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## About the University of South Florida Department of Chemistry

*Welcome to the Department of Chemistry at the University of South Florida. We congratulate you for being admitted to one of our graduate degree programs, and are thrilled that you have chosen to pursue your advanced studies in Chemistry at USF. We hope that your time here will be enjoyable and productive as you advance toward your career goals.*

The Department of Chemistry represents one of the cornerstones of the School of Natural Sciences and Mathematics and the College of Arts and Sciences as well as the University as a whole. The Department of Chemistry is well-positioned in its centrality, demand, quality and sustainability to significantly contribute to the University vision of serving as a pre-eminent research university with state, national and global impact. The Department of Chemistry offers three types of graduate-level degrees: Master of Arts (M.A.), Master of Science (M.S.) and Doctor of Philosophy (Ph.D.).

We are dedicated to developing globally competitive students in academia and industry with expertise in a wide variety of interdisciplinary research disciplines: Biomolecular Transformations and Analysis, Drug Discovery, Chemical Education, Computation and Modeling, Medicinal Chemistry, Molecular Catalysis, Porous Materials, and Polymers Chemistry. Opportunities for graduate study are available in Analytical Chemistry, Chemical Education, Computer Modeling and Computational Chemistry, Drug Discovery and Delivery, Bioorganic and Bioinorganic Chemistry, Biophysical Chemistry, Electrochemistry, Environmental Chemistry, Enzymology, Inorganic Chemistry, Marine Chemistry, Medicinal Chemistry, Metal-Organic Framework Chemistry, Nanomaterials, Natural Products, Nucleic Acid Chemistry, Nuclear Magnetic Resonance, Organic Chemistry, Organocatalysis, Photochemistry, Physical Chemistry, Polymers, Spectroscopy, and Synthetic Organic Chemistry.

A complete listing of our faculty, staff, postdoctoral researchers and graduate students can be found on our departmental website: <http://chemistry.usf.edu>

This handbook is intended to acquaint you with the graduate programs offered in the Department of Chemistry. We ask that you familiarize yourself with the information and to use it as a handy reference as you matriculate towards your degree. For additional information regarding degree requirements, policies, and procedures, please refer to the USF Graduate Catalog: <http://www.grad.usf.edu/catalog.php>

## Master of Arts (M.A.) Degree

Study for the M.A. degree should ideally be completed within three calendar years beyond the baccalaureate degree, and all courses and degree requirements must be finished within five years. These requirements include the following:

### Required Coursework

The M.A. degree requires a minimum of 30 credit hours beyond the baccalaureate degree, and 26 credit hours must be in formally structured (graded) courses. One of these formally structured courses must be Advanced Research in Chemistry (CHM 6978). Students are required to take at least 3 semesters of Graduate Seminars in Chemistry (CHM 6935). These seminars help to broaden the student's exposure to the wide breadth of research in industry and academia. Graduate students must maintain a minimum overall grade point average (GPA) of 3.00 (on a 4.0 scale) in all coursework throughout their degree program. The student's advisor and supervisory committee will make recommendations on coursework to be taken.

**All M.A. students must complete the following as part of the 30 required credit hours:**

#### Shared Cored Requirements (6 Credit Hours)

Advanced Research in Chemistry (CHM 6978) – 3 Credit Hours

- Students typically take Advanced Research in Chemistry in their first or second semester of the program

Graduate Seminars in Chemistry (CHM 6935) – 3 Credit Hours

- Additionally, students will register for 1 credit hour of Graduate Seminar each semester in order to help broaden the student's exposure to the wide breadth of research in industry and academia. M.A. students must do this for at least 3 semesters for a total of 3 credit hours.

#### Electives - 24 Credit Hours

Students must complete 24 credit hours of electives out of the total 30 hours for the M.A. degree. Students may select from graduate level courses in the Chemistry Department and/or related departments, such as Public Health, Education, Chemical Engineering, Physics, Biology, and Mathematics, with advisement of the student's Supervisory Committee. For a list of course options visit the [USF graduate catalog](#)

## Selection of a Research Advisor and Supervisory Committee

M.A. students are required to choose an advisor by the beginning of the second semester. This is one of the most important decisions a student will make during his or her graduate career. The research advisor will provide mentorship and serve as chair of the student's Supervisory Committee that will assist the student in the selection of graduate coursework and the evaluation of progress.

The Supervisory Committee must have at least three members, including the advisor, who have the Ph.D. degree and hold a tenured or tenure-track faculty appointment in the Department of Chemistry. Students are required to meet with their Supervisory Committee at least once a year in order to update the committee on their progress in coursework, teaching duties, and other related activities. An [annual progress report form](#) must be completed each year by the student and signed by all committee members.

## Comprehensive Exam

M.A. students are required to prepare a review article on a topic approved by the student's advisor and Supervisory Committee. The student should discuss this with his or her advisor and Supervisory Committee, and follow the posted deadlines of the *USF Office of Graduate Studies* for completion of the degree requirements. While there is no requirement to orally present the article to the Supervisory Committee, the student may opt for an oral presentation. The review paper will serve as the final comprehensive examination required by the *USF Office of Graduate Studies*, and must be approved by all members of the student's Supervisory Committee. Please use the [MA Review Article Coversheet](#) when submitting your article to your Supervisory Committee.

## Master of Science (M.S.) Degree

Study for the M.S. degree should ideally be completed within three calendar years beyond the baccalaureate degree, and all courses and degree requirements must be finished within five years. These requirements include the following:

### Required Coursework (30 total credit hours)

The M.S. degree requires a minimum of 30 credit hours beyond the baccalaureate degree, and 20 credit hours must be in formally structured (graded) courses. Twenty hours must be in formally structured (graded) courses of which sixteen hours must be at the 6000 level, as approved by the student's Supervisory Committee. Graduate students must maintain a minimum overall grade point average (GPA) of 3.00 (on a 4.0 scale) in all coursework throughout their degree program.

**All M.S. students must complete the following as part of the 30 required credit hours:**

#### **Directed Research (CHM 6973) – 4 Credit Hours**

#### **Thesis: Master's (CHM 6971) – 2 Credit Hours**

#### **Shared Cored Requirements (6 Credit Hours)**

Advanced Research in Chemistry (CHM 6978) – 3 Credit Hours

- Students typically take Advanced Research in Chemistry in their first or second semester of the program

Graduate Seminars in Chemistry (CHM 6935) – 3 Credit Hours

- Additionally, students will register for 1 credit hour of Graduate Seminar each semester in order to help broaden the student's exposure to the wide breadth of research in industry and academia. M.S. students must do this for at least 3 semesters for a total of 3 credit hours.

#### **Electives - 18 Credit Hours**

- Students must complete 18 credit hours of electives out of the total 30 hours for the M.S. degree. Students may select from graduate level courses in the Chemistry Department and/or related departments, such as Public Health, Education, Chemical Engineering, Physics, Biology, and Mathematics, with advisement of the student's Supervisory Committee. For a list of course options visit the [USF graduate catalog](#).

## Selection of Research Advisor and Supervisory Committee

M.S. students are required to choose a research advisor (also referred to as the major professor) by the beginning of the second semester. This is one of the most important decisions a student will make during his or her graduate career. The research advisor will provide mentorship and serve as chair of the student's Supervisory Committee that will assist the student in the selection of graduate coursework and the evaluation of progress.

The Supervisory Committee must have at least three members, including the advisor, who have the Ph.D. degree and hold a tenured or tenure-track faculty appointment in the Department of Chemistry. Students should complete the [Graduate Student Supervisory Committee Appointment Form](#) and turn it into the Graduate Coordinator.

Students are required to meet with their Supervisory Committee at least once a year in order to update the committee on their progress in coursework, teaching duties, and other related activities. An [annual progress report form](#) must be completed each year by the student and signed by all committee members.

## Comprehensive Exam

The comprehensive exam is the Master's Thesis Defense. M.S. students are required to submit and orally defend a written thesis based on original research in an area approved by the student's Supervisory Committee. This will serve as the final comprehensive examination as required by the *USF Office of Graduate Studies*. Information on the steps to defend and the forms that are needed are listed below:

### [Master's Thesis Defense Announcement](#)

At least two weeks prior to your Thesis Defense, this form needs to be submitted.

### [Successful Defense](#)

At your Dissertation Defense, these forms should be completed/signed and then turned in.

### [Thesis and Dissertation Certificate of Approval](#)

This form needs to be submitted directly to Graduate Studies.

## Doctor of Philosophy (Ph.D.) Degree

The Ph.D. degree is the highest academic degree offered by our program, and is entirely focused on innovative research in the chemical sciences. Preference for funding support from the department is given to Ph.D. students. The Chemistry Department allows students with bachelor's degrees to apply for the Ph.D. and does not require master's level coursework prior to entry.

Study for the Ph.D. degree must be completed within five years beyond the baccalaureate degree, and all courses and degree requirements must be finished within seven years. These requirements include the following:

**All Ph.D. students must complete the following as part of the 72 required credit hours (Post-Baccalaureate) or 42 credit hours (Post-Master's):**

### **Core Requirements (9 Credit Hours)**

Advanced Research in Chemistry (CHM 6978) – 3 Credit Hours

- Students typically take Advanced Research in Chemistry in their first or second semester of the program.

Graduate Seminars in Chemistry (CHM 6935) – 6 credit Hours

- Students will register for 1 credit hour of Graduate Seminar each semester in order to help broaden the student's exposure to the wide breadth of research in industry and academia. Ph.D. students must do this for at least 6 semesters for a total of 6 credit hours.

**Dissertation: Doctoral (CHM 7980) – (2 Credit Hours Minimum)**

**Additional Coursework - 61 (post-Baccalaureate) or 31 (post-masters) credit hours minimum**

- Students who take more dissertation hours may apply these toward the additional course requirements.
- Students may select from graduate level courses in the Chemistry Department and/or related departments, such as Public Health, Education, Chemical Engineering, Physics, Biology, and Mathematics, with advisement of the student's Supervisory Committee. For a list of course options visit the [USF graduate catalog](#).

## Selection of a Research Advisor and Supervisory Committee

Ph.D. students are required to choose a research advisor by the beginning of the second semester. This is one of the most important decisions a student will make during his or her graduate career. The research advisor will provide mentorship and serve as chair of the student's Supervisory Committee that will assist the student in the selection of graduate coursework and the evaluation of progress.

The Supervisory Committee must have at least four members all holding the Ph.D. Three members, including the research advisor, must have a tenured or tenure-track faculty appointment in the Department of Chemistry. The fourth member is required to be from outside the Chemistry Department.

Once you have selected the members of your committee, the [Graduate Student Supervisory Committee Form](#) must be completed, signed (by all committee members including your external member) and submitted to the Graduate Program Coordinator. Do not turn in this form without signatures from ALL members. It will not be submitted to the college unless your committee is complete.

Students are required to meet with their Supervisory Committee at least once a year in order to update the committee on their progress in coursework, teaching duties, and other related activities. An [annual progress report form](#) must be completed each year by the student and signed by all committee members.

## Qualifying Exam

Students must successfully pass at least three of the five ACS Undergraduate Chemistry proficiency examinations in order to satisfy the qualifying exam requirement. The undergraduate chemistry areas include: Organic Chemistry, Inorganic Chemistry, Physical Chemistry, Analytical Chemistry, and Biochemistry.

*If you have not met the requirement, you MUST register for and successfully complete the exams on the next date that they are offered.* Remember, the expectation is that you would pass these upon entry to the program, and, if not, that you would demonstrate proficiency at the 50<sup>th</sup> percentile among undergraduates nationally by the end of your first year. Failure to pass three out of the five subject area exams may result in dismissal from the program.

### ACS Exam Frequency:

- Exams will be held at most once a month; exams must be taken monthly. A student may miss one exam a semester for an excused absence. If it exceeds more than one, the student could possibly be dismissed from the program. The department does NOT guarantee any regularity of the exam schedule—except to offer exams at a minimum of twice a semester.
- When exams are offered, students may take only one subject per month.
- There are only three attempts per chemistry subject area.

**ACS Exam Initial Round of Attempts:**

- Students are required to take all five exams upon entry, and those (in most cases) count as the first attempt.
- Students who did not show up to the first set of exams, earned a zero on that test (unless given an excused absence). Each missed subject exam counts as their first attempt (out of three) for that subject, and they must choose that exam subject to take on the next available test date. If they missed more than one subject, they can choose between the missed exams for the next test date, but must complete all missed exam subjects before re-taking any exams for a second time.

**Students with Disabilities - Accommodations for ACS Exams:**

- Students with documented disabilities may request accommodations from the USF Students with Disabilities Services. For information regarding the process and the required documentation to receive accommodations please visit [Students with Disabilities Services](#).
- If students are requesting accommodations, they must provide the department with a memo of accommodations from USF Students with Disabilities Services. For more information, students may refer to [using your accommodations](#).

## Promotion to Candidacy

Promotion to Candidacy is the first official milestone to progress towards earning the Ph.D. The student will present a written document outlining his or her research progress and future plans to the Supervisory Committee before the end of the third semester (excluding summers). This research summary must be presented orally to the committee. A successful oral defense results in the student being promoted to candidacy for the Ph.D. degree.

The student is expected to meet the following, minimum, requirements before scheduling the Candidacy meeting:

- Be an active member of a research group,
- have selected a full committee,
- be producing data (that will ultimately be defended in the oral presentation),
- have plans for carrying out future research (again, that is to be presented orally).

The student must produce a written document that clearly lays out

- background and significance of their current and/or future research plans
- appropriate citations from relevant literature,
- data that supports the aforementioned research plans,
- a workable plan for making progress toward a publication on the topic of interest.

The student must successfully defend their written document via an oral presentation given to their full committee. During this presentation, the student should expect questions that range from basic background knowledge to very detailed questions directly related to their past, present, and future research. A good rule of thumb is to be able to explain very clearly everything you include in your written document and oral presentation. If a student does not pass the oral defense, at the discretion of the committee, the student not promoted to *candidacy* within this timeframe may elect to apply for a program change to the M.A. or M.S. degree program, or may be terminated from the graduate program.

At your Candidacy meeting, if you are promoted to Doctoral Candidacy, your committee members also need to sign this form.

### Report of Research Proposal and Future Plans Form

Please list the date of your Candidacy presentation (to your committee) as the date of your "Successful Qualifying Exam Completion" (this question on the form is not referring to your ACS exams).

### Promotion to Doctoral Candidacy Form

If this form is approved by the deadline for candidacy requests, you will then need to register for Dissertation hours the following semester. The Graduate Program Coordinator will check course schedules before turning in tuition waivers to make sure students are registered in the correct courses.

## Original Research Proposal (ORP) Examination

After being promoted to candidacy, the student must prepare and defend an original research proposal to his or her Supervisory Committee. Successfully defending an Original Research Proposal is the second official milestone to progress towards earning the Ph.D.

The topic of the ORP must be approved by the student's research advisor and Supervisory Committee. The approval of the topic for the original research proposal (as indicated on the [topic approval form](#)) does NOT need to be unanimous if the Major Professor is among the majority of the committee in approving the topic. In the event that there is a lack of unanimity, the committee shall discuss prior to a final decision.

Before the student's committee signs the topic approval form, the student must produce a 1-page whitepaper that includes the following:

- a proposed title,
- a description of the topic being proposed (i.e., extended abstract),
- a specification of the grant format (e.g., NSF/NIH/ACS-PRF) that the final proposal (see below) will be based on.

The committee may include a list of proposal format stipulations (in addition to those below) as part of their approval of the whitepaper. The student must produce a well-written proposal document of 6-15 pages (including figures), written in the format of a grant proposal, that clearly lays out the:

- background and significance,
- any preliminary data that helps to demonstrate feasibility of the project,
- methods and/or approaches that are being proposed for successful completion of the proposed research,
- a list of cited references indicating thorough literature research of the proposed topic must be appended to the proposal (i.e., the reference list does not contribute to the page limit).

The student must successfully defend the aforementioned proposal in an oral presentation to the committee. Note, the written proposal must be finalized and submitted to the committee for review at least 1 week prior to the oral defense.

The ORP defense should be completed by the end of the fifth semester (excluding summers). At the discretion of the committee, the student not passing the ORP examination within this timeframe may elect to apply for a program change to the M.A. or M.S. degree program, or be terminated from the graduate program.

## Research Data Presentation

At least one semester prior to the final defense for the Ph.D. degree, each student must deliver a research data presentation to his or her Supervisory Committee. This should be completed by the end of the fourth year (eight semesters, excluding summers). The Supervisory Committee will advise the student on the specific research milestones to be met before the student can “write-up” the final dissertation. At your Research Data Presentation meeting, you must complete the [Research Data Presentation Form](#), obtain the signatures of your committee members and submit the signed document to the Graduate Program Coordinator.

If the Research Data Presentation is not passed at least one semester prior to the final dissertation defense, you will need to request an exception from the Graduate Council.

It is important for students to notify the Graduate Program Coordinator of your plans to do your Research Data Presentation so a final graduation check can be performed and you can be notified of important deadlines.

## Publication and Presentation Requirements

The USF Graduate School requires that students must be first author for articles and papers used for the thesis/dissertation, or another designation or affirmation that the student had primary intellectual responsibility for the publication. To receive the Ph.D. degree in Chemistry, the student must publish at least one peer-reviewed manuscript on his or her doctoral research, and give at least two presentations at a scientific meeting.

### Oral Defense of the Ph.D. Dissertation

Upon completing all the research and other program requirements, the student will schedule a final oral defense of the written Ph.D. dissertation. This presentation is open to the public and a successful oral defense is a requirement for the doctoral degree. Students should continue to communicate with the Graduate Program Coordinator regarding intentions to complete the dissertation defense and apply for graduation. Monitoring of deadlines is critical during the last two semesters in order to remain on track. Deadlines to discuss with the Graduate Program Coordinator include:

**Deadline to request Ph.D. Dissertation Defense**

**Deadline to submit FINAL approved Dissertation**

**Final Clearance of ETDs; Last day to receive final ETD approval by Office of Graduate Studies**

#### Request for Dissertation Defense

At least two weeks prior to your Dissertation Defense, these forms need to be submitted to CHE 205 with ALL signatures (\*if applicable). If you need the Department Chair's signature, you must turn the form in at least three weeks in advance.

#### Defense Announcement

This will need to be submitted two weeks prior to the defense and will be put up to advertise your defense date.

#### Successful Defense

This form will be filled out **twice**. Once two weeks before the defense with no signatures and then after the defense with all of the signatures, except the College Dean

#### Thesis and Dissertation Certificate of Approval

This form gets turned in directly to Graduate Studies after the dissertation was defended successfully.

## Timeline for the Doctoral (Ph.D.) Degree in Chemistry

As you progress towards completion of your Ph.D. degree, it is important to keep in mind two milestones that are tracked by the Department during your time here: Candidacy and Original Research Proposal. The [Progression Reminder Graphic](#) is a helpful resource that outlines the important steps and two milestones that are tracked.

The Chemistry Graduate Program Coordinator will monitor student compliance twice every semester. At the beginning of each semester, the coordinator will notify students who have not met Milestone 1 or 2, within the given deadlines, and will ask for a written explanation of their status. Students who are more than 1 semester out of compliance of Milestone 1 or 2 will also need written confirmation from their Research Advisor stating that there is a plan in place to achieve that milestone within that next semester. Students who are more than a year out of compliance of Milestone 1 or 2 may not be considered as first priority for a TA position. All students who are out of compliance are reviewed by the Graduate Council, Graduate Director, and the Director of Academic Programs and Student Affairs once per semester.

## Graduate Personnel Contact Information

### 2022-2023 Chemistry Department Graduate Council

#### **H. Lee Woodcock, Ph.D., Committee Chair**

Bill Baker, Ph.D.  
Ioannis Gelis,  
Scott Lewis, Ph.D.  
Li-June Ming, Ph.D.  
Christina Nelson, Ph.D.  
Edward Turos, Ph.D.  
Xiaodong (Michael) Shi, Ph.D. (ex officio)  
Kaitlyn Kroner (Staff)  
Guy Dayoff (Graduate Student Representative)

### 2022-2023 Departmental Administration

All inquiries should be directed to [chmgrad@usf.edu](mailto:chmgrad@usf.edu)

H. Lee Woodcock, Ph.D.  
Graduate Program Director & Chair of Graduate Council

Xiaodong (Michael) Shi, Ph.D.  
Chair of Graduate Admissions Committee

Kaitlyn Kroner, M.A.  
Graduate Program Coordinator

Christina Nelson, Ph.D.  
Director of Academic Programs and Student Affairs