

CHEMISTRY, PHD

Tulane's graduate program in chemistry offers research opportunities in the areas of bio-organic, biophysical, physical, inorganic, organometallic, synthetic organic, polymer material, surface chemistry, as well as crystallography, spectroscopy, quantum theory and statistical mechanics.

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: CHEM 7110 Intro to Quantum Mechanics (3 c.h.), CHEM 7120 Statistical Mechanics (3 c.h.), CHEM 7150 Chemical Physics (3 c.h.);
- Inorganic Chemistry: CHEM 7210 Inorganic Stru & Bond (3 c.h.) or CHEM 7220 Inorganic Reaction Mechanics (3 c.h.), CHEM 7230 Organomet/Trans. Metals (3 c.h.) or CHEM 7240 Organometallic Chemistry (Main Group Metals) (3 c.h.);
- Organic and Biological Chemistry: CHEM 7410 Adv Organic Physical Organic (3 c.h.), CHEM 7420 Adv Organic Spectroscopy (3 c.h.), CHEM 7460 Adv Organic-Synthetic Ap (3 c.h.), CHEM 6830 Intro To Biochemistry (3 c.h.)-CHEM 6840 Intermediate Biochemistry (3 c.h.) (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 (1-9 c.h.)-CHEM 7900 Techniques of Research (1-9 c.h.) 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

Course ID	Title	Credits
CHEM 7110	Intro to Quantum Mechanics	3
CHEM 7120	Statistical Mechanics	3
CHEM 7150	Chemical Physics	3
CHEM 7210	Inorganic Stru & Bond	3
CHEM 7220	Inorganic Reaction Mechanics	3
CHEM 7230	Organomet/Trans. Metals	3
CHEM 7240	Organometallic Chemistry (Main Group Metals)	3
CHEM 7410	Adv Organic Physical Organic	3
CHEM 7420	Adv Organic Spectroscopy	3
CHEM 7460	Adv Organic-Synthetic Ap	3
CHEM 6830	Intro To Biochemistry	3
CHEM 6840	Intermediate Biochemistry	3

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.*

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 (<https://tulane.app.box.com/s/0e73gp9l74otxi84eru9f6eg7d5vfr37/>) for a written review of the quality of the presentation; the Seminar Review Form can be obtained from the department website. Students should remember that faculty will only agree to attend if given sufficient notice (one month minimum) before the seminar.

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.

Dissertation Committee

After choosing a research advisor (<https://tulane.app.box.com/s/mc15nvynrnnowmwdpkzgd8sabm0hqv0n/>) (no later than the second semester of residence), students must obtain agreements from a minimum of three chemistry faculty members (other than the dissertation 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 in the Chemistry Department 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.

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 two thousand words in length (excluding legends and references). 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 in question. The body should include an orderly description of the work accomplished to date and a plan for future investigations. 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 Dean's Office along with a signed copy of the prospectus approval form.

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 website.

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 SSE Dean's 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 dissertation 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.

Program String and Field of Study Code: SEPHD_GR, CHEM

Contact

For more information, contact the School of Science and Engineering (<https://applygrad.tulane.edu/register/SSEInquiry/>).