tr>
<th>Section of Application</th>
<th>Page Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Summary/Abstract</td>
<td>1 (single-spaced)</td>
</tr>
<tr>
<td>Specific Aims</td>
<td>1</td>
</tr>
<tr>
<td>Literature review</td>
<td>3</td>
</tr>
<tr>
<td>Research Strategy</td>
<td>6</td>
</tr>
<tr>
<td>Bibliography</td>
<td>No limit (suggested 20-60 citations in APA or ACS style that shows titles)</td>
</tr>
</tbody>
</table>

**Font (size, color, type density) and Line Spacing**

Text in your attachments must follow these minimum requirements:

- **Font size**: Must be 11 points or larger. Smaller text in figures, graphs, diagrams and charts is acceptable, as long as it is legible when the page is viewed at 100%. Recommend fonts are Arial, Georgia, Helvetica, Palatino Linotype.
- **Line spacing**: Proposal should be double spaced, except for single-spaced project summary/abstract.
- **Text color**: No restriction. Though not required, black or other high-contrast text colors are recommended since they print well and are legible to the largest audience.

**Grantsmanship**

- Use English.
- Avoid jargon.
- Spell out acronyms the first time it is used and note the appropriate abbreviation in parentheses. The abbreviation may be used thereafter.
Headers and Footers

- Headings (e.g., Significance, Innovation) within the text of your attachments improve readability and are highly encouraged.
- The pages of the document must be numbered with page one being the summary/abstract.

Images

- Figures must be readable as printed on an 8.5” x 11” page at normal (100%) scale.

Paper Size and Margins

- Use paper size no larger than standard letter paper size (8 ½” x 11”).
- Provide one-inch margins (top, bottom, left, and right) for all pages. No applicant-supplied information can appear in the margins.

Oral presentation

The oral examination (approximately 1 hour) consists of the following two components:

- A 20-minute presentation of the research proposal given by the student to the qualifying committee. The student should be permitted to speak during this period without interruption unless the committee requires immediate clarification of a major point within the presentation.
- A question-and-answer period lasting approximately 40 minutes.

In preparation for the qualifying exam, students are encouraged to utilize all of the resources available to them, including reliable online sources, library resources, journal articles, books, and information from their coursework. First-year students may consult one another for feedback on their oral presentations.

Evaluation

The student will be evaluated according to the following criteria:

- Mastery of chemical engineering basics of the core courses of the graduate program, and application of fundamental chemical engineering principles to research design and analysis (for example, a student proposing a project on drug delivery should be able to talk about transport processes in the body; a student proposing a project on catalyst design should be able to talk about determining reaction order kinetics and reaction constants experimentally; a student proposing a project based on molecular self-assembly should be able to talk about the role of thermodynamic equilibrium in the final structure)
- Knowledge of literature relevant to proposal topic (for example, the student is expected to have read all of the papers cited in their references section, should be well-versed on literature that is considered ‘common knowledge’ for their field of study, demonstrate thorough understanding of the significance/methods/results of the ‘key’ ~1-3 papers on which their proposal idea is based, and be able to talk about other approaches to the same problem based on a broader survey of the literature, i.e., what other approaches is their proposal competing with?)
- Critical thinking skills (for example, the student should demonstrate the ability to assimilate current scientific knowledge into a new/novel proposal idea, provide logical answers to questions posed by the faculty that he/she may not have considered previously, evaluate the pros and cons of the materials, methods, and techniques in his/her proposal, and determine if a set of data fully supports a given conclusion and if not, state what additional data or experiments are needed)
• Communication skills *(the student should be able to convey information and express his/her thoughts clearly and concisely in the written report, oral presentation, and question-and-answer session)*
• Academic performance

NOTE: Examples are included as a guideline and are not intended to be all-inclusive.

The qualifying committee will utilize a three-tier grading system with the following possible outcomes:

- **Pass**: The student becomes a pre-candidate for the Ph.D. program.
- **Unsatisfactory**: Within 1 year of taking the Qualifying Exam, the student must pass a separate exam by the qualifying committee to be considered a pre-candidate for the Ph.D. program. The components of this exam include a written report and an oral presentation on the student’s research work. Both components should discuss research progress to date and plans for future work, both short-term (what will you do in the next 6-12 months?) and long-term (what are your goals for your dissertation?). The written report and oral presentation should conform to the same guidelines stipulated for the Qualifying Exam, and the student will be evaluated according to the same criteria outlined for the Qualifying Exam. The qualifying committee will solicit a letter evaluating the student’s research performance to be taken into consideration as part of the evaluation. Two possible outcomes after re-qualifying are termination of graduate work at Tulane at the master’s level or entry into pre-candidacy for the Ph.D. program.
- **Fail**: The student cannot become a pre-candidate for the Ph.D. program, and graduate work must terminate at the master’s level at Tulane.

**Timing**
All students admitted with the intent of pursuing a Ph.D. will be required to take the qualifying exam at a time stipulated by the department, typically two semesters after the student joins the department. However, the timing may be adjusted for individual students at the discretion of the qualifying and graduate committees.

At a date midpoint in the second semester, the qualifying committee will stipulate an open period for topic submission. Students are encouraged to read papers throughout the semester to develop potential ideas, and to build their knowledge pool, but may only commence work on the written report or oral presentation following topic approval by the committee, approximately two weeks before the exam date (on or around May 25th, approximately 2 weeks after the end of the spring semester).

Students who join the department in the spring, or who do not complete their core course requirement at the end of the second term (for example, non-chemical engineering undergraduate degree holders) may defer the qualifying exam until the following December, at the discretion of the qualifying committee and graduate admissions chair.

**Ph.D. Prospectus**
**Purpose**
The Ph.D. prospectus is a written and oral report prepared by the student describing the thesis work the student plans to conduct. The written report provides a means for the student’s thesis committee to review the proposed work and provide input. The prospectus is also meant to be a test of the student’s knowledge or ability in the field. Specifically, the committee will address
the following two issues:

1. Is the proposed research feasible under the particular constraints imposed on each student (e.g., equipment availability, other resources)?
2. If successfully completed, will this research be sufficient for awarding a Ph.D. in chemical engineering?

**Description**

The written report of the Ph.D. prospectus should be approximately 10 pages, in the format of a grant proposal: a clear statement of the research hypothesis, a concise summary of the background related to the research project, a list of goals to test the hypothesis, progress to date in meeting those goals, and remaining experiments and writing to complete the Ph.D. A copy of the written report should be sent to each thesis committee member at least one week prior to the oral presentation. For the oral presentation, students should plan to give a closed-session 20 minute talk covering the research plan, including critical background and preliminary research. This closed session talk will then be followed by questions from the thesis committee, also in a closed session. It is typical for the committee to meet to discuss the candidate’s progress without the candidate after this question session. Feedback is then provided to the candidate in both oral and written formats.

The School of Science and Engineering requires completion of two forms (and inclusion of a copy of the written prospectus) following successful completion of the prospectus exam, the Admission to Candidacy Form, and the Prospectus Approval Form. Note that the Admission to Candidacy Form requires the Department Chair’s signature, and the Prospectus Approval Form requires the signature of the Chair, as well as the academic advisor and all committee members.

**Evaluation**

The thesis committee (see section “Formation of Thesis Committee below”), when evaluating student performance in presenting the prospectus will focus on the following:

- The ability of the student to synthesize a document reflecting a mature, thought-out research plan with a well-defined hypothesis and a well-defined plan to test the hypothesis
- The ability of the student to give a cogent, well-organized presentation that succinctly outlines the key challenges the thesis work will address, the relevant methods, key prior work, results to date, and planned work
- Demonstration of a strong knowledge of the relevant literature in the field, and how the work planned/performed will contribute to the field of study
- The ability to analyze the work performed to date and clearly explain what the findings mean and how they will influence the future work plan
- Demonstration of mastery in the relevant methods used in the research performed to date and the planned work
- The ability to articulate how the work plan will address the problem posed in the thesis research, and a time line for the remainder of the student’s doctoral residency
- The ability of the student to answer questions posed by the committee, in particular demonstrating reasonable spontaneity and thoughtfulness in responses

**Timing**

The Ph.D. prospectus should be presented generally at the end of the third year of the program, following or near the completion of 48 credit hours of work, and at least one year prior to the defense of the Ph.D. Students should inform the Department Graduate Committee Chair of their intent to complete the prospectus at the beginning of the term they plan to take the exam.
Ph.D. Dissertation/Thesis Requirements

Purpose
The dissertation is the culmination of the Ph.D. degree in chemical engineering. The dissertation shows the candidate’s ability to conduct an independent investigation and embody research results that contribute to knowledge or represent an original interpretation of existing knowledge. The dissertation must be written to technical writing standards in the field and must show mastery of the literature in the subject field.

Description
Students intending to defend their thesis should complete and submit the Application for Degree to the Dean's Office by the appropriate deadline.

- Summer: June 15
- Fall: October 1
- Spring: February 1

Students should consult the Guidelines for theses and dissertations preparation before writing the dissertation for specific format requirements. Tulane will accept only those dissertations that conform to these guidelines.

The thesis defense date should be set with the committee, in consultation with the advisor. Students should allow themselves ample time to defend their dissertation and complete any necessary revisions before the submission deadline. Upon successful defense, students should complete and have the committee sign the Oral Defense Approval Form, which should be turned into the Dean's Office immediately following the dissertation/thesis defense.

Directions on submitting printed and electronic copies of the dissertation are available at SSE Doctoral and Masters Dissertation Completion Guide.

Thesis Defense
The School of Science and Engineering requires a public open presentation (defense) of the doctoral dissertation. At least two weeks prior to the defense date, the completed dissertation should be sent to each committee member. At least one week prior to the defense date, an announcement of the defense containing the student’s name, dissertation title, dissertation abstract, and the date, time, and location of the defense should be sent to the department’s Administrative Assistant for distribution to all Chemical and Biomolecular Engineering Faculty and Students as well as other relevant individuals. At the defense, the student should present an overview (typically 30-45 minutes) of their work. Following the presentation, graduate students and other non-committee members are allowed to question the candidate. The final phase is a detailed closed-session questioning period by the committee members only.

Evaluation
If the committee feels that (1) the work represents a thorough and original contribution to the field of Chemical and Biomolecular Engineering and (2) the work is satisfactorily documented in the thesis, then the doctoral degree will be awarded.
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 Associate Dean for Graduate Studies 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.

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

The Master of Science (M.S.) Degree
The Chemical and Biomolecular Engineering Department offers both a thesis and non-thesis master’s degree. Graduate students receiving financial support as research or teaching assistants can earn a M.S. degree only with the approval of Department Chair and SSE Associate Dean for Graduate Studies, and in general, a written thesis is required.

For the thesis option, the student must complete 24 hours of graduate course work plus conduct a research investigation under the guidance of a faculty member. Typically, two years are required to finish the course work and thesis. Upon completion, the student must defend a thesis before a faculty committee, which is chosen as described for Ph.D. students. For the non-thesis option, a total of 30 hours of course work is required. For both degree options, three core graduate chemical engineering courses are required, as outlined in the PhD course work, with up to six independent study credits toward the 24/30 credit requirement. The remainder of the credits must be made with course work.

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 Associate Dean for Graduate Studies 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 completion of all requirements for the degree for full-time students in two years is strongly encouraged.

Selection of Thesis/Academic Advisor
Purpose
Initiation and successful completion of independent research requires early and continued advice and oversight by a faculty advisor. During the advisor selection process, the students should take a holistic view when choosing advisors. This includes lab size, lab focus, advisor management style, lab funding and student placement, as well as the topic being offered. The Office of Graduate and Postdoctoral Studies provides tips to assist you in making the advisor selection.

Timing
During September and October, faculty will give 30-minute presentations that are mandatory for all new students. Generally, thesis advisors are tenure-track or tenured faculty within the Department of Chemical and Biomolecular Engineering. However, there are often collaborative projects formed both within the department and with faculty in other units.

Students are encouraged to meet with faculty outside of the formal talks via student-initiated informal meetings, as well as to meet with lab members for research groups of interest to them. During the first semester, the Graduate Student Ombudsman will serve as an advisor and mentor to all first year students.

In early to mid-November, first-year students submit their top three advisor choices, along with any written explanation for ranking/preferences, to the Graduate Student Ombudsman. Our goal is to do the best possible job of accommodating student research and career interests while meeting the needs of the department with respect to progress on funded research projects. Faculty input on prospective student assignments is obtained and, as noted above, collaborative projects are sometimes created where interest and opportunity emerge from this process. Once assignments for all students are confirmed, all students are notified.

A summary of the timeline for advisor selection is as follows:

August – New student orientation; classes begin
September/October – Faculty advisor talks; meet informally with faculty and more senior graduate students
November – Top three choices for advisor submitted to Graduate Student Ombudsman
End of November/December – Advisors are assigned by Graduate Student Ombudsman in consultation with the Department Chair and Graduate Committee Chair.

Non-technical issues to consider:
- Research groups all have a different culture. Try to clarify for yourself what the potential advisor’s expectations would be of you, the culture of the lab, and how you would fit into that situation
- Talk with students from the potential advisor’s research group to get a different point of view on the points in the previous bullet. Spend some time considering how you will interact with the students in the lab, as you will be with them on a daily basis.
- Visit the spatial location of the research group so that you will see the lab, the office space you would be working in, and observe interactions among current group members.

Advisor Re-assignment
Under rare circumstances, the advisor assignment does not result in a good match between advisor and student. If at any time during the course of graduate study, a student finds that a project or assignment is presenting a conflict that is not resolved by face-to-face discussion with the advisor, he/she should meet with the Graduate Student Ombudsman to discuss the situation and determine a path forward. Advisor reassignment is an option that requires the approval of the Graduate Committee and the Department Chair.

General information about mentoring relationships can be found on the website of the Office of Graduate and Postdoctoral Studies (OGPS).
Formation of the Thesis Committee

The thesis committee is expected to participate in reviewing the graduate student’s progress and guiding the student toward completion of course and program requirements.

Once the student and advisor determine that sufficient preliminary research has been conducted – generally, as they prepare for the prospectus exam – the graduate student should form a thesis committee, in complete consultation with the advisor. PhD dissertation committees must consist of at least three faculty members in addition to the thesis advisor, the majority of whom are Tulane tenure-track faculty. Other members may include Professors of Practice, Research Professors, and/or faculty at other institutions. Typically, committee members are from similar areas of study to the student (e.g. materials, bioengineering, simulations). The department requires that one committee member must be from outside the department or from outside of Tulane and must be included for the final dissertation defense. The external member is expected to have an established record of publication and/or scholarship in the field of the dissertation. These “external” members can have an adjunct appointment in the department, but the primary appointment must be in a department other than Chemical and Biomolecular Engineering.

Committee composition is subject to approval of the Department Chair and the SSE Associate Dean for Graduate Studies. Changes to the committee are allowed only upon approval of the advisor, the Department Chair, and the SSE Associate Dean for Graduate Studies.

Thesis committees should strive to achieve a consensus concerning the student’s performance and quality of work, but in the case of dissenting votes, the majority opinion rules.

It is expected that the student will have the thesis committee formed by the start of the term they plan to complete the prospectus.

Student Conduct and Conflict Resolution

Graduate students and faculty members share the responsibility for maintaining professional relationships based on mutual trust and civility. In addition, the department recognizes that graduate students have a right to be protected from personal exploitation and to receive recognition for scholarly assistance to faculty.

The first venue to resolve conflicts between graduate students and faculty lies within the department. The process for conflict resolution follows that of the University policy for student complaints and the steps that relate to the department are described below. Additional information can be found at SSE Graduate Academic Appeals.

1) Within one month of receiving the grade or other cause of complaint, the student should make an informal attempt to resolve the grievance by setting a face-to-face meeting with the faculty member or other advisor. (If the faculty member or supervisor cannot be reached due to summer vacation or other circumstances, contact should be made as soon as possible).

2) If the student and faculty member cannot arrive at a mutually satisfactory solution within seven working days, the issues should be referred immediately by the student to Department Ombudsman, who may invite written statements from both parties.
3) As appropriate, the Ombudsman may refer the case to the Department Grievance Committee, which is the Graduate Committee. The student may also seek this option at their discretion. The committee should render a decision on the matter within ten working days of receiving the written statements. The committee records should contain not only the decision but also an explanation of the grounds upon which the decision was reached. The Chemical and Biomolecular Engineering Graduate Committee is composed of several faculty members (typically four) that represent faculty of all ranks that are involved in the graduate education process. Appeals to the committee decision follow the SSE Graduate Academic Appeals process.

Research

Graduate studies are more independent than those during the undergraduate stage. As a graduate student, you will be expected to take the initiative to read relevant literature, and connect classwork assignments to your research project, with help from your advisor. Scientific research for our field refers to the process of collecting and distilling relevant information from the primary scientific literature on an important area of scientific and/or engineering need, as well as to the more active component of collecting new information and analyzing the results. The amount of time spent in each part of the research experience depends on the research project itself. Over the course of a Ph.D. dissertation, students will learn appropriate analytical, computational, and/or statistical methods for data analysis that often evolve or emerge as the project progresses. An additional key component of Ph.D. level research is the ability to design new experiments and to generate a logical progression of experiments (either simulations or wet-lab) to help validate or nullify a given hypothesis. Much of the success of a Ph.D. dissertation cannot be predicted, but it will certainly be necessitated by consistent dedication and hard work beyond the classroom experience. Unlike the undergraduate experience, as a graduate student the expectation is that you will be working “all the time,” with the exception of times when Tulane is closed (for example, graduate students are expected to work on research over the summer and during “Spring Break”). There are no formal vacation or sick policies for graduate students at Tulane. Your work schedule and your vacation time should be discussed directly with your advisor. Since students have different projects, primarily with different advisors, and take on different research challenges, student to student comparisons are difficult, and become much more subjective compared to coursework. Success in the Ph.D. process is measured by the quantity and quality of original research, the depth and breadth of knowledge in the field, and completion of publication-quality research (and ultimately the thesis).
Students are generally expected to produce research that results in the equivalent of two to five publishable journal articles within a period of approximately five years post-baccalaureate. Specific expectations should be made clear at the beginning of the thesis and re-established at critical points (such as the Prospectus exam stage), but do vary by sub-field and other mitigating factors, such as whether a student is embarking on a novel research area within an advisor’s laboratory.

Financial Support

Most full-time Ph.D. students receive tuition scholarships with their admission and accompanying teaching or research assistantships. Students in the department are typically supported as teaching assistants during their first academic year, and thereafter as research assistants. Students supported as teaching or research assistants are required to pay only university fees. These include the academic support fee, student activity fee, Reily recreational center fee and student health center fee. The current tuition and fee schedule can be found at Tulane Accounts Receivable.

Loss of teaching or research support (usually a result of academic probation) results in a step-down policy of support of tuition according to the Tuition Scholarship Policy. Note that graduate assistantship can be terminated for cause, as outlined in the Tulane Student Guide for Policies and Procedures. Violations include (but are not limited to) cheating, plagiarism, sabotage, harassment, abusive or disorderly conduct, incompetence, failure to carry out assigned duties, theft or misuse of University property, use of professional authority to exploit others, or violation of law and/or University rules and regulations.

As long as you are making satisfactory academic progress in your program, the department anticipates providing assistantship and/or fellowship support to you for five years. To continue your financial support on a yearly basis, the School of Science and Engineering requires that you maintain a 3.0 GPA, satisfactorily perform your TA/RA duties and responsibilities, and be making satisfactory progress toward completion of your degree.

Outside employment.

All graduate students on financial support (RA/TA) have an obligation to spend the appropriate amount of time and effort on the project providing their financial support. Outside employment in general is not viewed favorably. Students are not allowed to have outside employment if they are serving as a teaching assistant (TA) on a position supported by the Department. In the case of students supported on research assistantships (RA) the student must talk with their advisor and get written approval before beginning
any outside employment. This written approval must be conveyed to the graduate committee chair to be placed in the student’s file. Students found to have outside employment without prior approval may be dismissed from the program for cause under guidelines of the Tulane Student Policies and Procedures.

**Travel Support**

There are several ways to receive support to attend a professional meeting in which you are presenting your research in a talk or a poster, beyond the support of your research advisor. Tulane’s Office of Graduate and Postdoctoral Studies (OGPS) awards a limited number of travel grants of up to $500 each for graduate and professional students to present at professional conferences. Applications are accepted three times per year. See [http://tulane.edu/ogps/grad-travel.cfm](http://tulane.edu/ogps/grad-travel.cfm). Eligible costs include airfare, conference registration, and transportation (parking, taxi, car rental, train passes, etc.); no lodging or meals.

In addition, the Dean’s office of SSE offers up to $300 for one trip per academic year for transportation, lodging, and registration only. The Dean’s office must be informed as soon as possible before the trip is made with your name, conference name and date, department, mentor, and the title of your presentation to segrad@tulane.edu for approval. During the trip, save all receipts, and upon return, save a copy of receipts and turn in original receipts with a filled-out Graduate Travel Reimbursement Form.

Travel Support from the department or academic advisor can be reimbursed if approved using the Travel Expense Itemization Form, with copies of all receipts organized and taped to a plain sheet of white paper. Save a copy of receipts for your records.

**Protocol for student travel.** The staff generally will not make travel arrangements or other advance bookings for graduate students (i.e. conference registration, meal reimbursements, plane ticket purchases). Individual travel and reimbursement policies for each laboratory should be worked out between the student and the PI (i.e. reimbursement vs. or in addition to applying for travel funds) and what expenses will be covered. Please also remember to include itemized statements as appropriate, and documentation that addresses the “who, what, where, when, and why” for the travel.

**Reimbursements.** As for all business expenses, students should be sure to have copies of itemized receipts, and depending on the nature of the purchase, there are well-defined maximum dollar values for which students can be reimbursed. The student should discuss this with their advisor in advance of purchasing something for which they will need to be reimbursed. If there are uncertainties, your advisor can talk with the Department Business Manager about how to properly handle this. Related to the issue of what is an acceptable level of reimbursement for meals, there are well-defined university guidelines on per diem for travel / entertainment. Those are good guidelines and can be found on Gibson. Also, recall for reimbursements one should supply documentation that addresses the “who, what, where, when and why”. Reimbursement requests submitted without sufficient documentation will not be processed until such documentation is supplied.

**Graduate student awards**

The department has several mechanisms to recognize and acknowledge student excellence. Some of those are highlighted below.
Outstanding Graduate Student Award. The Outstanding Graduate Student Award recipients have demonstrated outstanding performance in their ability to conduct and communicate original research. Recipients have made significant contributions to the literature in their field worthy of recognition. These recipients have been selected on the basis of the quality, impact, and number of peer-reviewed publications as well as recognition of outstanding performance by the wider research community through awards, grants, and honors.

Graduate student publication award. The Department, typically at the December holiday banquet, recognizes graduate students who have published papers during the calendar year. The criteria for this include

1. Are original research articles, i.e. not review papers.
2. For cases of ‘co-first authorship’, both students will be recognized
3. Students must be enrolled as a student when the publication is accepted. For example, a student who graduates over summer and has a paper accepted in fall is not eligible (based on the fall paper’s acceptance).
4. Papers that can be shown to be accepted by December 1, assuming the student is enrolled, will be recognized.
5. Students only receive one check in a calendar year, independent of the number of accepted first author papers.

Best student presentation awards. The Department also has graduate colloquia, often with the second year (May) and fourth year students (January) participating. There can be, at the discretion of the faculty, recognitions given to truly outstanding efforts by students.

UNIVERSITY POLICIES AFFECTING GRADUATE STUDY

Academic Integrity

Tulane University expects students to conduct their academic endeavors with honesty and integrity. As part of the University community, graduate students have certain responsibilities regarding work that forms the basis for the evaluation of their academic achievement. Any student behavior that has the effect of interfering with the education, pursuit of knowledge, and/or a fair evaluation of the student’s performance is considered a violation of the proscribed academic conduct, as set forth in the Unified Code of Graduate Student Academic Conduct. The Code also outlines procedures to be followed if there is a suspected violation. Students are expected to be familiar with the Code. Principles and activities not covered by the Code may fall under the purview of university or departmental research and/or ethics committees. Questions concerning jurisdiction should be addressed to the Associate Dean for Graduate Studies of the School of Science and Engineering.

Student Record Policy

Tulane University complies with the provision of the Family Education Rights and Privacy Act of 1974 (Buckley Amendment), which was enacted to protect the privacy of education records, to establish the right of students to inspect and review their education records, and to provide
guidelines for the correction of inaccurate or misleading data. The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records. Read more about your rights under FERPA on the Student Affairs website.

Research Oversight

Animal Research – Federal law mandates that any research conducted by students (graduate or undergraduate) that involves animals must be reviewed and approved by Tulane’s Institutional Animal Care and Use Committee (IACUC). This includes, but is not limited to master’s theses and Ph.D. dissertations. Protocols are submitted via email. Details are on the IACUC website.

Human Subjects Research – Federal law mandates that any research conducted by students (graduate or undergraduate) using human beings as subjects and intending to contribute to generalizable knowledge must be reviewed and approved by Tulane’s Institutional Review Board (IRB). This includes, but is not limited to master's theses and Ph.D. dissertations. IRB protocols should be submitted two months before starting research to ensure adequate time for review. All submissions are completed online. Details are on the Human Research Protection Office website.

Intellectual Property Policy - Under the Tulane Intellectual Property Policy and Procedures document, all full or part-time faculty and staff, graduate students, residents, and fellows, and any other person who is aided by University facilities or staff or by funds administered through the University are required to disclose any patentable and/or copyrightable inventions to the University. As a condition of their employment or affiliation with Tulane, all such covered individuals must execute an Assignment of right, title and interest to any intellectual property to Tulane University. This policy is managed by the Office of Technology Transfer & Intellectual Property Development. Consult with your faculty advisor if you have questions about intellectual property issues.

Lab Safety

Tulane’s Office of Environmental Health and Safety (OEHS) offers several online laboratory safety training modules. More information can be found at their website http://tulane.edu/oehs/.

Americans with Disabilities Act

It is the policy and practice of Tulane University to comply with the Americans with Disabilities Act (Pub. L. No. 101-336), Section 504 of the Rehabilitation Act of 1973 (Pub. L. No. 93-112, § 504, as amended), and state and local requirements regarding individuals with disabilities. Under these laws, no qualified individual with a disability shall be denied access to or participation in services, programs, and activities of Tulane. The Office of Disability Services (ODS) is committed to providing equal access and a friendly environment for all who study and work at Tulane. Through collaboration and exploration, modifications to the academic or work environment – accommodations – can be offered to students and employees with registered disabilities.

Student Conduct

The university requires of all of its students behavior compatible with its high standards of scholarship and conduct. By accepting admission to Tulane University, a student accepts its regulations, including the Code of Student Conduct, and acknowledges the right of the university
to take conduct action, including suspension or expulsion, for conduct judged unsatisfactory or disruptive. The Vice President for Student Affairs is responsible for formulating appropriate procedures and, as set forth in the Code of Student Conduct, regulations concerning student behavior and for the resolution of conduct cases.

**Equal Opportunity, Harassment, and Anti-Discrimination**

Tulane’s Office of Institutional Equity is responsible for the implementation of the University’s Equal Opportunity, Harassment, and Anti-Discrimination Policy and Procedure. All faculty, administrators, staff, students, and individuals affiliated with Tulane University by contract (including non-employees, such as vendors and independent contractors) are bound by this policy, which includes the University's statements of equal opportunity and anti-discrimination, the harassment policy, and complaint procedures.

**RESOURCES**

**Professional Development**

Tulane's Office of Graduate and Postdoctoral Studies (OGPS) sponsors professional development workshops for graduate students during fall and spring semesters. Check the OGPS website for details. Announcements are also sent via OGPS' graduate student listserv.

**Student Resources & Support Services**

Student Resources & Support Services (SRSS) is the office on-campus that provides support to students who are experiencing difficulties of any kind. Services provided or coordinated by SRSS include:

- Case Management
- Victim Support
- Referrals (to internal and external offices)
- Alcohol/Drug and Health & Safety Referrals
- Mandated Assessments
- Medical Withdrawal Return Process
- Process of Care Support (Student Affairs professional on-call)
- Tulane Legal Assistance Program
- Online Reporting System Oversight
- Threat Assessment/Behavioral Intervention
- Case/Problem resolution
- Student Conduct Issues

General Line: 504-314-2160
Online Report Form: [http://tulane.edu/concerns](http://tulane.edu/concerns)
Campus Resources

Academic Calendars
Calendar of Events
Campus Maps
Career Center
Center for Engaged Learning & Teaching (CELT)
Course Listings & Catalogs
Financial Aid
Graduate Student Meal Plans
Howard-Tilton Memorial Library

International Students & Scholars Office
LGBTQ Student Life
Multicultural Affairs
Off Campus Residents’ Association (OCRA)
Office of Disability Services (ODS)
Office of Graduate & Postdoctoral Studies
Office of Off-Campus Housing
Office of the Registrar
Reily Student Recreation Center
Student Health Services
Student Resources & Support Services
Technology Services
Tulane Police Department

DEPARTMENTAL INFORMATION

Clubs/Organizations

The Chemical and Biomolecular Engineering Graduate Student Association (CBEGSA) is open to all graduate students in the department. This organization was established to represent chemical engineering graduate students in affairs within Tulane. The association acts as a liaison between graduate students and faculty within the department, as well as administrative bodies outside the department. In addition, other activities, such as intramural sports, social gatherings, a graduate student seminar series, and relocation assistance for new students, are arranged through CBEGSA. There are no dues for membership in CBEGSA. Officer elections are held annually during the spring.

The Graduate Women* in Science and Engineering (WISE) group is open to all graduate students in the School of Science and Engineering, regardless of gender identity. This organization was recently founded in 2016 to support the professional development of all graduate students and to provide a comfortable environment for the discussion of gender-related issues that impact science and engineering fields. Activities include professional development workshops and social gatherings. Topics discussed among this group have included items such as work-life balance, identifying and applying for graduate fellowships, imposter syndrome, and mindfulness. Email wisetulane@gmail.com or find the group on Facebook to join. There are no dues for membership in WISE. Officer elections are held annually during the spring.
Facilities & Services

Hours
The normal hours of operation of the departmental offices are 8:30 a.m. - 5:00 p.m., Monday through Friday.

Computing Facilities
The Chemical and Biomolecular Engineering Department has an instructional computer lab (Boggs 341B). This facility is primarily intended for undergraduate use, but graduate students are welcome to use it when a class is not in session and computers are available. Please be aware that you may be asked to leave if an undergraduate course is scheduled in this room. Department computer facilities are maintained by the department computer systems manager (Prof. Katie Russell).
Tulane University provides an up-to-date, reliable and robust technology service that includes (1) centrally-managed computer hardware and software in support of the University's instructional mission and its administrative functions, (2) a university-wide data network and its wide area connections, (3) and end-user support for the services delivered by the technology. For more information, students should consult the Tulane Technology Services. Generally, technology services will not fix problems with hardware or software in research laboratories or student offices, but can provide phone support, and will fix problems with the Tulane network.

Coordinated Instrumentation Facility
Tulane University operates a Coordinated Instrumentation Facility (CIF), which is located on the sixth floor of the Lindy Boggs building, as well as Percival Stern Hall, Suite 3001 and 1032. The CIF core facility is home to an inorganic lab (X-ray diffractometer, X-ray fluorescence), Microscopy Lab (Transmission Electron Microscopy, Scanning Electron Microscopy, Confocal Microscopy), and organic laboratory (500 MHz NMR, GC/MS, ICPMS). The CIF staff maintains the equipment and assists researchers with methods development and data collection. They also train students and researchers in the use of the shared equipment. The CIF is also responsible for overseeing operation of the Tulane Micro/Nano Fabrication Facility (a.k.a. cleanroom) on the first floor of Stanley Thomas Hall.

Safety Information

General Information
The safety practices described in the American Chemical Society publication Safety in Academic Chemistry Laboratories apply to all Tulane Chemical and Biomolecular Engineering laboratories. This publication covers such items as handling of laboratory glassware and chemicals, the use of safety glasses, and respiratory and fire hazards.
Tulane’s Office of Environmental Health and Safety (OEHS) offers several online laboratory safety training modules. Graduate students who may come in contact with blood or other potentially infectious materials must complete the Bloodborne Pathogens module which is an annual OSHA requirement. Laboratory personnel who use formaldehyde or formalin in their laboratory or work area must also complete the Formaldehyde module, an annual requirement of OSHA. The Hazardous Waste course, required by the LADEQ, must be completed annually for those who generate chemical waste. The Fire Safety course must be completed annually per university policy. Several other safety training modules are available on the OEHS site. It is up to the supervisor/principal investigator to determine which additional modules meet the training needs of lab members.
Some general safe laboratory practices are:
• Never pipette by mouth.
• Never eat, drink, or smoke in lab areas.
• Know the location of the nearest eyewashes, safety showers and fire extinguishers, and know how to operate them in case of an emergency.
• When working with chemicals, or developing a new protocol, check with your advisor regarding the requirements for protective clothing and handling precautions.

Fire Safety
All principal campus buildings are equipped with a fire detection and general alarm system, and all laboratories should be equipped with hand-portable fire extinguishers. Before a fire emergency occurs, lab personnel should identify two exit routes from the work area, and ensure that these routes remain unobstructed.

If a fire occurs in your area, you should follow the following procedures:
Alert personnel in the immediate area and sound the building general alarm by activating the nearest pull-station, located in the hallway next to an exit door.
1. Isolate the fire area by closing doors and windows, if possible.
2. Evacuate the building by way of marked exits and stairwells, closing doors behind you as you exit. DO NOT USE THE ELEVATORS.
3. Assemble personnel at a safe location away from the building. Do not re-enter the building until it has been determined safe to do so by the Campus Police.

Eye and Safety Washes
All laboratories where personnel may be exposed to harmful chemicals should be provided with safety showers and eyewash fountains. Immediate washing of the skin and eyes after chemical contact should be followed as a primary first aid treatment for chemical burns. Everyone should know the location and proper use of the nearest eye wash stations and safety showers.

Gas Cylinders
University policy requires that compressed gas cylinders be securely strapped or chained at all times. When transporting cylinders, they should never be dropped or permitted to strike each other violently. Valve safety covers should be left on cylinders until they are secured to walls, benches or other stable support. Cylinders must be transferred only by carts or hand trucks, never by dragging or rolling. Empty cylinders should be so labeled by "empty" or "MT". Only pressure regulators and valves approved for specified gases may be used with gas cylinders. Cylinders should not be subjected to temperatures above 125°F, nor should a flame ever be permitted to contact any part of a compressed gas cylinder.

Hazardous Materials
Hazardous materials are those that in and of themselves present a danger to health and/or safety. Special precautions must be observed in their use, handling, storage and disposal. Hazardous materials may be chemical, biological, or radioactive in nature. Personnel using or storing hazardous chemicals are responsible for complying with OEHS policies and procedures, including keeping a yearly inventory of Hazardous Materials.
Material Safety Data Sheets (MSDSs) provide detailed health and safety information, handling precautions, emergency response and first aid procedures for both hazardous and non-hazardous chemicals. Current MSDSs for all chemicals used in a laboratory should be maintained for reference for lab personnel. MSDSs on chemicals used at the Uptown Campus are maintained in the OEHS office, and are provided to students and staff upon request. MSDSs are also available directly from the supplier.
Hazardous Waste Disposal requirements include information on labeling, containing, and pickup of waste. Generally, waste should be minimized by purchasing quantities consistent with their intended rate of use, and by substituting less hazardous materials when possible. Biological, chemical and radioactive hazardous wastes have special disposal requirements. Provisions have been made by OEHS with licensed contractors specializing in hazardous waste disposal. Users of hazardous materials are advised to use the Tulane OEHS guidelines for their storage and disposal:

DO NOT pour hazardous wastes down building drains or into the municipal sewerage or drainage systems.
DO NOT dispose of hazardous wastes in the trash.

Emergencies

If you are involved in an emergency and need assistance, the following procedure should be followed:

1) **DO NOT** call off-campus agencies.
2) **CALL** Tulane University police by dialing:

   **Uptown campus**
   - dial 5-5911 (on campus)
   - or 504-865-5911 (off campus or cell phone)

   **Downtown campus**
   - dial 5-5555 (on campus)
   - or 504-988-5555 (off campus or cell phone)

   - Or, pick up the handset in any of the emergency call stations identified by the blue light, located throughout the campus.
   - Tell the dispatcher the nature of the emergency, exact location and your name. **DO NOT HANG UP UNTIL REQUESTED TO DO SO.**

Injuries or Illnesses

Report all job-related accidents and illnesses to your advisor, or the office staff, if your advisor is unavailable, and fill out the **Occupational Injury/Illness form**. They will ensure that you receive the proper medical attention.

Storm-Ready/Emergency Preparedness

In the event of University-wide or citywide emergencies, such as severe storms, Tulane has developed a system for **Emergency Response** as part of the **Office of Emergency Management**. Please ensure your contact information is up-to-date with the department.

Contact Information

<table>
<thead>
<tr>
<th>Department</th>
<th>Phone</th>
<th>Email (@tulane.edu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Engineering Office</td>
<td>314-2914</td>
<td>chemeng</td>
</tr>
<tr>
<td>Dan Shantz, Professor and Dept. Chair</td>
<td>865-3170</td>
<td>dshantz</td>
</tr>
<tr>
<td>Julie Albert, Assistant Professor</td>
<td>862-3260</td>
<td>jalbert6</td>
</tr>
<tr>
<td>Henry Ashbaugh, Professor</td>
<td>862-8258</td>
<td>hanka</td>
</tr>
<tr>
<td>W Godbey, Associate Professor</td>
<td>865-5872</td>
<td>godbey</td>
</tr>
<tr>
<td>Name</td>
<td>Phone</td>
<td>Username</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>---------</td>
<td>----------</td>
</tr>
<tr>
<td>Richard Gonzalez, (Emeritus) Professor</td>
<td>865-5741</td>
<td>gonzoe</td>
</tr>
<tr>
<td>Vijay John, Professor</td>
<td>865-5883</td>
<td>vj</td>
</tr>
<tr>
<td>Brian Mitchell, Professor</td>
<td>862-8257</td>
<td>brian</td>
</tr>
<tr>
<td>Matthew Montemore, Assistant Professor</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Kim O'Connor, Professor</td>
<td>865-5740</td>
<td>koc</td>
</tr>
<tr>
<td>Kyriakos Papadopoulos, Professor</td>
<td>865-5826</td>
<td>kyriakos</td>
</tr>
<tr>
<td>Noshir Pesika, Associate Professor</td>
<td>865-5771</td>
<td>npesika</td>
</tr>
<tr>
<td>Lawrence Pratt, Professor</td>
<td>862-8929</td>
<td>lpratt</td>
</tr>
<tr>
<td>Anne Robinson, Professor</td>
<td>862-5775</td>
<td>asr</td>
</tr>
<tr>
<td>Katie Russell, Prof. of Practice, Safety Officer</td>
<td>865-5774</td>
<td>krusell1</td>
</tr>
<tr>
<td>Nicholas Sandoval, Assistant Professor</td>
<td>862-3261</td>
<td>nsandova</td>
</tr>
<tr>
<td>Blake Trombatore, Lab Research Technician</td>
<td>865-5772</td>
<td>Btrombatore</td>
</tr>
<tr>
<td>Janel Fielding, Accountant</td>
<td>314-2919</td>
<td>jfielding</td>
</tr>
</tbody>
</table>

**School of Science and Engineering Numbers**

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSE Dean’s Office</td>
<td>865-5764</td>
</tr>
<tr>
<td>Kimberly Foster, Dean</td>
<td>865-5764</td>
</tr>
<tr>
<td>Janet Morgan, Senior Program Coordinator for Graduate Programs</td>
<td>314-2910</td>
</tr>
<tr>
<td>Sr Exec Sec’y</td>
<td>865-5764</td>
</tr>
<tr>
<td>Brian Mitchell, Interim Associate Dean for Graduate Studies, Research, and Facilities</td>
<td>865-5764</td>
</tr>
<tr>
<td>Beth Wee, Assoc. Dean, Undergrad. Program</td>
<td>314-7548</td>
</tr>
</tbody>
</table>

**Campus Numbers**

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Health and Safety</td>
<td>865-5307</td>
<td><a href="http://www2.tulane.edu/oehs/index.cfm">http://www2.tulane.edu/oehs/index.cfm</a></td>
</tr>
<tr>
<td>Emergency (Accident, Fire, etc.)</td>
<td>865-5911</td>
<td>(55911 on campus)</td>
</tr>
<tr>
<td>Campus Police (Uptown campus)</td>
<td>865-5911</td>
<td>(55911 on campus)</td>
</tr>
</tbody>
</table>