

# Chemistry, M.S.

## DEPARTMENT

MN in Chemistry, Minor  
BA in Chemistry, B.A.  
BS in Chemistry, B.S.  
MS in Chemistry, M.S.  
BS in Biochemistry, B.S.  
CRED in Single Subject Credential - Chemistry

## REQUIREMENTS

Department

### Master of Science Degree Requirements

#### Graduate Program

The mission of the graduate program in chemistry is guided by the mission of the university; it seeks to provide comprehensive undergraduate and graduate degree instruction for qualified students, and to contribute to the needs and well being of the people of the San Joaquin Valley and California.

The California State University, Fresno graduate program in chemistry is primarily oriented toward two groups of students: students who are preparing themselves for employment in chemistry-based occupations (including teaching) and students interested in additional training in chemistry and biochemistry to prepare for advanced Ph.D. graduate work.

The degree program course requirements are rigorous, and the approach to an M.S. curriculum is a demanding one. However, as the quality of training in all of chemistry's subdivisions remains high, we perceive this diversity as the primary strength of the program.

For students in the first category, the program stresses strengthening the student's chemistry background while also providing advanced training in both theory and research - training that is very beneficial in today's competitive job market. Furthermore, the program also strives to meet local and regional needs for individuals with advanced training in chemistry and biochemistry, needs that are strongly tied to the agricultural nature of the valley.

For students in the second category, the program's emphasis on improving chemistry background and basic research skills prepares students for work at the Ph.D. level and enhances their chances for success.

### Master of Science Degree Requirements

The Master of Science degree program in Chemistry assumes undergraduate preparation equivalent to a California State University, Fresno B.S. in chemistry. Each new student is required to take the Diagnostic Placement Examinations in four fields of chemistry (physical, organic, analytical, and inorganic or biochemistry) to provide a basis for program planning. These are taken at the beginning of the first semester of residence. Twenty-one of the 30 units required for the degree must be in chemistry.

(See also Admission to Graduate Standing, Advancement to Candidacy, Program Requirements, and Criteria for Thesis and Project.)

### Graduate-Level Writing Proficiency Requirement

The completion of the following two components will satisfy the writing requirement:

1. successful completion of CHEM 260 with a grade of B or better, and
2. completion of a formal paper on the student's research to be submitted at the beginning of the fall semester of the second year. The paper should be of sufficient length (at least 2,000 words) to allow proper evaluation by a two-member review committee that includes the research director.

### Master of Science Program Development

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed in accordance to requirements listed below. Other courses may be specified after examination of the student's record and performance on the departmental diagnostic examinations.

#### Course Requirements

Core graduate curriculum (**12 units**): CHEM 201 (1 unit), CHEM 260 (3 units), CHEM 280 (at least 1 unit), CHEM 295 (2 units), and CHEM 299 (5 units).

(A) Additional chemistry courses, 3 units each from 4 of 5 of the following groupings (**12 units**):

- (i) Physical Chemistry: CHEM 212 or 215;
- (ii) Inorganic Chemistry: CHEM 220 or 222;
- (iii) Analytical Chemistry: CHEM 225, 226, or 227;
- (iv) Organic Chemistry: CHEM 230 or 235;

(B) (v) Biochemistry: CHEM 241A or 242; or CHEM 240T courses offered in these specific areas (contact graduate coordinator for details).

(C) Approved electives in chemistry or related fields (**6 units**)

**Total (30 units)**

## FACULTY

Our faculty provide excellent research opportunities in analytical, biochemistry, inorganic, organic, and physical chemistry. The broad interests within the faculty have resulted in interdisciplinary research projects in collaboration with scientists and professors in other science areas: agricultural chemistry, biotechnology, clinical chemistry, forensic chemistry, forensic biochemistry, chemical physics, enology, nutritional science, and molecular biology. Research projects have involved local facilities such as the California State Crime Laboratory, University Medical Center, UCSF Fresno Medical Education Program, USDA Research Station, U.S. Veteran's Administration Hospital, U.S. Forest Laboratory, and Valley Children's Hospital.

The graduate faculty are dedicated to providing students with a high-quality, rigorous M.S. program. Several of the faculty have received awards for the quality of their mentoring and teaching. They are widely respected in their field and regularly publish their work in leading scientific journals. The faculty have received funding to support their work from private foundations, and state and federal agencies, including the National Institutes of Health and the National Science Foundation. They also work with researchers at several National Laboratories and a number of top-tier research universities.

For faculty phone numbers and e-mail, see the campus directory.

For more on the faculty, see the faculty pages.

The faculty pages are updated by the department or program.