MS IN CHEMISTRY

Total units required for MS: 30

Program Description
The graduate programs in the Department of Chemistry provide students with advanced study in synthesis, separation, and analysis of molecules with an emphasis on developing research skills in experimental and computational chemistry and in chemistry education. The graduate curriculum prepares students for careers in industry and teaching and for entry into PhD and professional programs.

Admission Requirements
Admission as a classified graduate student in the Department of Chemistry requires:

- a BA or BS degree in chemistry, biochemistry or its equivalent as determined by the graduate committee;
- a minimum 2.5 GPA overall, in the last 60 units, and in chemistry, biochemistry, math, biology, and physics courses

Students desiring to apply to the chemistry graduate program should first examine the chemistry department’s web page for basic requirements and deadlines and then contact the Chemistry department graduate coordinator or department Chair for further information if needed. International students should also contact the Office of International Programs and Global Engagement for specific application requirements for international applicants.

Admission Procedures
Students desiring to apply to the chemistry graduate program should first contact the Chemistry Department Graduate Coordinator or Department Chair. Information about the graduate program will be discussed with you.

Applicants must complete a Cal State Apply application by the posted deadline for the term applying. For more admissions information and application deadlines, please visit http://www.csus.edu/graduate-studies/. The university application requires:

- submission of the Cal State Apply application;
- two letters of recommendation from persons qualified to judge the applicant’s potential for successful graduate study;
- a personal statement describing the applicant’s motivation for seeking a master’s degree, why the Sacramento State Chemistry department was selected for pursuing this degree, and the area of advanced study within chemistry, biochemistry or education research the applicant plans to focus; and
- one set of official transcripts from all colleges and universities attended, other than Sacramento State.

Approximately six weeks after the admission application deadline, an admission decision will be transmitted electronically to the applicant.

Proficiency Examinations
All new graduate students must take two proficiency exams, in organic and physical chemistry, administered at the beginning of each semester. These exams cover topics commonly found in undergraduate courses. A passing score on either exam is a score of 50% or higher. Exam results are used to determine undergraduate deficiencies in these areas of chemistry. All deficiencies must be removed by either taking and passing with a grade of “B-” (i.e., B minus) an appropriate undergraduate course or by taking again and passing the proficiency exam. A proficiency exam can be taken only twice; if the exam is not passed after the second attempt, the appropriate undergraduate course must be completed with a minimum grade of “B-” (i.e., B minus) in the first attempt.

Course Requirements
The program centers on three core courses and four semesters of seminar designed to increase a student’s knowledge and skills in applications of analytical techniques, general instrumentation techniques, chemical separation techniques, and analysis of spectra. Electives are offered to permit students to expand further their knowledge and skills in chemistry. While a minimum overall and semester GPA of 3.00 must be maintained to sustain good standing in the graduate program, the Department of Chemistry will allow grades of B-, C+ or C to count towards the MS degree for the following, as long as an overall GPA of 3.0 is maintained:

- One core course of the MS Chemistry or MS Chemistry (Biochemistry)
- One to two elective courses for either degree path
- The student cannot exceed six units of completed work at a grade below a B and have it count towards the MS degree

NOTE: A grade of B or better is REQUIRED for Chem 200 (Research Methods in Chemistry) as this Graduate Writing Intensive (GWI) class counts towards the Graduate Writing Assessment Requirement (GWAR) as per University Policy.

Students not meeting these requirements are subject to probationary status and potential disqualification from the program. In addition, students must regularly attend seminars offered approximately once a week each semester. Each student will give one seminar during his/her tenure as a graduate student that is on a literature topic not related to his/her thesis topic and another on his/her thesis results. Participation in seminar expands a student’s knowledge of current research in chemistry and also assists in developing his/her oral presentation skills.

Thesis/Research
All students are required to complete a thesis involving original research. The research may be conducted on campus with a chemistry faculty member or at an employer’s work site providing the work involves producing a new contribution to the field of chemistry. Research conducted at a work site requires a supervising chemistry faculty member. The work site mentor and project must be approved by the Graduate Committee.

Advising
Following admission to the chemistry graduate program, students are advised by the graduate coordinator and by the faculty thesis supervisor. Students should consult with three faculty members before deciding on a thesis advisor. Students who are fully qualified upon admission and make the expected progress can finish the degree in two years.

Financial Aid
Financial aid is available. Please contact the Financial Aid and Scholarships Office for more information (1006 Lassen Hall, https://www.csus.edu/apply/financial-aid-scholarships/).

Employment
Qualified graduate students may be hired for a limited number of positions as teaching associates (TA), instructional student assistants
must be met:

literature seminar or thesis proposal defense, the following conditions

Note: If a student wishes to advance to candidacy with an incomplete

begin as soon as the classified graduate student has:

committee, and the Chemistry graduate coordinator. This procedure may

for Advancement to Candidacy, which indicates the proposed program

After completing at least 40 percent of the graduate degree coursework

Minimum Cumulative GPA: 3.0

Units required for the MS: 30

Minimum Units and Grade Requirement for the Degree

Advancement to Candidacy

After completing at least 40 percent of the graduate degree coursework

• The graduate coordinator must be notified in advance of the OGS
deadline of their intent to file for advancement to candidacy and
inform the graduate coordinator which departmental requirement
(literature seminar or thesis proposal defense) is incomplete. The
graduate coordinator will then consult the student’s thesis proposal
advisor for information regarding the following:

• For the literature seminar, the student abstract must be fully approved
by the Graduate Committee, and a date must be scheduled for
the seminar in the same semester as the advance to candidacy
paperwork is submitted to OGS.

• For the thesis proposal, the graduate coordinator will consult the
student’s thesis advisor to confirm that the written thesis proposal is
ready for distribution to the student’s full committee and that a date
has been set for the thesis proposal defense in the same semester as
the advance to candidacy paperwork is submitted to OGS.

Failure of the student to successfully complete either the literature
seminar or the thesis proposal defense will result in the student not
being able to sign up for Chem 500 (Culminating Experience) until the
requirement is successfully completed.

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>CHEM 200</td>
<td>Research Methods in Chemistry</td>
<td>3</td>
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<tr>
<td>CHEM 220</td>
<td>Spectrometric Identification of Compounds</td>
<td>3</td>
</tr>
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<td>CHEM 230</td>
<td>Separation Methods in Chemistry</td>
<td>3</td>
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<tr>
<td>Seminar in Chemistry - Semester 1</td>
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<td>Seminar in Chemistry - Semester 2</td>
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<td>Seminar in Chemistry - Semester 3</td>
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<td>CHEM 294</td>
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<td>Seminar in Chemistry - Semester 4</td>
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<td>CHEM 294</td>
<td>Seminar In Chemistry</td>
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Electives (9 Units)

Select 9 units from the following:

<table>
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<tr>
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<tbody>
<tr>
<td>CHEM 226</td>
<td>Physical Organic Chemistry</td>
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<tr>
<td>CHEM 245</td>
<td>Applications of Computational Chemistry</td>
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<tr>
<td>CHEM 250</td>
<td>Selected Topics in Chemistry</td>
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<td>CHEM 251</td>
<td>Topics in Interdisciplinary Chemistry</td>
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<td>CHEM 252</td>
<td>Topics in Synthetic Chemistry</td>
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<tr>
<td>CHEM 253</td>
<td>Topics in Applied Chemistry</td>
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<tr>
<td>CHEM 254</td>
<td>Topics in Physical Chemistry</td>
</tr>
<tr>
<td>CHEM 255</td>
<td>Topics in Chemistry Education</td>
</tr>
<tr>
<td>CHEM 260</td>
<td>Protein Biochemistry</td>
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<tr>
<td>CHEM 261</td>
<td>Nucleic Acid Chemistry</td>
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Completion Requirements (10 Units)

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<th>Code</th>
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<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CHEM 299</td>
<td>Special Problems</td>
<td>6</td>
</tr>
<tr>
<td>CHEM 500</td>
<td>Culminating Experience</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Units 30

1 Graduate or upper division courses in appropriate areas (such as BIO, GEOL, PHYS, ENVS) may be used upon graduate advisor and
department chair approval. A maximum of 2 units of upper division undergraduate coursework may be used toward fulfilling electives.