

DEPARTMENT OF CHEMISTRY

The graduate program in Chemistry is designed to train chemists for careers in business, industry or academics. This degree is also appropriate for those students planning to continue their training in Ph.D. programs at other institutions.

Admission Requirements

Students seeking admission to the Master of Science program in Chemistry must submit the *Graduate Studies Application for Admission* with the one-time application fee to the Office of Graduate Studies, official transcripts of all college-level work (including the transcript that shows the date the undergraduate degree was conferred), official GRE scores, and three letters of recommendation. The Chemistry Department requirements are as follow:

1. A major or minor in Chemistry or commensurate industrial experience,
2. A GPA of at least 2.5 in undergraduate Chemistry courses,
3. Submit acceptable scores on the Graduate Record Exam.

For a final admissions decision, a holistic review of each student's application file will be completed on a competitive basis.

The Department of Chemistry offers classes in a wide variety of chemical subjects including analytical, forensic, inorganic, organic, and physical chemistry, toxicology and biochemistry.

Degree Requirements

Master of Science, 30 Semester Hours without Minor and with Thesis

- 24 graduate semester hours of Chemistry
- 6 semester hours of research and thesis

Master of Science, 30 Semester Hours with Minor and Thesis

- 12 graduate semester hours of Chemistry
- 6 semester hours of research and thesis
- 12 graduate semester hours in a minor field that logically supports the major (Computing Science, Mathematics, Physics, Biology, etc.).

Master of Science, 36 Semester Hours with Minor, Non-Thesis

- 24 graduate semester hours of Chemistry
- 12 graduate semester hours in a minor field that logically supports the major (Computing Science, Mathematics, Physics, Biology, etc.)

Master of Science, 36 Semester Hours without Minor, Non-Thesis

- 36 graduate semester hours of Chemistry

Master of Education in Secondary Education: This degree plan is designed primarily for the secondary teacher. All such degrees originate in the College of Education in the Department of Curriculum and Instruction and require the completion of a minimum of thirty-six hours of graduate credit, thirty of which must be in courses numbered 500 or above. Twelve to twenty-four hours of professional education coursework are required (twelve hours minimum for minor and 6 hours minimum for a second minor). A comprehensive examination is required. Based on review of a student's undergraduate transcript, the Department of Chemistry may require completion of undergraduate stem courses. The degree requires 36 hours of graduate credit as described below:

12-24 semester hours of graduate credit in Chemistry

12-24 semester hours of professional education courses

Other information

Advisory Committee: For students completing a thesis, a thesis research project will begin in the second semester of graduate work. The student and the thesis director, with approval from the chair, will select two additional faculty members to serve as the thesis committee. Once enrolled in a thesis class, a student must be continually enrolled until graduation.

Period of Study: Students taking 9 semester hours of coursework each long semester and 3 semester hours each summer session will be expected to finish their graduate program within two years. A minimum of three long semesters and two summer sessions is required.

Comprehensive exam and oral thesis defense: All graduate students are required to pass a comprehensive exam based on their coursework. The nature of this exam, which may be written and/or oral, will be determined by the faculty in consultation with the student's thesis director. MS students will be tested on three of five areas (Analytical Chemistry, Physical Chemistry, Organic Chemistry, Inorganic Chemistry, and Biochemistry). Students must be enrolled the semester that they take comprehensive examinations. An oral presentation of the thesis to the faculty in a seminar format is required, and the thesis must be defended before the student's thesis committee.

Master of Science in Forensic Science. This interdisciplinary degree is designed to produce graduate level forensic scientists. Formal graduate coursework will come from the Departments of Chemistry, Biological Sciences and the College of Criminal Justice. Summer practicum and internships will provide experiences in the collection, preservation, analysis and presentation of forensic evidence. The Master of Science in Forensic Science program requires completion of 42 graduate semester hours and can be completed in two years. Coursework will focus on the collection, preservation, analysis, and presentation of forensic evidence. Graduates of this scientist-practitioner program will be prepared to consult with various agencies within the criminal justice system. In order to receive a MS degree in Forensic Science, all graduate students are required to pass a comprehensive examination. This unique program is the first of its kind in Texas and one of only a handful of such programs in North America.

The competitive admissions process is based on a holistic approach taking all of the required materials into consideration. The desired profile includes an average GRE score of at least 1100 and an undergraduate GPA of at least 3.0. Applicants with unique qualifications who do not meet all of the foregoing qualifications may be accepted into the program on probationary status at the discretion of the admissions committee and appropriate academic dean. The program will encourage diversity related to gender and ethnicity.

The Program of Study**

Required Courses:

BIO	474	Biostatistics
BIO	534	Electron Microscopy
BIO	595	Special topics: Forensic Analysis of Biological Evidence
CHM	568	Analytical Spectroscopy
CHM	585	Special Topics: Drug Chemistry/Toxicology
CJ	531	Techniques for Crime Scene Investigation
CJ	537	Law and Forensic Science
CJ	560	Forensic Analysis of Pattern Evidence
CJ	561	Principles of Quality Assurance
CJ	562	Seminar in Forensic Science
CJ	670	Internship

After consultation with appropriate advisors, students will establish a focus in Biological Sciences, Chemistry or Criminal Justice with an additional 9 hours of coursework in that area including:

BIO, CHM or CJ	Elective
BIO, CHM or CJ	698 Graduate Research/Thesis/Thesis Practicum
BIO, CHM or CJ	699 Thesis

**** Please Note: Curriculum may be adapted to meet AAFS (American Academy of Forensic Science) program accreditation standards.**

Senior Courses Open to Graduate Students

CHM	440	Instrumental Analytical Chemistry (Credit 4)
CHM	442	Air Quality (Credit 4)
CHM	443	Structural Spectroscopic Methods (Credit 4)
CHM	448	Physical Chemistry I (Credit 4)
CHM	467	Advanced Inorganic Chemistry (Credit 3)
CHM	449	Physical Chemistry II (Credit 4)

A maximum of six hours of 400-level courses may be taken toward the completion of the master's degree. Course requirements in 400-level courses will be appropriately modified for graduate credit.

CHEMISTRY COURSE DESCRIPTIONS

CHM 503 Independent Study in Chemistry.

This course is intended to provide an avenue for selected graduate students to engage in independent studies. Registration is on an individual basis and is restricted to students in residence. Prerequisite: approval of department chair. Credit 1-3.

CHM 510 Chemical Literature and Seminar.

Students will participate in the departmental seminar program. This participation will require the preparation and presentation of current research material in a format acceptable to the American Chemical Society. Credit 1.

CHM 561 Physical Organic Chemistry.

This course consists of a study of the effect of structure upon reactivity of organic compounds. The qualitative and quantitative relationship of structure to acidity and basicity in organic chemistry is developed. In addition, reactive intermediates (carbocations, carbanions and free radicals)