CHEMISTRY (MS)

Graduate School

Program Website (https://chemistry.cornell.edu/graduate-program/)

CIP: 40.0501 | **HEGIS:** 1905.00 | **NYSED:** 05732

Graduate Field

Chemistry and Chemical Biology (https://catalog.cornell.edu/graduate-school/chemistry-chemical-biology/)

Program Description

The M.S. program requires a minimum of 30 credit hours of coursework. As the academic backgrounds and personal/professional goals of each student will differ, we anticipate significant diversity in the programs of study in the M.S. degree and therefore do not prescribe a rigid set of courses as prerequisites or requirements; we would ordinarily anticipate that the majority of the credits are taken in chemistry and closely related subjects, and at suitably high levels. Your program of study will be adapted to your individual interests and needs in consultation with the M.S. Graduate Program Director, and will likely include coursework selected from across Cornell's campus. The Graduate School program requirements include no less than two semesters in residence, though our admitted applicants have generally found that three semesters represents a more typical time to completion of all of our requirements. There can be no guarantee that all admitted students will progress at the same rate.

Concentrations by Subject

- Biophysical chemistry
- Chemical biology
- Inorganic chemistry
- Organic chemistry
- Organometallic chemistry
- Physical chemistry
- Polymer chemistry
- Theoretical chemistry

Program Information

- Instruction Mode: In Person
- Location: Ithaca, NY
- Minimum Credits for Degree: 30

The M.S. program is designed for those who wish to obtain further education in the field of chemical sciences broadly understood, and to develop their ability for critical inquiry, independent research, and teaching. In the fall of the first year, it is expected that each student will be enrolled in CHEM 5110 Chemical Facilities Boot Camp, which provides an introduction to the vast world of tools and opportunities for chemical research, found in both our department and across the campus.

As research-degree students, you will be expected to give evidence of mature purpose by involvement in original research, in an area of chemical interest. As such the award of the MS degree is contingent upon the completion of a master's research project documented through the preparation of an archive document presented to the student's special committee and to the Graduate School.

Program Requirements

- Minimum Semesters for Degree: 4

Graduate School Milestones

- Responsible Conduct of Research Training: Required
- Open Researcher and Contributor ID (ORCID): Required
- Student Progress Reviews (SPR) begin: Second Year
- Masters Exam (M Exam): Summer of second year

Field Specific Milestones

- Field progress review conducted in the first year
- Two semesters of teaching assistantship required

Course Requirements

Course requirements are determined by the student's Special Committee. Enrollment in a GRAD research course or the equivalent field specific research course is expected of all students.

- CHEM 5110 Chemical Facilities Boot Camp (First Year, Fall)

University Graduation Requirements Requirements for All Students

In order to receive a Cornell degree, a student must satisfy academic and non-academic requirements.

Academic Requirements

A student's college determines degree requirements such as residency, number of credits, distribution of credits, and grade averages. It is the student's responsibility to be aware of the specific major, degree, distribution, college, and graduation requirements for completing their chosen program of study. See the individual requirements listed by each college or school or contact the college registrar's office (https://registrar.cornell.edu/service-resources/college-registrar-directory/) for more information.

Non-academic Requirements

Conduct Matters. Students must satisfy any outstanding sanctions, penalties or remedies imposed or agreed to under the Student Code of Conduct (Code) or Policy 6.4. Where a formal complaint under the Code or Policy 6.4 is pending, the University will withhold awarding a degree otherwise earned until the adjudication process set forth in those procedures is complete, including the satisfaction of any sanctions, penalties or remedies imposed.

Financial Obligations. Outstanding financial obligations will not impact the awarding of a degree otherwise earned or a student's ability to access their official transcript. However, the University may withhold issuing a diploma until any outstanding financial obligations owing to the University are satisfied.

Learning Outcomes

The Chemistry and Chemical Biology field expects MS students to obtain both breadth and depth in chemistry and related fields beyond that found in typical BA or BS programs. Typically we will expect that the individual program will emphasize basic courses as required to provide the essential basis of a chemistry but to provide the depth and rigor which exceeds an undergraduate major

- *Scholarship:* Students must develop the ability to acquire, evaluate and synthesize knowledge in areas relevant to the broad chemical sciences, with special emphasis on their focused research areas. They must learn and apply principles from graduate courses and be capable of critical assessment of scientific ideas.
- *Research:* Students will apply the general methods of scientific inquiry to conduct observations, formulate hypotheses, design experiments, and acquire data--in short, to pose clear questions and to provide useful answers as steps in the process of creating new knowledge. Exposure to the variety of available analytical methods in combination with appropriate mathematical, statistical, and/or computational tools is essential to understanding how research is done.
- *Communication:* Students must be capable of expressing their ideas, summarizing information and engaging in productive discourse with advisors, colleagues, and less experienced students. They will become effective writers and presenters, and learn to present and defend their scientific efforts.