Chemistry Requirements for:
General Biology
Botany
Ecology
Marine Biology & Limnology
Zoology

Chem 115
General Chemistry I: Essential Concepts of Chemistry (5)

*Chem 215/216
General Chemistry II: Quantitative Applications of Chemistry Concepts (3/2)

Chem 130
General Organic Chemistry (3)

**Chem 349
General Biochemistry (3)

*General Biology – Chem 216 is recommended, but not required
Botany, Ecology, Marine Biology & Limnology, Zoology – Chem 215/216 is an option
**General Biology – Chem 349 is a Cell Biology Cluster option; not required for Botany, Ecology, Marine Biology & Limnology, or Zoology

Chemistry Requirements for:
Physiology

Chem 115
General Chemistry I: Essential Concepts of Chemistry (5)

Chem 215/216
General Chemistry II: Quantitative Applications of Chemistry Concepts (3/2)

*Chem 130
General Organic Chemistry (3)

Chem 340
Biochemistry I (3)

OR

Chem 349
General Biochemistry (3)

*Graduate/Pre-Health Profession Track students should take Chem 233/234 & Chem 335/336 in place of Chem 130
**Chem 340 requires completion of both Chem 233 and Chem 335, instead of Chem 130
Chemistry Requirements for:
Cell & Molecular Biology
Microbiology and Graduate Program/Pre-Health Profession Track*

Chem 115
General Chemistry I: Essential Concepts of Chemistry (5)

Chem 215/216
General Chemistry II: Quantitative Applications of Chemistry Concepts (3/2)

Chem 233
Organic Chemistry I (3)

Chem 335
Organic Chemistry II (3)

**Chem 340
Biochemistry I (3)

**Chem 341
Biochemistry II (3)

OR

**Chem 349
General Biochemistry (3)

‡Chem 321/322
Quantitative Chemical Analysis (3/2)

‡Chem 343
Biochemistry I Laboratory (3)

‡Chem 349
General Biochemistry (3)

‡Chem 343
Biochemistry I Laboratory (3)

*Graduate/Pre-Health Profession Track students should take Chem 234 & Chem 336 labs
**Microbiology – Chem 340 OR Chem 349; Cell & Molecular Biology – Chem 349 OR
BOTH Chem 340 and 341
†Chem 343 also requires Chem 234

= REQUIRED
= ELECTIVE

= concurrent enrollment

Chemistry Requirements Flowcharts v4.png
## Prerequisites for Chemistry Courses

Note: all chemistry prerequisites must be completed with a C or better

<table>
<thead>
<tr>
<th>Course number</th>
<th>Course Title</th>
<th>Prerequisite(s) - See <a href="http://bulletin.sfsu.edu/courses/chem/">http://bulletin.sfsu.edu/courses/chem/</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 115</td>
<td>General Chemistry I: Essential Concepts of Chemistry</td>
<td>Category I or II placement for QR/Math, or ELM score of 50 or higher or exemption, or MATH 70 or ESM 70 with a grade of C or better. Category III or IV for QR/Math placement or students who have not completed MATH 70 with a grade of C or better must have completed MATH 197 with a grade of C or better, or have satisfied the B4 requirement. Satisfactory score on the Chemistry readiness assessment. CHEM 100 is recommended for students needing additional preparation for the assessment and CHEM 115.</td>
</tr>
<tr>
<td>CHEM 130</td>
<td>General Organic Chemistry</td>
<td>CHEM 115 with a grade of C or better.</td>
</tr>
<tr>
<td>CHEM 215</td>
<td>General Chemistry II: Quantitative Applications of Chemistry Concepts</td>
<td>CHEM 115 with a grade of C or better.</td>
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<tr>
<td>CHEM 216</td>
<td>General Chemistry II lab</td>
<td>C or better in CHEM 215 or concurrent enrollment.</td>
</tr>
<tr>
<td>CHEM 233</td>
<td>Organic Chemistry I</td>
<td>CHEM 115 and CHEM 215 with grades of C or better.</td>
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<tr>
<td>CHEM 234</td>
<td>Organic Chemistry I Laboratory</td>
<td>CHEM 233 or CHEM 130 with grade of C or better, or concurrent enrollment in either.</td>
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<tr>
<td>CHEM 321</td>
<td>Quantitative Chemical Analysis</td>
<td>CHEM 215 and CHEM 216, with grades of C or better. For chemistry, biochemistry, and biology majors.</td>
</tr>
<tr>
<td>CHEM 322</td>
<td>Quantitative Chemical Analysis Laboratory</td>
<td>Concurrent enrollment in CHEM 217, or grade of C or better in CHEM 321. For chemistry, biochemistry, and biology majors.</td>
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<tr>
<td>CHEM 335</td>
<td>Organic Chemistry II</td>
<td>CHEM 233 (formerly CHEM 333) with grade of C or better.</td>
</tr>
<tr>
<td>CHEM 336</td>
<td>Organic Chemistry II Laboratory</td>
<td>CHEM 234 (formerly CHEM 334) with grade of C or better; CHEM 335 with grade of C or better or concurrent enrollment.</td>
</tr>
<tr>
<td>CHEM 340</td>
<td>Biochemistry I</td>
<td>CHEM 215, CHEM 233 (formerly CHEM 333), and CHEM 335 with grades of C or better. For chemistry, biochemistry, and biology majors.</td>
</tr>
<tr>
<td>CHEM 341</td>
<td>Biochemistry II</td>
<td>CHEM 340 with a grade of C or better.</td>
</tr>
<tr>
<td>CHEM 343</td>
<td>Biochemistry I Laboratory</td>
<td>Restricted to Chemistry and Biochemistry majors; CHEM 216, CHEM 234, and CHEM 340 (may be taken concurrently) or CHEM 348 (may be taken concurrently) with grades of C or better; CHEM 321 is recommended.</td>
</tr>
<tr>
<td>CHEM 349</td>
<td>General Biochemistry</td>
<td>CHEM 215 with a grade of C or better, and CHEM 130 with a grade of C or better or CHEM 335 with a grade of C- or better.</td>
</tr>
</tbody>
</table>