

The background image shows a courtyard of a modern university building. On the left is a multi-story building with a light-colored, textured facade and vertical window slits. In the center, a tall palm tree stands prominently. To the right, a multi-level spiral staircase with metal railings and walkways winds upwards. The sky is overcast. The text is overlaid in a green, outlined font.

Tulane University
School of Science &
Engineering

Department of
Chemistry

2018

Summary of Graduate
Program Requirements

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Department of Chemistry
SUMMARY OF GRADUATE PROGRAM REQUIREMENTS
Revised 2018

I. ENTERING STUDENTS

Students entering with a bachelor's degree in chemistry with normal preparation in chemistry should anticipate completion of doctoral degree requirements in about five years of full-time work (including summer).

Placement examinations will be administered to all entering graduate students in order that students can begin course work at the most appropriate level. Students performing significantly below national norms on the placement exams will require some remedial course work at the undergraduate level. The placement exams cover inorganic, organic and physical chemistry.

In their first year of study students should work to complete their course work, begin taking cumulative exams and choose a research advisor. Requirements for course work and guidelines for selection of a research advisor are stated under Requirements.

A Master's degree is offered for those students who are unable to complete the PhD requirements as long as they meet the minimal requirements for the Master's degree (see Appendix B).

II. REQUIREMENTS

General Requirements for all Chemistry Students

1. Courses - Specific Requirements for the M.S. and Ph.D. degrees are given in Appendix B and C. Students are encouraged to complete their course requirement as quickly as possible after entering the program, preferably within their first four semesters. An ordinary load in the program is 9 to 12 hours (at least three 3 lecture courses). Students must meet the Continuous Registration Requirement of the Chemistry Department (as defined in Appendix A). In addition, the Department requires that students must successfully complete 6 hours of course work (not including independent study or thesis research) each semester during the first two semesters of graduate study. *Students unable to satisfy this requirement may be subject to academic probation. Failure to comply with this requirement in two consecutive semesters is adequate justification for expulsion from the program.*
2. Selection of Research Advisor - All first year graduate students are required to interview at least five faculty members to discuss possible

research projects. Students should attend presentations given by faculty describing their research as one means of interviewing faculty member. Students beginning in the fall semester must select a research advisor prior to the end of their second semester in the graduate program. Students that begin in January are strongly encouraged to join a research group before the first summer. Students should be aware that faculty/advisor relationship is by mutual agreement. Both the student and the advisor must sign a *Research Advisor Selection Form* (available on the department's website, as well as appended in the back of this book. The *Research Advisor Selection Form* must be completed and submitted to the Chemistry Department office before the end of the second semester.

3. Cumulative Exams - The written requirements for both the M.S. and Ph.D. degrees are fulfilled by passing Cumulative exams; PhD requires the passing of 6 cumulative exams and M.S. requires the passing of 2 cumulative exams. Exams are given 10 times a year, with separate examinations being given in the areas of inorganic, organic and physical chemistry. Students may attempt one or more individual exams each exam period
4. Full time Residence Status - A student must be registered for at least three hours of graduate credit per semester. A student must be registered in full-time residence status in order to hold a fellowship, a scholarship, or any of the various kinds of assistantship.
5. 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 another institution. Tenure is not affected by residence status. Under certain circumstances the Dean may extend tenure, but a student whose period of graduate study is unduly prolonged or interrupted may be required to perform additional work. Specific tenure requirements are given for each degree, below.
 - a. **Ph.D Degree** - The maximum time allowed by the SSE Graduate Program for completion of the Ph.D. degree is seven years. The Department, however, strongly encourages students to attempt to complete requirements in no more than five years.
 - b. **Master's Degree** - The maximum time allowed to obtain an M. S. degree is two years from entering the M.S. track.

6. Dissertation Prospectus

By the end of the fifth semester, students must submit a written proposal of their dissertation research project and make an oral presentation of it to their dissertation committee. The prospectus should be approximately three doubled-spaced typewritten pages in length. The cover sheet should state the student's name, department/program, the title of the proposed dissertation, and the name of the chair and the other members of the committee. The introduction of the prospectus should contain a summary of earlier work on the problem. The body should include an orderly description of the plan for the investigation. The conclusion should clearly state the anticipated nature of the investigation results. Major sources of information should be indicated and a selective bibliography attached. The prospectus should be submitted to the SSE Graduate Programs office along with a signed copy of the prospectus approval form.

7. Grade Point Evaluation - Graduate students are expected to maintain a cumulative B average (3.0 on the system outlined below) in formal course work.

The B average is determined by this scale:

A	=	4.0 points per credit hours
A-	=	3.67 points per credit hours
B+	=	3.33 points per credit hours
B	=	3.0 points per credit hours
B-	=	2.67 points per credit hours

No grades below B- count towards graduate credits. Written approval of the Graduate Affairs Committee is required prior to dropping a course.

A student who does not possess a cumulative average of 3.0 will be placed on probation for one or more semesters or dismissed. During the semester(s) on probation, the student must regain a 3.0 average while taking a full load of courses. *Failure to regain a 3.0 average during the probationary semester will result in either dismissal, provisional status for one semester, or limitation to a Master of Science degree, depending on faculty decision. A student on provisional status must remove him/herself from provisional status within one semester or face automatic dismissal.*

In addition to the departmental requirement of a 3.0 cumulative average, the SSE Graduate Program requires that any student receiving a grade of B- (irrespective of his/her GPA) be considered for probation.

Receipt of two grades of B- or one grade below B- results in automatic probation and consideration for dismissal by the SSE Graduate Program in consultation with the department.

8. Graduate Program Deadlines

A current issue of the graduate bulletin should be consulted to determine the appropriate deadlines for submission of the SSE Graduate Program prospectus and for submission of dissertation/thesis in order to be awarded a diploma for a Ph.D. Degrees earned in the School of Engineering (SSE) are awarded three times a year-December, May and August. There is only one commencement program and that is held in May. A candidate must be present to receive the degree unless the candidate has been excused by the associate dean. A request to receive a degree in absentia must be filed in the dean's office at the time the diploma form is submitted. Candidates for degrees are required to complete an application for degree form on or before the deadline dates.

Important Deadlines

(Fall) October (no ceremony)	Last day to submit Application for Degree Form
(Fall) November (no ceremony)	Last day to submit dissertations or Thesis in final form
(Fall) December (no ceremony)	Degrees Conferred
(Spring) May	Unified Ceremony

(**Check online with the SSE Graduate Program)

9. Diplomas

The Registrar's Office distributes diplomas. Diplomas are not available until after the degree is conferred. Because there is no commencement in August or December, graduates complete a diploma/in absentia form to obtain their diploma. Students may opt to pick up their diploma, have the diploma mailed, or request that the diploma be held by the Registrar's Office until commencement.

10. Compensation and Employment Outside the University

Graduate student compensation from all sources including scholarship, research assistantship, and teaching assistantship shall not exceed 125% of the current year's Board of Regents Scholarship level. Exceptions may be made for certain prestigious scholarships by the Graduate Affairs committee on a case by case basis. Employment outside the department is strictly prohibited. *Any off-campus employment for*

remuneration may disqualify a student from receiving SSE Graduate Program financial aid.

III. GENERAL INFORMATION

Transfer Credits - Graduate students desiring transfer of graduate credits earned at another school should submit their requests in writing to the Graduate Affairs Committee. A maximum of 18 hours transfer credit will be accepted in the case of a student entering with a Master's degree. Students will not be excused from core courses unless they can demonstrate having taken for credit an equivalent course. University regulations state that courses cannot be transferred to Tulane until the student has been in residence at Tulane at least one semester.

To petition courses for transfer the student must present the following information to the Graduate Studies Committee:

- A copy of his/her transcript from the University where the course to be transferred was taken.
- A syllabus from the course including information on the textbook(s) used.
- Any additional information such as copies of tests given will be helpful.

Leaves of Absence

Students may, on occasion, need to leave the university during the course of their degree program for extended periods. The student should, if able, submit a written petition for a leave to the Graduate Affairs Committee of the department. The statement should include an explanation of the need for taking the leave and state the duration of the requested leave. In general, teaching assistantship and Fellowship support will be discontinued during leaves of absence. Degree requirements and tenure requirements will be postponed by the length of the leave or by a period of time deemed appropriate by the Graduate Affairs Committee.

Honor System

Graduate students are expected to maintain the highest ethical standards while performing all course and laboratory work. Graduate students serve as a part of the academic core of the University; a high degree of integrity is required within the University in order for the information generated by its members to be of any use to the society it serves. The obligation of Graduate students includes, but it is not limited to the following:

- Completing examinations and other written course work following the instructions of the professor. Unless explicitly instructed to do otherwise, students will work independently using only materials approved by the instructor. Cheating on course work is a violation of the Honor Code and individuals accused of cheating will be subject to investigation and potential sanctions as outlined in the University Honor Code.
- Accurately citing the work of others in all written course work, and all professional activities such as papers submitted to scientific journals. Knowingly plagiarizing the work of another individual is a violation of the Honor Code and will be penalized according to procedures outlined in the SSE Graduate Program Bulletin.
- Presenting only laboratory results which the student believes to be correct. Falsification of data is a serious violation of the Honor Code and is subject to sanctions by the SSE Graduate Program.

APPENDIX A

CONTINUOUS REGISTRATION REQUIREMENTS

A student admitted to the Department of Chemistry Graduate Program must maintain a continuous registration in a degree-granting division of the University (exclusive of Summer Session) until the awarding of the degree. A student who is not registered for course work in a degree-granting division of the University must be registered in Master's Research or Dissertation Research in order to remain in continuous registration, including the summer semesters.

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

Students who have not completed the minimum course work requirement of the department must enroll for a minimum of 3 hours of course work per semester or register for Master's Research (CHEM-9980) or Dissertation Research (CHEM-9990). All students who have completed their minimum course work requirements, passed all required cumes, and successfully completed their dissertation prospectus, are required to register for Master's Research (three credit hours) or Dissertation Research (three credit hours). This entitles students to full student privileges.

The Department will assume that students failing to maintain continuous registration have withdrawn from the University. The Department reserves the right not to readmit. If a student is readmitted, he/she is obligated to pay the applicable fee required to maintain continuous registration. Students who have completed minimum course work requirements may register for additional courses in lieu of Master's Research or Dissertation Research. Tuition and fees will be assessed according to the usual schedule.

APPENDIX B

M.S. Degree Requirements

1. Course Requirements (5 courses total)

The minimum requirement for the Master's degree is five courses (15 course hours in total) at the 7000 level, three of which must be core courses. Out of the three core courses, up to two can be taken within one field of chemistry. The core courses offered, by division, are:

Physical Chemistry: 7110, 7120, 7150;

Inorganic Chemistry: 7210 or 7220, 7230 or 7240;

Organic and Biological Chemistry: 7410, 7460, 6830-40 (both courses combined count as one).

The remaining two elective courses should be selected from 7000 level chemistry courses (other than 7870 - 7900) or 7000 level courses from other SSE departments that meet the approval of the Graduate Affairs Committee. To meet the total number of hours required by the SSE Graduate Program, students may take up to 5 hours of research, Chemistry Department seminars, and courses in other departments.

Core-course description:

CHEM 7110 – Introductory Quantum Mechanics

CHEM 7120 – Statistical Mechanics

CHEM 7150 – Chemical Physics

CHEM 7210 – Inorganic Structure and Bonding

CHEM 7220 – Inorganic Reaction Mechanisms

CHEM 7230 – Organometallic Chemistry (Transition elements)

CHEM 7240 – Organometallic Chemistry (Main group elements)

CHEM 7410 – Advanced Organic – Physical Organic

CHEM 7460 – Advanced Organic – Synthetic Applications

CHEM 6830-40 – Introductory Biochemistry and Intermediate Biochemistry

2. Cumulative Exams

M.S. candidates are required to pass two cumulative exams by their fourth semester of residence. Failure to complete the requirement may result in expulsion from the program.

3. Thesis Committee and Thesis Research
After choosing a research advisor, but no later than the third semester of residence, students are required to obtain agreements from two faculty members (other than the thesis advisor) to participate as members of their thesis committee. One member must be within the division of the research advisor and one member of the committee must be from a division other than that of the research advisor. Students should complete and defend their thesis before the end of their 6th semester in residence. A written draft of the thesis should be available to the thesis committee two weeks prior to the oral defense.

4. Tenure Requirements
The maximum time allowed by the department to obtain an M. S. degree is five years. The Department, however, strongly encourages students in the M. S. Program to complete the degree requirements within two years. Students failing to meet the Graduate requirement may be required to complete additional requirements for the degree.

5. Seminar
Registration for, and attendance at, Departmental seminars is required. Three (3.0) hours of credit for seminar courses may be applied to the M.S. degree requirements. M. S. students must present a seminar to the Department based upon a topic from the current chemical literature. The seminar must be presented before the end of the student's 4th semester in residence. The seminar should be scheduled with the departmental coordinator of the seminar program in the fall of the student's second year. Students presenting seminars are required to enlist two faculty to attend their seminar and provide the (2) faculty with the *Seminar Review Form* for a review of the quality of the presentation. The *Seminar Review Form* can be obtained from the department website and also appended in the back of this book. Students should remember that faculty will only agree to attend if given sufficient notice (one to two weeks) before the seminar.

APPENDIX C

Ph.D. Degree Requirements

1. Course Requirements

The minimum requirement for the PhD degree is six courses (18 course hours in total) at the 7000 level, four of which must be core courses. Out of the four core courses, up to three can be taken within one field of chemistry. The core courses offered, by division, are:

Physical Chemistry: 7110, 7120, 7150;
Inorganic Chemistry: 7210 or 7220, 7230 or 7240;
Organic and Biological Chemistry: 7410, 7460, 6830-40 (both courses combined count as one).

The remaining two elective courses should be selected from 7000 level chemistry courses (other than 7870 - 7900) or 7000 level courses from other SSE departments that meet the approval of the Graduate Affairs Committee. In addition, students should register for a total of six hours of seminar over the first six semesters of matriculation. In all, a total of 48 course hours are required for the Ph.D. students. Up to 24 course hours of the 48 hours required may be taken in Chem 7890 (Techniques of Research) and special interest courses (6000 or above) offered by the Department of Chemistry or related departments. Students should obtain prior approval of the Graduate Affairs Committee to ensure that the courses taken in other departments will count toward the degree.

Core-course description:

CHEM 7110 – Introductory Quantum Mechanics

CHEM 7120 – Statistical Mechanics

CHEM 7150 – Chemical Physics

CHEM 7210 – Inorganic Structure and Bonding

CHEM 7220 – Inorganic Reaction Mechanisms

CHEM 7230 – Organometallic Chemistry (Transition elements)

CHEM 7240 – Organometallic Chemistry (Main group elements)

CHEM 7410 – Advanced Organic – Physical Organic

CHEM 7460 – Advanced Organic – Synthetic Applications

CHEM 6830-40 – Introductory Biochemistry and Intermediate Biochemistry

2. Cumulative Exams

Ph.D. candidates are required to pass 6 total cumulative exams, at least two by the end of their fourth semester of residence and all six by the end of the 6th semester. In addition, at least 3 of the 6 exams must be passed in the candidate's area of concentration.

Students failing to pass two cumes by the end of their fourth semester may be expelled from the program. *Students unable to complete 6 cumes in 6 semesters will be automatically placed in the M.S. program and be expected to complete the M.S. thesis by the end of the seventh semester.*

3. Seminar

Registration for, and attendance at, Department seminars is required. Students are required to register for Division Seminar every semester until they have been admitted to candidacy. Six (6.0) hours of credit for seminar courses may be applied to the Ph.D. degree requirements. All Ph.D. candidates must present a seminar to the Department based upon a topic from the current chemical literature. The seminar must be presented before the end of the students' 4th semester in residence. The seminar should be scheduled with the chemistry department coordinator for seminar programs. Students presenting seminars are required to enlist two faculty to attend their seminar and provide the faculty with a *Seminar Review Form* for a written review of the quality of the presentation; the *Seminar Review Form* can be obtained from the department website and also appended in the back of this book. Students should remember that faculty will only agree to attend if given sufficient notice (one to two weeks) before the seminar.

4. Tenure Requirement

The maximum time allowed by the SSE Graduate Program for completion of the Ph.D. degree is seven years. The Department, however, strongly encourages students to attempt to complete requirements in no more than five years.

5. Dissertation Committee

After choosing a research advisor (no later than the second semester of residence), students must obtain agreements from three faculty members (other than the thesis advisor) to participate as members of their dissertation committee. Two members must be within the division of the research advisor and one member of the committee must be from a division other than that of the research advisor. Students must submit to the Chemistry Department a signed and completed *Thesis / Dissertation Committee Form*. The form can be obtained on the department's website, and also appended in the back of this book.

6. Dissertation Prospectus

By the end of the fifth semester, students must submit a written proposal of their dissertation research project and make an oral presentation of it to their dissertation committee. The prospectus should be approximately three doubled-spaced typewritten pages in length. The cover sheet should state the student's name, department/program, the title of the proposed dissertation, and the name of the chair and the other members of the committee. The introduction of the

prospectus should contain a summary of earlier work on the problem. The body should include an orderly description of the plan for the investigation. The conclusion should clearly state the anticipated nature of the investigation results. Major sources of information should be indicated and a selective bibliography attached. The prospectus should be submitted to the SSE Graduate Programs office along with a signed copy of the prospectus approval form.

7. Admission to Candidacy

Prior to the dissertation, an application for admission to candidacy should be filed with the SSE. This should be done approximately one semester before the final dissertation. Deadlines are posted on the SSE web site.

8. Dissertation

The Ph. D dissertation must reflect the ability of the student to conduct an independent investigation which results in an original contribution to knowledge or an original interpretation of existing knowledge. The research is expected to be reported to the scientific community in the form of publications in refereed journals and/or conference presentations. The student should consult the Graduate Program office to determine the proper format for the Ph.D. dissertation. Upon completion of all other Ph.D. requirements, the student will give a final oral defense of their Ph.D. dissertation. A written draft of the thesis should be available to the dissertation committee two weeks prior to the oral defense. This final examination will consist principally of the defense of the dissertation, but may be extended at the discretion of the Ph.D. examining committee to include course material. The satisfactory completion of this final requirement completes the student's doctoral program.

RESEARCH ADVISOR SELECTION FORM

DATE _____

Name of Student Presenting _____
Print Name Signature

Thesis / Dissertation Advisor _____
Print Name Signature

Additional Faculty Members Interviewed:

1. _____
Print Name Signature

2. _____
Print Name Signature

3. _____
Print Name Signature

4. _____
Print Name Signature

THESIS / DISSERTATION COMMITTEE FORM

DATE _____

Name of Student Presenting Seminar _____

PRINT NAME

Thesis / Dissertation Advisor _____
Print Name Signature

Additional Thesis / Dissertation Committee Members: Faculty signing this form agree to serve as readers for the M.S. thesis or Ph.D. dissertation of the above named student.

1. _____
Print Name Signature

2. _____
Print Name Signature

3. _____
Print Name Signature

NOTE: Names of committee members should be submitted to the Department of Chemistry office, no later than the end of the students fourth semester. M.S. advisor plus two additional members; Ph.D. advisor plus three additional members.

CHEMISTRY PH.D. REQUIREMENTS CHECKLIST

Course Requirements

48 credit hours taken

Up to 24 hours of the 48 hours required may be taken in special projects (7830-7840). Special interest courses(6000 or above) offered by related depts. May be counted toward the 24 hours of additional work.

4 of the following courses:

7110	<input type="checkbox"/>	7410	<input type="checkbox"/>
7120	<input type="checkbox"/>	7460	<input type="checkbox"/>
7210 or 7220	<input type="checkbox"/>	6830 and 6840	<input type="checkbox"/>
7230 or 7240	<input type="checkbox"/>		

2 courses at the 7000 level (other than 7870-7900)

Cumulative Exams

2 Cumes passed by the end of the 4th semester

6 Cumes passed by the end of the 6th semester

3 Cumes passed in the candidate's area of study

Seminar - Presented by the end of the 4th semester

Prospectus - Prospectus Approval Form Submitted by the end of the 5th Semester

Submitted to SSE Dean's office and copy to Chemistry Department

Admission to Candidacy - Form Submitted by the end of the 9th Semester

Submitted to SSE Dean's office and copy to Chemistry Department

Dissertation

Thesis/Dissertation Committee Form to Department

Completion of oral defense of Ph.D. dissertation

Oral Defense Approval Form

Submitted to SSE Dean's office and copy to Chemistry Department