Chemistry MS

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.

Master of Science Requirements

Admission Requirements

Applicants must meet the general graduate admission requirements of the Graduate School, described in the UMSL Bulletin. Applications may be completed online

In addition to the Graduate School admission requirements, the following requirements apply to the MS in Chemistry program:

- BS or BA in a scientific discipline is required, although other degrees will be considered for strong candidates. The admission committee will evaluate previous coursework to determine potential for success.
- Minimum of 3.00 GPA on 4.0 scale. Students whose GPA is 2.75 to 2.99 may be admitted under some circumstances.
- Two Letters of Recommendation.
- Official transcripts from all universities attended.
- The Graduate Record Examination General Test is NOT required, but may add value to the application.
- International students are required to document English proficiency by providing scores from an internationally accepted standardized examination prior to admission decision.

Degree Requirements

30 hours are required to earn a Master of Science in Chemistry and the advanced curriculum can be customized for each student. Students may choose to focus their coursework in a few, some, or all chemical disciplines including organic, inorganic, biochemical, physical, and analytical chemistry.

Master of Science without Thesis

Students may be enrolled part-time to complete the degree without a thesis. Of the required 30 hours, 15 credits must be at the 5000 level and 3 must be earned by taking 3 separate semesters of CHEM 6897, Colloquium.

Master of Science with Thesis

Students selecting this option must be enrolled full-time for at least two consecutive semesters. During this time, students are expected to enroll in CHEM 6905, Graduate Research in Chemistry, and conduct their thesis research. Of the required 30 credits, 15 must be taken at the 5000 level and 3 must be earned by taking 3 separate semesters of CHEM 6897, Colloquium.

Master of Science Degrees for Doctoral Students

Doctoral students may receive a Master’s degree in their program for work completed towards the doctoral degree. To receive a Master’s degree, doctoral students must complete 30 credit hours of courses, with at least 15 of these credit hours in courses numbered at or above the 5000 level. No more than 3 hours in CHEM 6897, 3 hours from a combination of CHEM 6487, CHEM 6687, CHEM 6787, CHEM 6812, CHEM 6822 and CHEM 6832, and 6 hours of CHEM 6905 may be applied.

The non-dissertation courses presented for the M.S. degree may not include any of the following courses:

Course Number	Title	Hours
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

Learning Outcomes

Upon completion of the program, graduates will be able to:

- Demonstrate an advanced conceptual understanding of several chemistry sub-disciplines including organic, inorganic, physical, biological and analytical chemistry
- Demonstrate an understanding of important principles that underlie techniques used in chemical and biochemical research, thereby possessing the ability to analyze and interpret data, and make conclusions.
- Explain phenomena by means of accepted chemical principles, theories or laws in particular areas of the chemical sciences with a high degree of sophistication.
- Demonstrate knowledge of chemical nomenclature, structure, and function and be able to effectively communicate this information to both scientists and the public.
- Formulate hypotheses based on an advanced knowledge of chemistry and the current published literature.
- Demonstrate a mastery of literature resources and published findings in chemistry for the preparation of papers, reports, or summaries within a particular subfield of chemistry.