BS IN CHEMISTRY DEGREE
Suggested Course Sequence

- The BS Chemistry degree program is certified by the American Chemical Society (ACS) and provides outstanding preparation for a career in the chemical industry and preparation for post-graduate programs. Students are urged to consult with an advisor regarding their educational and career plans.
- Students are required to meet with a Chem/Biochem advisor each fall to discuss their progress towards their degree and their tentative class schedule for the next year.
- Students are urged to meet with a General Education (GE) advisor (Advising Center, ADM 211) to ensure that their course selections for GE Segments I, II, and III meet graduation requirements.
- Students should refer to the SFSU Bulletin for detailed information on University policies and procedures, GE requirements, requirements for the major, and course descriptions and prerequisites.

<table>
<thead>
<tr>
<th>Freshman Year - Fall Semester</th>
<th>Freshman Year - Spring Semester</th>
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<tbody>
<tr>
<td>CHEM 115 General Chemistry I</td>
<td>CHEM 333 Organic Chemistry I</td>
</tr>
<tr>
<td>MATH 226 Calculus I</td>
<td>CHEM 334 Organic Chemistry I Lab</td>
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<td>MATH 227 Calculus II</td>
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<td></td>
<td>PHYS 220 Physics with Calculus I</td>
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<td>PHYS 222 Physics with Calculus I Lab</td>
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<tr>
<th>Sophomore Year - Fall Semester</th>
<th>Sophomore Year - Spring Semester</th>
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<tbody>
<tr>
<td>CHEM 335 Organic Chemistry II</td>
<td>CHEM 215 General Chemistry II</td>
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<tr>
<td>CHEM 336 Organic Chemistry II Lab</td>
<td>CHEM 216 General Chemistry II Lab</td>
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<tr>
<td>MATH 223 Calculus III</td>
<td>PHYS 240 Physics with Calculus III</td>
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<td>PHYS 230 Physics with Calculus II</td>
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<td>PHYS 232 Physics with Calculus II Lab</td>
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<tr>
<th>Junior Year - Fall Semester</th>
<th>Junior Year - Spring Semester</th>
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<tr>
<td>CHEM 320 Quantitative Analysis</td>
<td>CHEM 422 Instrumental Analysis</td>
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<tr>
<td>CHEM 353 Physical Chemistry II</td>
<td>CHEM 351 Physical Chemistry I</td>
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<td>CHEM 340 Biochemistry I</td>
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<tr>
<th>Senior Year - Fall Semester</th>
<th>Senior Year - Spring Semester</th>
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<tr>
<td>CHEM 425 Inorganic Chemistry</td>
<td>CHEM 426 Inorganic Chemistry Lab</td>
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<tr>
<td>CHEM 451 Physical Chemistry Lab</td>
<td>CHEM xxx Chemistry Elective</td>
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<tr>
<td>CHEM xxx Chemistry Elective</td>
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Notes:
All courses required for the major must be completed with grades of C or better with only one exception.

- This course is typically offered only once a year in this particular semester (i.e., fall or spring).
- CHEM 338 may be substituted for CHEM 336.
- CHEM 251 may be substituted for PHYS 240 and MATH 228.
- This course typically offered Fall semesters only.
- This course typically offered Spring semesters only.
- Students must complete 6 units selected from any of the following lists. These lists are organized via emphases, which students can use to customize their degree program into specific specialization areas. Grad-level chem and biochem courses (numbers greater than 800) are acceptable electives with advisor approval. Students may substitute appropriate courses in biology, physics, geosciences, and computer science upon prior approval of a major advisor. Students should check course co- and pre-requisites before enrolling in these elective classes.

Research Courses:
- CHEM 470 Research 3 or 6 units
- CHEM 699 Special Study in Chemistry 1-3 units

Special Topics Courses:
- CHEM 640 Advanced Topics in Biochemistry 1-3 units
- CHEM 641 Advanced Topics in Chemistry 1-3 units
- CHEM 800 Special Topics in Chemistry 1-3 units

Emphasis in Environmental Chemistry:
- CHEM 420 Environmental Analysis 3 units
- CHEM 821 Mass Spectrometry 3 units

Emphasis in Materials Chemistry:
- CHEM 825 Theoretical Inorganic Chemistry 3 units
- PHYS 450 Intro to Solid State Physics 3 units

Emphasis in Biochemistry:
- CHEM 341 Biochemistry II 3 units
- CHEM 343 Biochemistry I Lab 3 units

Emphasis in Bioorganic Chemistry:
- CHEM 640 Intro to Medicinal Chemistry 3 units
- CHEM 433 Advanced Organic Chemistry 3 units
- CHEM 832 Organic Synthesis 3 units
- CHEM 842 Bioorganic & Medicinal Chemistry 3 units

Emphasis in Computational Chemistry:
- CHEM 370 Computer Applications in Chem & Biochem 3 units
- MATH 309 Computation in Mathematics 3 units
- CSC 210 Intro to Computer Programming 3 units
- CHEM 850 Valency & Spectroscopy 3 units
- BIO 835 Computer Simulations in Biology 4 units

Emphasis in Chemical Physics:
- CHEM 850 Valency & Spectroscopy 3 units
- CHEM 852 Statistical Mechanics 3 units
- CHEM 820 NMR Applications & Techniques 3 units
- MATH 374 Advanced Calculus 3 units
- MATH 376 Ordinary Differential Equations I 3 units
- PHYS 320 Modern Physics I 3 units
- PHYS 370 Thermodynamics & Statistical Mechanics 3 units

P.T. Palmer, 17-Jul-07
• The tracking sheet is intended to illustrate prerequisite and corequisites for upper-division courses.
• Solid arrows indicate prerequisite courses (courses that must be completed before the course pointed to).
• Dashed arrows indicate corequisite courses (courses that must be completed before or at the same time as the course pointed to).
• Students should consult the course listings in the SFSU Bulletin to determine entrance exam requirements (if applicable) and the minimum grade required for prerequisite courses.
• Students may use the space provided next to each course to denote the grade they received, which will facilitate tracking their progress towards graduation.

![Flowchart and Tracking Sheet for BS in Chemistry Degree]