Chemistry Graduate Program Handbook

SAINT LOUIS UNIVERSITY

DEPARTMENT OF CHEMISTRY

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Table of Contents

1. Graduate Program Faculty and Staff

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2. Graduate Program Overview & Admissions

Mission: The Department of Chemistry is committed to the discovery, dissemination, and application of knowledge from the chemical sciences to benefit humanity in the Jesuit tradition of the pursuit of truth. We study problems that are of global concern through our research conducted in multidisciplinary areas of science, engineering, and technology. We disseminate findings in the chemical sciences through our scholarship and teaching. We are committed to providing outstanding education that prepares our students and postdoctoral fellows to make meaningful contributions in their future endeavors.

For all general policies pertaining to graduate education at SLU, please consult the Graduate Education Catalog at http://www.slu.edu/academics/graduate/current-students/index.php.

For resources and forms for graduate students in the School of Science and Engineering at SLU, please see https://www.slu.edu/science-and-engineering/student-resources/graduate-resources/index.php.

2.1. Overview of Degree Programs

The Department of Chemistry offers five graduate degrees: M.A. and M.S. degrees in Chemical Biology, M.S. in Chemical Sciences, and M.S. and Ph.D. degrees in Chemistry.

The **M.A.** and **M.S.** in **Chemical Biology** are detailed in the Chemical Biology Program Handbook. Note that students in the Chemical Biology M.S. program can transition to the Chemistry Ph.D. (Chemical Biology Pathway) program during their second year. Please consult with the Chemistry Graduate Program Coordinator for details. Students interested in this should declare this intent at the start of the second year in the program.

The **M.S. in Chemical Sciences** (generally referred to as the non-thesis Master's program) is intended for full or part-time students who want a coursework masters, which can be completed at night. The M.S. in Chemical Sciences program does not require thesis research or the writing of a thesis. ***Students in the Chemical Sciences M.S. program are typically ineligible for a graduate assistantship.***

The **M.S. in Chemistry** (generally referred to as the thesis-based Master's program) is designed for full-time students who will be doing research in the department as well as writing and defending a thesis. In general, the thesis-based M.S. program is for full-time research students who want to finish with a master's degree.

If a student desires to transition from the M.S. program into the Ph.D. program, they should declare this intent by the start of the second year in the program. Because students transition into the Ph.D. program prior to completion of all the M.S. requirements, they are NOT awarded Master's degrees. The detailed procedure for transitioning from the master's program to the Ph.D. program can be found in Section 8.2.

The **Ph.D. in Chemistry** is a research-intensive program that involves coursework, a written examination, a research proposal, and a dissertation. In terms of credit hours, a total of 35 credit hours are required, with 12 hours coming from dissertation research credits. An appropriate coursework track will be developed by the student and mentor and approved by the Graduate Program Coordinator. In most cases, a portion of these units may be fulfilled from Chemistry lecture courses and Introduction to Research courses.

Students typically enter directly into the Ph.D. graduate program in the Department of Chemistry by applying directly to the Ph.D. program. Students can also transition from the M.S. program into the Ph.D. program (Section 8.2). Students can also enter directly into the Ph.D. program if they already have a M.S. degree from another institution (Section 8.1). Within the Chemistry Ph.D. program, students may optionally elect to follow the **Chemical Biology Pathway** (Section 8.4).

The Department does not typically accept part-time Ph.D. students. Students pursuing a Ph.D. are expected to be full-time students and eligible to hold an assistantship. In rare circumstances, exceptions may be made with approval of the Graduate Program Coordinator.

2.2. Admissions Details

2.2.1. Procedure

Applicants must submit a formal application through Graduate Admissions. The admission requirements and procedures are detailed in the Graduate Education Catalog. The Office of Graduate Education provides access to the application materials to the Graduate Program Coordinator. The Coordinator will then call a meeting of the Department Graduate Admissions Committee to review the application and make a recommendation to the Associate Vice President for Graduate Education about acceptance and a recommendation to the Coordinator about whether the candidate should be eligible for an assistantship.

2.2.2. Application Requirements

Admissions will be on a rolling basis. The application must include:

1. An application form
2. Official transcripts from all colleges and universities attended (if the college or university is located outside of the US, an external equivalency evaluation from a company like ECE (www.ece.org) will be required). Unofficial transcripts are acceptable for initial review purposes.
3. Three (3) letters of recommendation. Two letters are acceptable for initial review.
4. A curriculum vitae

5. A professional goals statement – the statement should include long term goals, educational and research (if any) experiences, and research interests. International applicants should also provide a self-reported conversion of their GPA to a 4.0 scale.
6. For international applicants only, demonstration of English proficiency through TOEFL or other acceptable form as defined here: https://www.slu.edu/admission/international/english-proficiency.php. This requirement can be waived for applicants from certain countries, but this cannot be done until AFTER an application has been submitted.

2.2.3. Prerequisites for Admission

The Admissions Committee will ensure that the applicant possesses a minimum of a baccalaureate degree from an accredited, recognized college or university in chemistry or a chemistry-related discipline, a minimum GPA of 2.8, and a passing score on the TOEFL (for international applicants).

2.2.4. Program Admission Requirements

The Admissions Committee will ensure that the applicant's previous academic record indicates the ability needed to pursue advanced studies in chemistry or chemical biology. The Admissions Committee will then make an admissions recommendation to the Office of Graduate Education, but the Office of Graduate Education is responsible for making the final decision and communicating that decision to both Graduate Program Coordinator and the applicant.

- Applicant must have or will earn prior to the start of graduate studies a Bachelor's degree in chemistry or a closely-related discipline, with a minimum of 18 credit hours of upper division chemistry (organic and above), including:
    - organic chemistry (two semesters),
    - quantitative analysis (analytical chemistry, one semester), and
    - physical chemistry (one semester).
    - Students who don't meet these criteria may complete these prerequisites as part of their graduate program (only 5000-level coursework applies for graduate credit).
    - Students who have not completed coursework in upper-level undergraduate Inorganic Chemistry and/or Instrumental Analysis will also be required to complete these courses at the graduate level as part of their program.
- Applicant must have a minimum GPA of 3.0 to be awarded an assistantship.
- The minimum TOEFL score for SLU admission is 80. Chemistry expects scores to be higher than this minimum.
- The Graduate Admissions Committee only considers applicants who are eligible for assistantships for the full-time degree programs (Chemistry PhD and Chemistry MS).

2.2.5. Program Admission Types

Student admission can come in four types.

- **Classified admissions** are regular admissions to the department.
- **Provisional admission** is a temporary status for applicants who have an incomplete application, often missing final transcripts documenting degree conferral. Students are moved to classified status after meeting the requirements of the provisional admission. There may or may not be additional pre-requisite courses that need to be completed once these students are in the program.
- Students can also be admitted on **conditional status**. Conditional status will include a list of requirements that the student must meet in order to get re-classified (typically, successful completion of certain courses or an overall GPA). *Note: Students with conditional status are not eligible for University assistantships or fellowships.*
- Students just wanting to take a course or two but not wanting to work toward a degree can apply for **unclassified admission**.

2.2.6. International Students

All admission policies and requirements for domestic students apply to international students along with the following:

- Demonstrate English Language Proficiency
- Proof of financial support must include:
    - A letter of financial support from the person(s) or sponsoring agency funding the time at Saint Louis University
    - A letter from the sponsor's bank verifying that the funds are available and will be so for the duration of study at the University
- Academic records, in English translation, of students who have undertaken postsecondary studies outside the United States must include the courses taken and/or lectures attended, practical laboratory work, the maximum and minimum grades attainable, the grades earned or the results of all end-of-term examinations, and any honors or degrees received. WES and ECE transcripts are accepted.

3. Graduate Program Administration

3.1. Orientation

All incoming M.S. and Ph.D. students are expected to start the program full-time on August 1st (Fall admits) or January 2nd (Spring admits) in order to attend orientation, take preliminary assessments, and participate in TA training prior to the start of the academic semester. Students on assistantship will be paid a full monthly stipend for this month (payment is made at the end of the month). A schedule for orientation will be provided by the Graduate Program Coordinator. International students should arrive in the United States two weeks prior to the start date.

3.2. Graduate Student Advising

Initial advising on first semester coursework will be done by the Graduate Program Coordinator.

It is expected that all new students will identify their research mentor by October 1st of their first year in the program (or March 1st for Spring admits). Students will be advised by their research mentor. Students will choose a research mentor by interviewing at least four research active faculty. After meeting with at least four of the research active faculty, they will contact the Graduate Program Coordinator and notify him/her of their top three choices for a research mentor by October 1st (or March 1st for Spring admits). The Graduate Program Coordinator will meet with the faculty mentors to place the student and then notify the student of their assigned research mentor.

In **rare** cases where a new mentor is needed, students will choose a research mentor by interviewing at least four research active faculty. After meeting with at least four of the research active faculty, they will contact the Graduate Program Coordinator and notify him/her of their top three choices for a research mentor. The Graduate Program Coordinator will meet with the faculty mentors to place the student and then notify the student of their assigned research mentor. Again, this is not the common route, as it is expected that there will be no change in mentorship.

M.S. in Chemical Sciences students and students without a research mentor will be advised by the Graduate Program Coordinator or designated faculty member.

For technical questions about registration, forms, tuition, and billing, please contact the SSE Graduate Advisor at ssegrad@slu.edu.

3.3. Definition of Full-time Graduate Students

(a) All enrolled students holding fellowships or teaching or research assistantships are defined as full time students regardless of hours registered.

(b) Students who are not on an assistantship and have not yet passed their oral examinations must enroll in six or more credit hours during a regular semester (fall or spring) and three or more credit hours during the summer semester.

3.4. Continuous Registration

All graduate students who are pursuing a degree are required to register *every* semester (*including* the summer session). If no credit hours are needed, you should still register for a course for zero hours. Failure to do so will result in the student's account being inactivated by the registrar's office. Note: graduate students that are not on assistantship are not required to enroll during the summer session.

3.5. Transfer of Credit

If a student wishes to receive credit for graduate coursework at another institution, a *"Petition for Transfer of Credit"* form must be submitted, accompanied by a transcript showing the work, for approval by the mentor or advisor, Graduate Program Coordinator, and SSE Associate Dean of the Graduate Affairs. The grade received must be B or better. Students can transfer a maximum of six credit hours of graduate credit to Saint Louis University which will be applied towards the elective coursework requirement. It is up to the Graduate Program Coordinator whether the transfer is allowed.

4. Assistantships and Fellowships

For policies concerning assistantships, please consult the Saint Louis University Graduate Assistant Handbook at http://www.slu.edu/academics/graduate/current-students/index.php.

4.1. Teaching Assistantships

Persons holding a teaching assistantship (TA) may work with students in small groups, lead group discussions, monitor examinations and grade papers, help prepare lectures, conduct laboratory sessions, or even be responsible for a course as the primary instructor. Under the close supervision of the faculty, the teaching assistant concurrently develops teaching skills and a deeper understanding of the discipline.

An 11-month award includes a stipend, a health insurance package for the student (plus the option to purchase family coverage), and a tuition scholarship of up to 19 hours during the regular academic year. Support for June is provided through additional teaching duties, typically over the course of 2-3 weeks during the summer session (***summer attendance is mandatory***).

These awards begin on August 1, at which time the student is **required** to be in residence. Upon petition to the Graduate Program Coordinator, under rare circumstances, the start date may be delayed. The student is expected to attend orientation, take preliminary assessments, and attend TA orientation in preparation for TA/RA duties during August.

After the 1st year, students in good standing are provided annual 12-month awards with support for June coming in the form of additional teaching duties over the summer or research support (from the research advisor).

Tuition scholarships are adjusted to meet the needs of individual students.

4.1.1. Length of Support

As required by the Office of Graduate Education, the maximum number of years that a graduate student may hold an assistantship is for not more than two years **total** for the M.S. degree or not more than five years for the Ph.D. degree.

Note that grant-based assistantships contribute to the total number of years of assistantship support allowed. A third year of funding for the M.S. degree or sixth year for the Ph.D. degree is possible under extraordinary circumstances. Appeals for the additional year of funding must be submitted by the Department during the spring semester of the second year of funding for the M.S. degree or fifth year for the Ph.D. degree to the Associate Dean for Graduate Affairs for approval.

4.1.2. Applicant Qualification

Normally, students applying for admission are considered for teaching assistantships at the same time, if they so desire. The final decision on awarding assistantships rests with the Associate Vice President for Graduate Education. The appointment to a teaching assistantship will be by contract offered by the Associate Vice President for Graduate Education to the nominated individual.

4.1.3. Criteria for Assignment of Teaching Assistantships

The Graduate Affairs Committee uses the following criteria in nominating individuals for teaching assistantships:

For students currently holding an assistantship: Graduate students currently with an assistantship (teaching or research) are normally awarded an assistantship the following year, provided the student has not exceeded the years of teaching/research assistantship support described above in Section 4.1.1. **However**, the student may fail to receive an assistantship for one of the following reasons:

- *Students with a GPA of less than 3.0 are not eligible for assistantships*
- *Poor teaching evaluations*
- *Inadequate research progress*

Continuation is dependent on good academic standing (minimum of 3.0 GPA). Adequate research progress is also a condition of continuing an assistantship. This includes maintaining research effort expected in a 40-hour work week resulting in or appearing to show promise in 1) a publication in a peer-reviewed journal and/or 2) public presentation of results at a professional scientific conference.

Continuation is also dependent upon satisfactory performance of the assigned teaching responsibilities. Teaching evaluations provided by the classroom mentor and undergraduate students will play a primary role in determining whether a teaching assistantship is renewed. Based upon evaluations, the Graduate Program Coordinator may recommend that the student not receive teaching assistantship the following year. Alternatively, the Graduate Program Coordinator may recommend a course of action that may improve performance of the student as a TA (e.g., enrollment in the Certificate in University Teaching Skills (CUTS) program administered by the Center for Transformative Teaching and Learning (CTTL) or acquisition of a faculty teaching advisor).

"Unsatisfactory" rating on the student's progress. Student progress will be rated each year. An "unsatisfactory" rating may preclude a student from receiving an assistantship renewal and may lead to termination from the program altogether. This includes research progress. It is expected that the student has made significant research progress towards their degree. An unsatisfactory rating may be given if this is not the case, and the student's committee feels that the student has made inadequate research progress.

For incoming students and/or students without a prior assistantship:

1. English-speaking ability (as determined by the ESL Program). This aspect is required for effective teaching of undergraduate students as part of the teaching assistant's duties.
2. Academic standing, specifically undergraduate (and if applicable graduate) grade point average. Students with a GPA of less than 3.0 are not eligible for assistantships.
3. Letters of reference and any additional materials (publications, presentations, etc.).
4. Students currently enrolled in the graduate program, but not supported by an assistantship, are in competition with the current applicant pool for teaching assistantship awards. In other words, that student does not receive priority simply due to being enrolled in the graduate program. However, the committee will solicit a letter from the student's mentor and examine current academic standing to aid in the decision process.

4.1.4. Teaching Assistant Duties

Teaching assistants will be assigned by the Graduate Program Coordinator and Chairperson of the Department to instructional duties in the courses, lectures, and laboratories offered by the Department. The appointment is half-time, and teaching duties will not require more than 20 hours per week (thus allowing the student to spend substantial time in laboratory research). The duties will include instructional time in the classroom or laboratory, necessary preparation for class or lab, marking papers, and other instructional activities as required. Teaching assistants must also arrange for reasonable "office hours" for meeting with undergraduate students and inform their students of the time and place of office hours. The Department will provide a suitable office or other place for teaching assistants to meet with their students.

Students who begin their assistantships/fellowships during the summer are required to begin their residence at this time. Students may be assigned teaching responsibilities. Students should contact the Graduate Program Coordinator to arrange their summer schedule as soon as they are notified that they have received an assistantship.

4.1.5. Teaching Assistantship Evaluations

Semester evaluations are to be completed by both faculty instructors overseeing the teaching assistant as well as by students being taught by the teaching assistant. All evaluations will be turned in to the Department office to be included in the graduate student's file.

4.1.6. University Graduate Student Orientation

All new teaching assistants are required to attend the Graduate Assistants Orientation at the beginning of the fall semester. Announcements of the time and place will be sent to each new assistant in the summer preceding their first semester at Saint Louis University.

4.2 Research Assistantships

A research assistant is assigned a range of duties such as library searches, field work, laboratory experiences, and preparation of research proposals and grants so as to gain professional skills in research which complement the student's graduate education.

Research assistantships (RAs) can be for a variety of time periods from 1 month to 12 months and can include a stipend, a health insurance package (plus the option to purchase family coverage), and a tuition scholarship. These RAs are usually assigned at the discretion of the research advisor, as the funding for the RAs come from individual research grants. There are normally no instructional duties associated with appointment to a research assistantship. Instead, the research assistant is assigned to a faculty sponsor responsible for directing research duties of the student. Unless otherwise indicated, the terms of appointment (including GPA requirements), continuation, and maximum support are the same as for teaching assistantships. Normally, once appointed to a research or teaching assistantship, a student will be eligible for reappointment for the maximum period permitted. However, that support may switch between a research assistantship and a teaching assistantship in any given semester.

The ability to write a research assistantship contract is depend on the research advisor securing appropriate financial support, typically in the form of a research grant. Contracts cannot be written without an established account number, which must be available by March 15th (for Summer/Fall start) or October 15th (for Spring start) to write an RA contract. While every effort will be made to accommodate requests after these dates, changes to assistantship assignments are not guaranteed and will depend on the availability of new students in the applicant pool.

All changes from teaching assistant to research assistant are conditional on filling available teaching assistantship slots. In cases where there is an extremely large number of research assistantship requests or in an emergency (such as an incoming student deciding not to join the program at the last minute), priority will be given to:

- More senior students in the program.
- Students who have taught the longest.

4.3 Review of Student Progress (Annual Evaluations)

Graduate Education requires that every graduate student be evaluated annually. In Chemistry, we evaluate our students each spring prior to making assistantship recommendations.

Procedure: The faculty mentor and the student each fill out the provided evaluation form (provided in Section 10.10). The mentor and student then meet to discuss the evaluations and to set expectations for the upcoming year. The mentor is also asked to provide an evaluation of the student’s ability to fulfill their assistantship obligations. The student is required to fill out the appropriate worksheet for his/her degree program. The signed evaluation and the completed worksheet are then sent to the Graduate Program Coordinator to be added to the student’s file.

Each student’s progress will be rated annually by the Graduate Program Coordinator in collaboration with the research mentor. In order to be “satisfactory,” ALL requirements below

must be met. Students deemed unsatisfactory will not be eligible for assistantships (covered in Sections 4.1 and 4.2).

"Satisfactory"	- Maintained ≥3.0 GPA in lecture coursework (neither Intro to Research nor Research Topics count as lecture coursework).
	- Have no more than two grades of B- or below. Grades of C and below are not considered passing and require repeating or replacement with another grad level course, achieving a grade of B- or better.
	- Maintained research effort expected in a 40-hour minimum work week resulting in, or appearing to show promise in leading to:
	  o Publication in a peer-reviewed journal and/or
	  o Public presentation of results at a professional scientific conference.
	- Maintained professional relationship with primary and secondary mentors.
	- Fulfilled teaching assistant responsibilities (for those on a TA).

"Unsatisfactory"	- Cumulative GPA <3.0 in lecture coursework. - More than two grades of B- or below. - Clear lack of research ability. - Lack of significant research progress. - Disregard for department lab safety procedures in teaching and/or research labs. - Failure to fulfill teaching assistant responsibilities.

5. Graduate Student Committees

M.S. in Chemical Sciences students do not form a committee.

M.S. Chemistry students put together a committee consisting of the faculty mentor and two additional Graduate Faculty members during the first semester of the second year of their master's program. It is expected that the committee be made up of Chemistry faculty members.

Ph.D. Chemistry students put together a committee consisting of the faculty mentor and two additional Graduate Faculty members during the first semester of the second year of their master's program. It is expected that the committee be made up of Chemistry faculty members. In the third year, they will add two additional Graduate Faculty members to their committee for a total of five committee members. The majority of the committee is expected to be Chemistry faculty members.

Outside members are allowed for the full Ph.D. committee, but they must have Graduate Faculty status. Faculty from outside the university require prior approval by the SSE Associate Dean for Graduate Affairs. The Committee Chair will seek approval by providing a statement of rationale for the selection along with the CV of the external faculty using the appropriate form found at https://www.slu.edu/science-and-engineering/student-resources/graduate-resources/index.php.

6. Chemical Sciences M.S. Program (non-thesis, coursework)

Chemical Sciences M.S. This program is intended for full or part-time students, often from industry or secondary education, who want a coursework M.S. degree, most of which can be completed at night. Such students are typically ineligible for graduate assistantships.

6.1 M.S. in Chemical Sciences Degree Requirements

The requirements for the **non-thesis M.S. degree** include:

1. A minimum of 30 hours of post-baccalaureate coursework
    a. 15 hours of graduate level coursework with the "CHEM-" prefix (see Section 10.1 for options)
    b. 15 hours of graduate level coursework. Elective graduate coursework at the -5000 or -6000 level. Electives can be fulfilled by taking graduate course work in chemistry or in other disciplines such as biology, math, computer science, engineering, and pharmacology with approval by Graduate Program Coordinator. No more than 6 hours in research topics (CHEM-5970) or graduate reading (CHEM-5980) may be applied towards the Chemistry Electives Requirement.
2. Exit interview to be completed prior to degree conferral.

Continuation Standards: Students must maintain a cumulative grade point average (GPA) of 3.00 in all graduate/professional courses. Grades of C and below are not considered passing and require repeating or replacement with another grad level course, achieving a grade of B- or better.

Graduation: The student should apply to graduate via Banner at the start of their final semester. This will trigger emails from the Office of Graduate Education with information about forms and deadlines that must be completed before graduation.

See the attached M.S. in Chemical Sciences Worksheet in Section 10.2. It is highly suggested that students complete their appropriate worksheet each semester.

7. Chemistry M.S. Program

7.1. M.S. Degree Requirements

The Master's degree requires a minimum of 30 hours of post-baccalaureate credit. At least one year must be completed in residence. Students in the M.S. program who transition into the Ph.D. program do so prior to completion of these requirements and are not awarded Master's degrees (but their coursework applies towards the Ph.D. degree).

The requirements for the **thesis-based M.S**. **degree** include:

1. A minimum of 24 hours of post-baccalaureate coursework
   - 12 hours of graduate level coursework with the "CHEM-" prefix (see Section 10.1)
   - 6 hours of graduate level coursework ("Electives" - must be 5000-level or higher. Can also be fulfilled by taking courses in other disciplines such as biology, math/computer science, and engineering. Non-chemistry courses need to be approved by the Graduate Program Coordinator)
   - 1 hour of CHEM-5000 – Introduction to Chemical Research
   - 3 hours of CHEM-5X99 – Introduction to Research
   - 2 hours of CHEM-5790 – Research Topics
2. 6 hours of Thesis Research (CHEM 5990)
3. A thesis
4. A public oral presentation and a private oral examination

Continuation Standards: Students must maintain a cumulative GPA of 3.00 in all graduate/professional courses. Grades of C and below are not considered passing and require repeating or replacement with another grad level course, achieving a grade of B- or better.

More details on each degree are given below. See the M.S. Roadmap and Worksheet in Section 10.3 for details. It is highly suggested that students complete their appropriate worksheet each semester. In addition, a completed worksheet must be included with the student's annual evaluation by the research mentor.

*Note: Students wishing to transition to the Ph.D. program do not register for M.S. Thesis Research or write/defend an M.S. thesis. Rather, they transition to the Year 2 process on the Ph.D. Timeline.

7.2. Preliminary Assessments (Prelims)

All incoming M.S. students will take our Preliminary Assessments (referred to as "Prelims") the first week of orientation at the beginning of August. The Preliminary Assessments will be given as follows: All students will take the ACS Analytical and Organic exams and will select two additional exams from the ACS Inorganic, Physical Chemistry, and Biochemistry exams. Students may take all five exams if they wish. Proficiency needs to be demonstrated on at least three of the exams to be considered a full pass.

These exams are given as standardized multiple-choice questions, and each exam will have a defined testing period of not more than 2 hours. Results will be used to assess core chemistry competency, make teaching assignments, and advise on coursework.

The students will meet individually with the grad program coordinator the week following the preliminary assessments to learn if they passed the proficiency standard. If the student didn't achieve a full pass, they would then have a choice as which subject area training plan(s) they need to follow. The training plan will be documented in a letter to the student. Examples of training plans may include: taking or auditing a course in the subject area, a series of problem sets, etc. These plans will be defined by the chemistry divisions.

Students who fail to successfully complete the training plan will not be allowed to petition into in the Ph.D. program but will be able to complete their M.S. degree.

More information, study guides, and topic lists are provided to students and can be found here: https://drive.google.com/drive/folders/1H565uMwuqnviez7KG3eqKfonfxQzWfO0?usp=share_link

7.3. Selection of Committee, Written Progress Report & Scheduling the Oral Exam

During the first semester of the second year of their master's program, a **thesis-based M.S. student,** with the agreement of their faculty mentor, should choose the two additional members of their oral exam committee. It is expected that the committee be made up of Chemistry faculty members and be selected before November 1.

By Nov. 1 of their second year in the program, the student should submit a 2–3-page written document that outlines the student's research project. The student's name, committee, and desired degree should be clearly denoted. This update should include an introduction and an overview of the results obtained to date. Figures may also be included. Any submitted papers (or soon to be submitted papers) should be clearly denoted, as well as any presentations (completed or scheduled).

The student's committee will review the document and give the mentor feedback on the student's progress by Nov. 15th. The mentor will communicate these findings to the student both verbally and by email, with the entire committee being copied on the email. The purpose of this update is to give the student feedback on their research and academic standing well before their M.S. defense in the spring/summer.

The student will be responsible for scheduling the final oral examination and any other committee exams.

The student should apply to graduate via Banner at the start of their final semester. This will trigger emails from the Office of Graduate Education with information about forms and deadlines that must be completed before graduation.

They will also be responsible for ensuring that they provide copies of their thesis to their committee at least 10 days before the exam to ensure that the committee has sufficient time to review before the oral examination. The student is also responsible for contacting the Chemistry Administrative Assistant to have flyers advertising their thesis defense seminar posted and an email announcement sent to the department. Students should also plan to complete the Department's Check-out List prior to departure from campus (Section 10.9).

Students wanting to petition into the Ph.D. program should see the Ph.D. Program section below for the transitioning methodology. To ensure a smooth transition into the Ph.D. program, there are additional requirements that must take place during a student's time in the Master's program.

8. Chemistry Ph.D. Program

In most cases, students will enter the Ph.D. graduate program in the Department of Chemistry upon admission to the program. Students in the M.S. degree program wanting to pursue a Ph.D. will inform the Graduate Program Coordinator of their decision after discussing with their research mentor and then formally petition into the Ph.D. program (details described in the following pages).

A typical track is generally overviewed below, with more details on each step being found throughout this handbook. See details on each process for situations that do not fit this overview (such as a failing grade on any step). A key part of the transition process is the research progress exam in Year 2. This exam is explained in more detail in Section 8.6.1 of this handbook.

*Note: M.S. students wishing to transition to the Ph.D. program take the oral research progress exam and petition to enter the Ph.D. program. See Section 8.2 below for more details.

8.1. Typical Track for student who has a M.S. from another program and wants a Ph.D. from SLU

Students can also enter directly into the Ph.D. program if they already have a M.S. degree. By Nov. 1 of the academic year the student wants to start the exam process, the student should form a three-person committee. This usually happens in the student's 2nd year in the program (by Nov. 1 of the 2nd year) but may be earlier (in Year 1) depending on the student's background and the committee's thoughts. Students should discuss this option with their research mentor for advice.

8.2. Procedure for Transferring from the SLU Chemistry M.S. Program to the Ph.D. Program

1. In their 2nd year, each M.S. candidate will convene a meeting of their Master's faculty committee (research advisor and two other faculty) to give an oral presentation (minimum 20 minutes) of their research performance to date. The faculty committee will evaluate the student's aptitude and their research performance for the Ph.D. program. This meeting should occur before March 15th for all second year Master's candidates wishing to transfer. More details about this exam are found in Section 8.6.1 of this handbook.
2. The Master's committee will then submit a written recommendation to the Graduate Program Coordinator as to whether or not they recommend the Master's candidate transfer to the Ph.D. Program.
3. If the recommendation is positive, the student should then fill out a Petition to Amend Program. The form will be provided by the Graduate Program Coordinator.
4. The Graduate Program Coordinator will verify satisfactory graduate student status and sign the Petition.
5. All students have the right to appeal the decision of the Master's committee and the Graduate Program Coordinator to the Department Chairperson.
6. Once these procedures are complete, the student will be considered part of the Ph.D. program.

A key part of this process is the research progress exam in Year 2. This exam is explained in more detail in Section 8.6.1 of this handbook.

8.3. Ph.D. Degree Requirements

The Ph.D. in Chemistry degree requires a total of 35 credit hours, with 12 hours coming from dissertation research credits. An appropriate coursework track will be developed by the student and mentor and approved by the Graduate Program Coordinator.

The requirements for the **Ph.D**. **degree** include:

1. **Chemistry Core Curriculum (12 hours).** Four courses selected with the "CHEM-" prefix, 5000-level or higher (see Appendix 10.1 for options).
2. **Electives (6 hours).** Two graduate chemistry courses, 5000-level or higher. Can also be fulfilled by taking courses in other disciplines such as biology, math/computer science,

and engineering. Non-chemistry courses need to be approved by the Graduate Program Coordinator.

3. **Research Courses (5 hours):**
    a. 1 hour of CHEM-5000 – Introduction to Chemical Research
    b. 3 hours of CHEM-5X99 – Introduction to Research: Choose one from CHEM-5299, 5399, 5499, or 5599.
    c. 1 hours of CHEM-6900 – Introduction to Proposal Writing and Oral Presentation
4. **Dissertation Research (12 hours)**
    a. 12 hours of CHEM-6990 – Dissertation Research
5. A Dissertation
6. A public oral presentation and a private oral examination

Continuation Standards: Students must maintain a cumulative GPA of 3.00 in all graduate/professional courses. Grades of C and below are not considered passing and require repeating or replacement with another grad level course, achieving a grade of B- or better.

8.4. Chemical Biology Pathway (Chemistry Ph.D. Program)

Students may elect to follow the Chemical Biology Pathway as part of the Ph.D. program. Generally, such students follow the Chemical Biology M.S. degree coursework requirements (see separate Chemical Biology Handbook for details; required courses listed below) and select two electives from the Chemistry Core graduate course list (Section 10.1).

The coursework requirements for the Ph.D. Chemical Biology Pathway are summarized here and are consistent with the requirements of the Chemistry Ph.D. program.

1. CHEM-5630 Chemical Biology & Biotechnology (3 credit hours)
2. CHEM-5470 Medicinal Chemistry (3 credit hours)
3. PPY-5410 Molecular Pharmacology (3 credit hours)
4. BIOL-5700 Advanced Molecular Biology (3 credit hours)
5. Elective 1 (3 credit hours) – select one course from the “CHEM-“ prefix, 5000-level or higher (see Section 10.1for options).
6. Elective 2 (3 credit hours) – select one course from the “CHEM-“ prefix, 5000-level or higher (see Section 10.1 for options).

Students in the Chemical Biology M.S. Program may request to transition into the Chemistry Ph.D. program in a process similar to that for students in the Chemistry M.S. program (see Section 8.2). Note that students interested in doing this will need to satisfy the coursework requirements of the Chemistry Ph.D. program by following the guidance in this Section as well as all other requirements of the Chemistry Ph.D. program (Section 8.3).

Students in the Chemical Biology Pathway may select mentors outside of the Department of Chemistry, as outlined in the Chemical Biology MS Program. For transition to the PhD program, such students will need to select a faculty member in the Department of Chemistry as a co-mentor unless the primary mentor has a Secondary Appointment in the Chemistry department.

Note that students are not awarded a Ph.D. or M.S. in "Chemical Biology" as part of this program. Rather, they are awarded a Ph.D. in Chemistry.

8.5. Preliminary Assessments (Prelims)

All incoming Ph.D. students will take our Preliminary Assessments (referred to as "Prelims") the first week of orientation at the beginning of August. The Preliminary Assessments will be given as follows: All students will take the ACS Analytical and Organic exams and will select two additional exams from the ACS Inorganic, Physical Chemistry, and Biochemistry exams. Students may take all five exams if they wish. Proficiency needs to be demonstrated on at least three of the exams to be considered a full pass.

These exams are given as standardized multiple-choice questions, and each exam will have a defined testing period of not more than 2 hours. Results will be used to assess core chemistry competency, make teaching assignments, and advise on coursework.

The students will meet individually with the grad program coordinator the week following the preliminary assessments to learn if they passed the proficiency standard. If the student didn't achieve a full pass, they would then have a choice as which subject area training plan(s) they need to follow. The training plan will be documented in a letter to the student. Examples of training plans may include: participating in a course in the subject area, a series of problem sets, etc. These plans will be defined by the chemistry divisions.

Should a student in the Ph.D. program fail to successfully complete the training plan, they will not be allowed to continue in the Ph.D. program but will be able to complete their M.S. degree.

More information, study guides, and topic lists are provided to students and can be found here: https://drive.google.com/drive/folders/1H565uMwuqnviez7KG3eqKfonfxQzWfO0?usp=share_link

8.6. Ph.D. Examinations

There are four examinations for the Ph.D. degree. The first is a research progress exam that typically takes place towards the end of the 2nd year in the program. The second is a written comprehensive exam that ensures comprehensive knowledge in the student's subject area. The third is the oral defense of a research proposal, with the fourth and final exam being an oral defense of the research dissertation. Each is discussed below. The intent of these exams is to determine if the student is prepared to continue their Ph.D. studies.

Note: For students who started in the Spring semester, typically Year 1 starts in the Fall of their first year, so they should follow the timeline below as such. Exceptions can be made in rare cases, primarily with those who have M.S. degrees from other institutions.

8.6.1. Research progress exam

By Nov. 1 of their 2nd year in the program, the student should form a three-person committee (research advisor and two other faculty as described in Section 5 above) and submit a 2-3 page

written document that outlines the student's research project. The student's name, committee, and desire to transition into the Ph.D. program should be clearly denoted. This update should include an introduction and an overview of the results obtained to date. Figures may also be included. Any submitted papers (or soon to be submitted papers) should be clearly denoted, as well as any presentations (completed or scheduled).

The student's committee will review the document and give the mentor feedback on the student's progress by Nov. 15th. The mentor will communicate these findings to the student both verbally and by email, with the entire committee being copied on the email. The purpose of this update is to give the student feedback on their research and academic standing before the research progress exam.

For most students, the research progress exam should occur before March 15th of their second year. For students with a M.S. from another institution, this exam should take place by March 15th of the calendar year the student wants to start the exam process. This is typically towards the end of their 2nd year in the program.

For the oral exam, the student will present their research to the committee in the form of a minimum 20-minute presentation. The faculty committee will evaluate the student's aptitude and their research performance for the Ph.D. program. It is the expectation that the student should have made sufficient research progress that is promising towards a peer-reviewed publication. If adequate research progress has taken place and the student is in good academic standing, as denoted by coursework GPA and fulfilling TA duties, the student will pass this exam, and the committee will write a letter to the Graduate Program Coordinator stating the results and supporting the continuance or transition into the Ph.D. program. In the case of students in the Master's program, they will be allowed to petition into the Ph.D. program.

If the committee decides that the student has not achieved adequate research progress or if there are concerns about the student's academic standing (as denoted by coursework GPA and fulfilling TA duties), the student will have been deemed to fail this exam and not be allowed to continue in the Ph.D. program. The student may choose to write and defend a M.S. thesis or may schedule an oral exam to receive an M.S. in Chemical Sciences degree.

8.6.2. Written Exam

The written exam will serve to verify that the candidate has developed the ability to synthesize information across the field and show the expected level of knowledge in the relevant discipline(s). The exam consists of two parts: (1) Successful completion of subject area Preliminary Assessment exams in Year 1 (described in section 8.5 above) and (2) the written research proposal in Year 3.

The written research proposal will outline the subject of their research, major goals of the proposed work, a suggested experimental approach, and a timeline for completion of the project. Students will register for CHEM 6990 Dissertation Research for the summer after successful completion of the Research Progress Exam. Under direction of their research mentors, students will write a five-page literature review related to their Ph.D. project which will serve as the basis for their Research Proposal that will be more fully developed in the fall. This literature review

should be turned in to their mentor by the end of the summer session in order to receive a satisfactory grade in CHEM 6990.

Students should then register for CHEM 6900 (Introduction to Proposal Writing and Oral Presentations) in the Fall of their third year in the graduate program. During CHEM 6900, they will be asked to develop their dissertation committee and their full research proposal. Detailed instructions for the format are provided in the CHEM 6900 course. This course is graded S (satisfactory) or U (unsatisfactory). All of the course requirements must be completed to receive an S grade. The first draft of the full proposal is due to the faculty mentor by November 15th. The final version of the research proposal will be submitted to the committee by December 15th (or the last final exam date of the semester, whichever is earlier).

If a student is assigned a U grade, they will have administratively failed their first try at the oral exam (e.g., if they fail to submit a final version of the proposal to their committee by the deadline). As explained below, they have one additional opportunity to pass this exam but only after they successfully complete the course (the timelines below still hold true for this situation).

The five-member Dissertation Committee members will review and approve the written proposal by January 15th.

If Dissertation Committee does not approve the written proposal, the student fails the written proposal portion of the written exam. They will be given the chance to submit a revised written proposal by Feb. 15. If the student fails the 2nd attempt, they will have officially failed the written examination and are not allowed to continue in the Ph.D. program.

8.6.3. Oral Defense of Research Proposal

The purpose of the oral exam will be to afford the candidate an opportunity to present and defend their Ph.D. Dissertation Research Proposal. The student must pass the oral defense of the dissertation research, administered by the dissertation committee, following the requirements of the Office of Graduate Education.

The student should schedule and complete an oral defense of this proposal by March 1st of the student's third year in the graduate program. **The student must fill out a Doctoral Oral Examination Form at least two weeks prior to the exam.** The form can be found at: http://www.slu.edu/academics/graduate/pdfs/ge_oral_exam_fillable.pdf.

If the student does not schedule and complete their defense by March 1st, they administratively fail the exam. If the student does not pass their oral defense on the first try, they have one additional opportunity to take the exam. This 2nd exam must be completed by June 30th. If the student fails the 2nd exam, they will have officially failed the oral examination and are not allowed to continue in the Ph.D. program.

Pending a successful outcome in both written and oral exams the student, the student is advanced to the status of Candidate.

Detailed Procedure for Oral Defense

1. The student will submit their final written research proposal to their five-person committee by December 15th. The student will also schedule a defense date/time as well as a room for the defense. At least a two-hour time block should be scheduled. The defense should occur no later than March 1st.
2. The student will present their research proposal to their five-person committee. The student should make no more than 8-10 slides for this presentation, excluding the title and acknowledgments slides. The presentation should include background material and the basics of each aim, including significant results to date.
3. For the purposes of this exam, the faculty mentor will not lead the exam. The exam will be led by another faculty member (identified beforehand by the student and mentor) who has an area of expertise that overlaps with the proposed research. This faculty member shall serve as the oral defense moderator (chair).
4. The moderator will chair the session, lead the questioning, and ensure that forms are filled out.
5. The faculty mentor can ask questions of the student, but the mentor cannot answer any questions of other faculty or the student. When not asking questions, the mentor should remain silent during the exam.
6. After all committee members are satisfied with the questioning period, the student will be asked to leave the room. There should be a discussion about the student's performance.
7. The options for rating the student's performance are: pass, pass with conditions, or fail. If conditions are required, they should be clearly communicated to the student and denoted on the form signed by each committee member. If the student fails, they get one additional opportunity to take the oral exam. This 2nd exam must be completed by June 30th. If the student fails the 2nd exam, they will have officially failed the oral examination and are not allowed to continue in the Ph.D. program.

The ability to extend the knowledge base in the major field is a qualification distinctive to the Ph.D. degree. A Ph.D. Candidate must present substantial evidence of this ability by publishing original and independent research in peer-reviewed journals prior to scheduling of the dissertation defense. Specific requirements for scheduling the defense are at the discretion of the Committee. These requirements will be drafted at the oral proposal defense and communicated to the student and the Graduate Program Coordinator.

Upon completion of the oral and written examinations, the student is advanced to the status of Candidate. Doctoral students anticipating degree conferral at University Commencement ceremonies in May should formally become Candidates before the end of the preceding Fall Semester.

8.6.4. Fourth Year Seminar

During the Spring semester of the 4th year in the program, each Ph.D. candidate will present as part of the Department's seminar series. This seminar provides the student an opportunity to practice their oral presentation skills and also provides the committee with an update on their research progress. Committee members are expected to be in attendance.

This requirement is not a formal examination.

8.6.5. Six-Month Meeting

Once the candidate and the faculty mentor feel that the research is near completion and it is appropriate to schedule a defense, the candidate should call a meeting of the dissertation committee. ***This should be done at least 6-months prior to the desired defense date.*** The purpose of this meeting is for the candidate to update the committee on recent research progress and for the committee to give the candidate approval on scheduling a defense. This should be a ~20 min presentation that gives an overview of the dissertation, progress made since the oral defense, and any changes to the aims that were presented in the oral defense. The committee will outline any outstanding requirements that are to be met before the defense. These expectations will be laid out by the faculty mentor in a letter provided to the candidate and the Graduate Program Coordinator. If not already done, the candidate should also submit his/her degree audit (commonly sent to the student at the time of the oral proposal defense).

This requirement is not a formal examination.

8.6.6. Ph.D. Dissertation Defense

Students in the research phase of their Ph.D. must formally enroll to accumulate credit hours of Dissertation Research in a manner not unlike that for coursework taken. Twelve semester hours of Dissertation Research are required of each student pursuing the Ph.D. Only after accumulating the total semester hours required may the student register for zero Dissertation Research credit.

At the start of the final semester, the candidate should officially apply to graduate online via Banner. Once these requirements are met and a defense date has been agreed upon, the candidate fills out the Notification of Readiness for the Public Oral Presentation of the Ph.D. Dissertation found at http://www.slu.edu/academics/graduate/pdfs/ge_readiness_fillable.pdf. This form must be submitted a minimum of **two weeks** prior to the defense date. The candidate should also submit the degree audit provided by the Ph.D. Candidacy Advisor (typically sent to the student at the time of the oral proposal defense).

Public Presentation and Defense of the Dissertation: Across all major fields, Graduate Education requires a public, oral presentation and a private defense of the dissertation. The presentation should be scheduled after all Graduate Faculty readers have approved the general content of the dissertation. This is generally done at the committee meeting *six months prior* to the desired defense date (see preceding section). *It is the Candidate's responsibility to contact the Chemistry Department's Administrative Assistant to post flyers stating the date, time, and location of the public oral presentation.* This is done by using the Room Request Form (Section 10.8).

A Notification of Readiness form must be submitted to the Doctoral Candidacy Advisor well in advance (minimally two weeks) of the presentation date. Following the presentation, the Candidate should expect questions from the readers and the assembled audience. The defense will move to the closed session with the Candidate and the dissertation committee. The dissertation-committee chairperson serves as the moderator for the defense. During the closed session, the committee will ask questions of the candidate related to the dissertation. Once

questions are exhausted, the candidate will leave the room and the committee will discuss the candidate's performance and will vote on the outcome. At the conclusion, the readers may evaluate the performance of the Candidate, but the dissertation ballots are not signed individually until each committee member fully approves the dissertation. Any final corrections to the dissertation should be provided to the candidate at this time.

The final draft of the dissertation with the abstract must be submitted to the Doctoral Candidacy Advisor (for format review). Candidates anticipating May graduation must submit the aforementioned materials no later than the date set in the Graduate Program's supplement of the University Calendar.

Publication of the Dissertation: Graduate Education requires submission to the Doctoral Candidacy Advisor copies of the final version of the dissertation through ProQuest. The student should also provide a bound copy to the Department and their advisor. More information about publication of the dissertation can be found in the graduate education catalog: http://www.slu.edu/academics/graduate/current-students/index.php.

Final Check-out: The candidate should work with their faculty mentor to complete the Department's Check-out List (Section 10.9) prior to departing campus.

9. Miscellaneous Policies and Resources

9.1. Procedures for Academic Appeals

If a graduate student wishes to appeal a final course grade in a course offered by the School of Science and Engineering (SSE), please consult the policy available here: https://www.slu.edu/science-and-engineering/_pdfs/grade-appeal-policy.pdf.

9.2. Academic Integrity

Academic integrity is honest, truthful and responsible conduct in all academic endeavors. The mission of Saint Louis University is "the pursuit of truth for the greater glory of God and for the service of humanity." Accordingly, all acts of falsehood demean and compromise the corporate endeavors of teaching, research, health care, and community service through which SLU fulfills its mission. The University strives to prepare students for lives of personal and professional integrity, and therefore regards all breaches of academic integrity as matters of serious concern.

The full University-level Academic Integrity Policy can be found on the Provost's Office website at: https://www.slu.edu/provost/policies/academic-and-course/policy_academic-integrity_6-26-2015.pdf.

The full School of Science and Engineering Academic Integrity Policy can be found here: https://www.slu.edu/science-and-engineering/_pdfs/sse-academic-integrity-policy.pdf

9.3. Student Success Center

In recognition that people learn in a variety of ways and that learning is influenced by multiple factors (e.g., prior experience, study skills, learning disability), resources to support student success are available. The Student Success Center utilizes Zoom to assist students with academic-related services. Students can visit the Student Success Center website to learn more about Tutoring Services, University Writing Services, Disability Services, and Academic Coaching.

Link: https://www.slu.edu/life-at-slu/student-success-center/index.php

9.4. University Writing Services

Students are encouraged to take advantage of University Writing Services in the Student Success Center; getting feedback benefits writers at all skill levels. Trained writing consultants can help with writing projects, multimedia projects, and oral presentations. University Writing Services offers one-on-one consultations that address everything from brainstorming and developing ideas to crafting strong sentences and documenting sources. Students have the option to complete an online submission (for asynchronous feedback) or to schedule a live video conference. Both can be scheduled through EAB Navigate. For more information, visit the Student Success Center or email writing@slu.edu.

Link: https://www.slu.edu/life-at-slu/student-success-center/academic-support/university-writing-services/index.php

9.5. Disability Accommodations

Students with a documented disability who wish to request academic accommodations must formally register their disability with the University. Once successfully registered, students also must notify their course instructor that they wish to use their approved accommodations in the course.

Please contact the Center for Accessibility and Disability Resources (CADR) to schedule an appointment to discuss accommodation requests and eligibility requirements. Most students on the St. Louis campus will contact CADR, located in the Student Success Center and available by email at accessibility disability@slu.edu or by phone at 314.977.3484. Once approved, information about a student's eligibility for academic accommodations will be shared with course instructors by email from CADR and within the instructor's official course roster. Students who do not have a documented disability but who think they may have one also are encouraged to contact to CADR. Confidentiality will be observed in all inquiries.

9.6. Resources for Students in Distress

The Dean of Students office website (https://www.slu.edu/student-development/dean-of-students/index.php) provides links to university resources, as well as a link to a form to report a student of concern.

The University Counseling Center (https://www.slu.edu/life-at-slu/university-counseling/) offers a variety of services to help students. Students can call directly to schedule an appointment. Walk up appointments are available during normal working hours if there are immediate concerns about a student's well-being. After hours, an on-call staff member can be reached at 314-977-8522 (TALK).

9.7. Basic Needs Security

Students in personal or academic distress and/or who may be specifically experiencing challenges such as securing food or housing, or having difficulty navigating campus resources, and who believe this may affect their performance in the course, are encouraged to contact the Dean of Students Office (deanofstudents@slu.edu or 314-977-9378) for support. Furthermore, please notify the instructor if you are comfortable in doing so, as this will enable them to assist you with finding the resources you may need.

10. Appendices

10.1. Chemistry Graduate Coursework Offered

Courses that satisfy the Chemistry Core requirement are:

CHEM 5200 - Analytical Chemistry 2 (Instrumental Analysis) (3)
CHEM 5230 - Mass Spectrometry (3)
CHEM 5250 - Bioanalytical Methods Analysis (3)
CHEM 5260 - Analytical Separations (3)
CHEM 5270 - Electroanalytical Chemistry (3)
***CHEM 5280** - Chemical Sensors (3)
***CHEM 5290** - Special Topics - Analytical (3)
CHEM 5300 - Mathematical Techniques in Chemistry (3)
***CHEM 5330** - Advanced Physical Chemistry (3)
***CHEM 5340** - Advanced Thermodynamics (3)
***CHEM 5350** - Elements of Surface/Colloid Science (3)
CHEM 5370 - Computational Chemistry (3)
***CHEM 5390** - Special Topics - Physical (3)
CHEM 5400 - Organic Spectroscopy (3)
CHEM 5410 - Organic Chemistry 3 (3)
CHEM 5440 - Bioorganic Chemistry (3)
CHEM 5450 - Advanced Organic Chemistry (3)
CHEM 5460 - Synthetic Organic Chemistry (3)
CHEM 5470 - Medicinal Chemistry (3)
***CHEM 5480** - Heterocyclic Chemistry (3)
CHEM 5500 - Inorganic Chemistry (3)
CHEM 5550 - Organometallic Chemistry (3)
***CHEM 5560** - Solid State Chemistry (3)
CHEM 5570 - Group Theory and Spectroscopy (3)
***CHEM 5590** - Special Topics - Inorganic (3)
CHEM 5610 - Biochemistry 1 (3)
CHEM 5615 - Biochemistry 2 (3)
CHEM 5620 - Biophysical Chemistry (3)
CHEM 5630 - Chemical Biology and Biotechnology (3)
***CHEM 5700** - Environmental Chemistry (3)
CHEM 5800 - Fundamentals & Design of Nanomaterials (3)
***CHEM 5850** - Polymer Chemistry (3)

*These courses are not routinely offered

10.2. Worksheet for M.S. in Chemical Sciences (non-thesis)

Each semester, update this worksheet with the courses you have taken and received a final grade. Do not register for more or less credit hours indicated unless directed otherwise by the Graduate Program coordinator. The total number of credit hours must be ≥30 to complete the degree.

Course/Req. (credit hours)	Course # taken	Credit hours	Semester completed	Comment Grade
Example: CHEM-5299 Analytical Research	*CHEM 5299*	*3*	*Fall 2023*	*A*
Chemistry Core CHEM-5XXX (3)				
Chemistry Core CHEM-5XXX (3)				
Chemistry Core CHEM-5XXX (3)				
Chemistry Core CHEM-5XXX (3)				
Chemistry Core CHEM-5XXX (3)				
Elective, 5000- or 6000-level (3)				
Elective, 5000- or 6000-level (3)				
Elective, 5000- or 6000-level (3)				
Elective, 5000- or 6000-level (3)				
Elective, 5000- or 6000-level (3)				
	Total credit hours			
Apply to graduate in final semester				
Exit Interview				

*Students in the coursework M.S. program commonly take one to three courses a semester, which means the timeline will vary for each student.

*Summer coursework is optional for most students in the non-thesis program.

10.3. Roadmap for M.S. in Chemistry

10.3.1. Schedule for M.S. students starting in the Fall Semester

Year 1

- Orientation, Prelims & TA Training – begins August 1st and lasts until classes begin
- Fall Semester – Register for CHEM-5000 and two CHEM- courses (7 credit hours)
- Spring Semester – Register for CHEM-5X99 and one CHEM- course (6 credit hours)
- Summer Semester – Register for CHEM-5970 Research Topics (2 credit hours)

Year 2*

- Fall Semester – Register for one CHEM- course and one Elective course (6 credit hours); Write research progress report
- Spring Semester – Register for one Elective course (3 credit hours) and CHEM-5990 Thesis Research (6 credit hours); Register for graduation; Write and defend M.S. Thesis

Year 3 (if needed)

- Summer Semester – Register for CHEM-5990 (0 credit hours) (each semester until defense)

10.3.2. Schedule for M.S. students starting in the Spring Semester

Year 0

- Spring Semester – Register for CHEM-5X99 and one CHEM- course (6 credit hours)

Year 1

- Summer Semester – Register for CHEM-5970 Research Topics (2 credit hours)
- Orientation, Prelims & TA Training – begins August 1st and lasts until classes begin
- Fall Semester – Register for CHEM-5000 and two CHEM- courses (7 credit hours)
- Spring Semester – Register for one CHEM- course and one Elective course (6 credit hours)

Year 2*

- Summer Semester – Register for CHEM-5980 Graduate Reading (1 credit hours)
- Fall Semester – Register for one Elective course (3 credit hours) and CHEM-5990 Thesis Research (3 credit hours); Write research progress report
- Spring Semester – Register for CHEM-5990 Thesis Research (3 credit hours); Register for graduation; Write and defend M.S. Thesis

Year 3 (If needed)

- Summer Semester – Register for CHEM-5990 (0 credit hours) (each semester until defense)

*Note: Students wishing to transition to the Chemistry Ph.D. program do NOT take CHEM-5990 Thesis research. Rather ,they should follow the Year 2 plan outlined for the Ph.D. program after consultation with their research mentor.

10.4. Worksheet for M.S. in Chemistry

Each semester, update this worksheet with the courses you have taken and received a final grade. Do not register for more or less credit hours indicated unless directed otherwise by the Graduate Program coordinator. The total number of credit hours must be ≥30 to complete the degree.

Students are advised to check their record in DegreeWorks to ensure accuracy. Any discrepancies should be brought to the notice of the graduate program coordinator

Course/Req. (credit hours)	Course # taken	Credit hours	Semester completed	Comment Grade
Example: CHEM-5299 Analytical Research	*CHEM 5299*	*3*	*Fall 2023*	*A*
CHEM-5000 Intro to Research (1)				
CHEM-5920 Seminar (0) – both fall and spring semesters 1st year				
Chemistry Core CHEM-5XXX (3)				
Chemistry Core CHEM-5XXX (3)				
Chemistry Core CHEM-5XXX (3)				
Chemistry Core CHEM-5XXX (3)				
Elective, 5000-level (3)				
Elective, 5000-level (3)				
CHEM-5X99 Intro to X Research (3)				
CHEM-5970 Research Topics (2)				
CHEM-5990 Thesis Research (3)				
CHEM-5990 Thesis Research (3)				
	Total credit hours			
Establish Examination Committee				
Submit Research Progress Update				
Apply to graduate in final semester				
Submit Thesis				
Oral Examination				

10.5. Roadmap for Ph.D. in Chemistry

10.5.1. Schedule for Ph.D. students starting in the Fall Semester

Year 1

- Orientation, Prelims & TA Training – begins August 1st and lasts until classes begin
- Fall Semester – Register for CHEM-5000 and two CHEM- courses (7 credit hours)
- Spring Semester – Register for two CHEM- courses (6 credit hours)

Year 2

- Summer Semester – Register for CHEM-5X99 (3 credit hours)
- Fall Semester – Register for one one Elective course (3 credit hours); Write research progress report
- Spring Semester – Register for one Elective course (3 credit hours); take oral Research Progress Exam

Year 3

- Summer Semester – Register for CHEM-6990 Dissertation Research (2 credit hours); Write draft Literature Review for Research Proposal
- Fall Semester – Register for CHEM-6900 Proposal Writing (1 credit hour) and for CHEM-6990 Dissertation Research (1 credit hour); Write and submit Research Proposal
- Spring Semester – Register for CHEM-6990 Dissertation Research (2 credit hours); Take Oral Proposal Exam

Year 4

- Summer Semester – Register for CHEM-6990 Dissertation Research (2 credit hours)
- Fall Semester – Register for CHEM-6990 Dissertation Research (1 credit hours)
- Spring Semester – Register for CHEM-6990 Dissertation Research (1 credit hours); Give 4th Year Seminar

Year 5

- Summer Semester – Register for CHEM-6990 Dissertation Research (1 credit hours)
- Fall Semester – Register for CHEM-6990 Dissertation Research (1 credit hours)
- Spring Semester – Register for CHEM-6990 Dissertation Research (1 credit hours)
- 6-Month Meeting (when ready)
- Write Dissertation and Defend (when ready)
- Register for CHEM-6990 Dissertation Research (0 credit hours) each semester through defense.

10.5.2. Schedule for Ph.D. students starting in the Spring Semester

Year 0

- Spring Semester – Register for two CHEM- courses (6 credit hours)

Year 1

- Summer Semester – Register for CHEM-5X99 (2 credit hours)
- Orientation, Prelims & TA Training – begins August 1st and lasts until classes begin
- Fall Semester – Register for CHEM-5000 and one CHEM- courses (4 credit hours)
- Spring Semester – Register for one CHEM- courses (3 credit hours)

Year 2

- Summer Semester – Register for CHEM-5X99 (1 credit hours)
- Fall Semester – Register for one Elective course (3 credit hours); Write research progress report
- Spring Semester – Register for one Elective course (3 credit hours); take oral Research Progress Exam

Years 3-5

- Follow normal Ph.D. sequence as defined above

10.6. Worksheet for Ph.D. in Chemistry

Each semester, update this worksheet with the courses you have taken and received a final grade. Do not register for more or less credit hours indicated unless directed otherwise by the Graduate Program coordinator. The total number of credit hours must be ≥35 to complete the degree.

Students are advised to check their record in DegreeWorks to ensure accuracy. Any discrepancies should be brought to the notice of the graduate program coordinator.

Course/Req. (credit hours)	Course # taken	Credit hours	Semester completed	Comment Grade
Example: CHEM-5299 Analytical Research	*CHEM 5299*	*3*	*Fall 2023*	*A*
CHEM-5000 Intro to Research (1)				
CHEM-5920 Seminar (0) – both fall and spring semesters 1st year				
Chemistry Core CHEM-5XXX (3)				
Chemistry Core CHEM-5XXX (3)				
Chemistry Core CHEM-5XXX (3)				
Chemistry Core CHEM-5XXX (3)				
Elective, 5000-level (3)				
Elective, 5000-level (3)				
CHEM-5X99 Intro to X Research (3)				
CHEM-6900 Proposal Writing (1)				
CHEM-6990 Dissertation Research (3)				
CHEM-6990 Dissertation Research (3)				
CHEM-6990 Dissertation Research (3)				
CHEM-6990 Dissertation Research (3)				
	Total credit hours			
Establish Examination Committee				
Research Progress Update				
Research Proposal Defense				
Give Dept Seminar				
6-month Committee Meeting				
Appy to graduate in final semester				
Written and Oral Dissertation Defense				

10.7. Travel Approval Form

Form to be filled out if (1) travel potentially impacts teaching assignment and/or (2) travel expenses will be covered by a faculty member's grant. Grant-supported travel must be approved before travel arrangements are made via University system.

Name of Traveler:	
Purpose of Trip:	
Destination:	
Departure Date:	Return Date:
Are you a TA? Yes	No
If so, who will be covering your teaching labs? _____	
Does this conflict with any of your grading responsibility? _____	
If so, how will this be covered? _____	
_____	
Mandatory Signatures:	
_____	_____
Person Covering Your Teaching Labs	**Date**
_____	_____
Faculty Member Overseeing Your Teaching Lab	**Date**
_____	_____
Person(s) Responsible for Paying for Travel	**Date**
_____	_____
Graduate Program Director	**Date**

Any student travel that is going to be covered by a grant requires a statement from the PI indicating that the student travel can be charged to the grant. Please fill out the section below, scan the signed document, and forward to Angela (angela.jouglard@slu.edu).

I hereby authorize the travel expenses for _____ *to be charged*
(student's name)
*to my grant account #*_____.

_____
(Grant holder's signature)

10.8. Room Request Form

Graduate Student Room Request Form		
Name of Student:		
Reason for Room Request (circle one):	Presentation Practice 2nd Year Research Progress Exam MS Thesis/MA Oral Defense	Committee Meeting Research Proposal Oral Defense PhD Dissertation Defense
Date Room Needed:		
Time Range Room Needed:		Note: A minimum of 2 hours should be scheduled for any Exam or Defense
Estimated number of attendees:		
Does the event need to be announced via posters within the Department?	Yes No	Note: Required for MS thesis and PhD Defenses
Information needed for poster: Needed at least 1 week prior to the event. Title: Name as you want it to appear on poster: Time (if different that the time range given above):		
Date form received by Shontae:		
Room Assignment:		
Additional Notes:		

10.9. CHECKOUT FORM

Check-out List for SLU Chemistry Department

The following must be completed as part of checking out of the Chemistry Department

Name: _____ Lab:_____

Non-SLU Email: _____ Date:_____

1. Please inform publishers, correspondents, and the post office of your address change and return any library books.

Signatures

2. Laboratory specific
   a. Chemical inventory
   b. Laboratory notebooks
   c. Chemical waste

PI:_____

3. Instruments and freezers
   a. Transfer materials in public freezers over to another person in your lab
   b. Consolidate/backup data from department instruments

PI:_____

4. Building Keys returned

Shontae Williams: _____

5. Check with Angela about open reimbursements or travel

Angela Jouglard:_____

6. Exit interview with Graduate Program Coordinator

_____

_____

7. Forwarding home address:

_____

_____

Company name and address:

_____

8. New Employer Information

_____

Your title:_____

When completed return to Graduate Program Coordinator

Received by:_____ Date:_____

10.10. Annual Graduate Student Research Evaluation Form

Student Name: _____ Degree program: _____ Year in program:_____

3 = Mastery; 2 = Meets Expectations; 1 = Below Expectations; 0 = Requires Attention

Note: These evaluations are to be shared with the student (by the mentor) in a face-to-face meeting. Once this is complete, please scan and email this form to the graduate program director (DUE MARCH 1st).

Mentor evaluations

• Performing research as expected (time-wise)	3	2	1	0
• Progress towards degree	3	2	1	0
• Lab skills	3	2	1	0
• Independence	3	2	1	0
• Familiar with literature	3	2	1	0
• Helping with lab activities (cleaning, equipment up-keep)	3	2	1	0
• Coursework performance (3.0 GPA minimum)	3	2	1	0

Mentor feedback in terms of progress towards degree:

Are there concerns about the student fulfilling the assistantship's research obligations: Yes or No

Goals for student next year:

Student signature and date: _____

Mentor signature: _____

Date this was communicated verbally by mentor to student: _____