

Chemistry PhD

Admission Requirements

Individuals with at least the equivalent of the B.A. degree in the natural sciences may be admitted to the Graduate School as candidates for the M.S. degree or as precandidates for the Ph.D. degree in chemistry. A student in the M.S. program may request to transfer to the Ph.D. program by petition to the department.

The department admissions committee considers applicants' grade point averages and normally requires above-average performance in all areas of chemistry as well as physics and mathematics, or other evidence of high aptitude for graduate work in chemistry. Applicants' letters of recommendation and academic programs are also considered. In some cases the committee may require successful completion of undergraduate course work at UMSL as a condition of enrollment as a regular student.

Students with bachelor's degrees in fields other than chemistry may be admitted to pursue graduate studies in chemistry, but they must make up background deficiencies, usually by taking undergraduate course work at UMSL.

Financial Support

Teaching assistantships are available to qualified applicants. Research assistantships and fellowships are available for advanced students. Departmental support is not normally available beyond the fifth year in the program. For further information, contact the Department of Chemistry & Biochemistry Graduate Admissions Committee.

Preliminary Advisement

Students who have been admitted for graduate work in chemistry will be contacted by the Director of Graduate Studies in order to develop a tentative plan of study which takes into consideration the student's background and interests. Entering students are required to demonstrate proficiency at the undergraduate level in four areas of chemistry (biochemistry, organic, inorganic, physical, and analytical).

Proficiency may be demonstrated in one of the following ways:

- Outstanding performance in recent undergraduate course work.
- Satisfactory performance in standardized placement examinations. These examinations are given twice a year, approximately one week before the beginning of the fall and winter semesters.
- Successful completion of assigned course work.

The ultimate choice of whether students may enroll in the M.S. or Ph.D. degree programs resides with the chemistry faculty.

Doctoral Degree Requirements

Within one year of initial enrollment, incoming doctoral students must demonstrate proficiency in four of the following five areas: biochemistry, organic, inorganic, physical, and analytical chemistry. A minimum of 60 credit hours is required, including research hours.

Comprehensive Exam Committee

Before the end of the second regular semester of study, the doctoral student and his/her research advisor will select a comprehensive exam committee. The student should prepare Graduate School form D-1, which

should be signed by the research advisor and the Director of Graduate Studies, and filed with the graduate school.

In the Department of Chemistry & Biochemistry, the comprehensive exam committee also serves as a mentoring committee for the student. The committee will meet with the student at the end of each spring semester to review progress in coursework and research. A written report summarizing their assessment and recommendations will be provided to the student and the Director of Graduate Studies.

Comprehensive Examinations

Each student seeking the Ph.D. degree must successfully complete a comprehensive examination prior to advancement to candidacy. The comprehensive exam is typically taken when formal coursework has been completed, but it must be completed before the start of the fifth regular semester.

The comprehensive exam consists of writing an original research proposal and an oral defense that will be evaluated by the student's committee. The student will select a topic that is not directly related to the expected research area. The research advisor must approve the topic. The specific format for the proposal is described in the Department of Chemistry & Biochemistry Handbook of Graduate Studies.

Dissertation Proposal

Doctoral students must prepare and defend a Dissertation Proposal before the student has completed the equivalent of 6 regular semesters of full-time study. The proposal should be defended within six months following successful completion of the Comprehensive Examination.

The Dissertation Proposal includes both a written and oral component. Both components will be evaluated by the student's Comprehensive Examination committee. The written proposal will be submitted to the Comprehensive Examination committee and will be presented as a seminar to the Department. After the seminar, the student will defend the proposal before the Comprehensive Examination committee.

Advancement to Candidacy

In addition to general Graduate School requirements for advancement to candidacy, students must complete the following:

1. 18 hours of non-dissertation work.

This may not include:

CHEM 4212	Instrumental Analysis	3
CHEM 4233	Laboratory in Instrumental Analysis	2
CHEM 4302	Survey of Physical Chemistry with Applications to the Life Sciences	3
CHEM 4343	Physical Chemistry Laboratory II	2
CHEM 4412	Advanced Inorganic Chemistry	3
CHEM 4433	Inorganic Chemistry Laboratory	2
CHEM 4712	Biochemistry	3
CHEM 4733	Biochemistry Laboratory	2
CHEM 6487	Problem Seminar in Inorganic Chemistry	1
CHEM 6687	Problem Seminar in Organic Chemistry	1-3
CHEM 6787	Problem Seminar in Biochemistry	1

CHEM 6812	Introduction to Graduate Study in Chemistry	1
CHEM 6822	Introduction to Graduate Research in Chemistry	1
CHEM 6897	Chemistry Colloquium	1

At least 9 of the 18 credits of non-dissertation coursework must be at the 5000 level. Courses in areas other than chemistry may be included with prior departmental approval.

2. Successfully pass a Comprehensive Examination.
3. Successfully present and defend a dissertation proposal.
4. Submit the proposal for approval to the Graduate School.
5. Be in good standing.

Seminar Requirement

Students must enroll in CHEM 6897, Chemistry Colloquium, each semester they are in residence. In their final semester in the program, each student will present an "exit seminar" to the Department describing the results of their dissertation research.

Dissertation

One copy of the dissertation must be submitted upon completion of the graduate research problem.

Probation and Dismissal

Students are dismissed from the Ph.D. program if they fail to pass their Comprehensive Examination or otherwise fail to meet the academic and professional standards set forth by the Graduate School and the Department of Chemistry and Biochemistry.