**NATURAL SCIENCES, BS, CHEMISTRY CONCENTRATION**

Natural Sciences, Mathematics, and Engineering (nsme) (https://catalog.csub.edu/general-information/csub-information/school-natural-sciences-mathematics-engineering/)

Natural Sciences Program (https://catalog.csub.edu/general-information/csub-information/school-natural-sciences-mathematics-engineering/natural-sciences-program/)

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Phone: (661) 654-3021

Email: cklloock@csub.edu

http://www.csub.edu/natural_sciences/index.html (http://www.csub.edu/natural_sciences/)

Program Maps for Natural Sciences, Mathematics, and Engineering (https://programmap.csub.edu/academics/interest-clusters/4e942a6e-b8e4-4b60-a1ae-334235acc581/)

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### Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tr>
<td><strong>General Education Requirements</strong>&lt;sup&gt;5&lt;/sup&gt;</td>
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<tr>
<td>First-Year Seminar (FYS)</td>
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<tr>
<td>Lower Division Area A: Foundational Skills</td>
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<td>Lower Division Area B: Natural Sciences&lt;sup&gt;5&lt;/sup&gt;</td>
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<tr>
<td>Lower Division Area C: Arts and Humanities</td>
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<td>Lower Division Area D: Social and Behavioral Sciences</td>
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<tr>
<td>Lower Division Area E: Student Enrichment and Lifelong Learning (SELF)&lt;sup&gt;5&lt;/sup&gt;</td>
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<td>Lower Division Area F: Ethnic Studies</td>
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<td>American Institutions: Government and History</td>
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<td>Junior Year Diversity &amp; Reflection (JYDR)&lt;sup&gt;6&lt;/sup&gt;</td>
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<td>Graduation Writing Assessment Requirement (GWAR)&lt;sup&gt;5&lt;/sup&gt;</td>
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<td>General Education Capstone&lt;sup&gt;5&lt;/sup&gt;</td>
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<td><strong>General Education Subtotal</strong></td>
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### Core Coursework

**Life Science**
- BIOL 2100: Introductory Biology - Cells
- BIOL 2110: Introductory Biology - Animals
- BIOL 2120: Introductory Biology - Plants

**Chemistry**
- CHEM 1000: Foundations of Chemistry
- CHEM 1001: Foundations of Chemistry Laboratory
- CHEM 1100: Foundations of Analytical Chemistry
- CHEM 1600: Foundations of Physical Chemistry
- CHEM 2300: Foundations of Organic Chemistry

**Earth and Planetary Science**
- GEOL 2010: Physical Geology

**Engineering**
- SCI 3210: Fab Lab Teaching Internship

**Mathematics**
Select one of the following:
- MATH 1050: Precalculus I<sup>1</sup>
- MATH 1040: Precalculus I and II Combined<sup>2</sup>
- MATH 1060: Precalculus II<sup>2</sup>

Select one of the following:
- MATH 2100: Calculus for the Biological and Chemical Sciences<sup>3</sup>

**Physics**
Select one of the following:
- PHYS 2110: College Physics I
  & PHYS 2120: College Physics II<sup>4</sup>
- PHYS 2210: Physics for Scientists and Engineers I
  & PHYS 2220: and Physics for Scientists and Engineers II
  & PHYS 2230: and Physics for Scientists and Engineers III

**Chemistry Concentration**
- MATH 2020: Calculus for Biological & Chemical Sciences II
- CHEM 2110: Foundations of Quantitative Chemical Analysis
- CHEM 2200: Foundations of Inorganic Chemistry
- CHEM 2400: Foundations of Biochemistry
- CHEM 2900: Research Methods in Chemistry
- CHEM 3300: Intermediate Organic Chemistry
- CHEM 3301: Organic Chemistry Laboratory I
- CHEM 3600: Physical Chemistry Thermodynamics and Kinetics
- CHEM 3908: Seminar in Chemical Literature
- CHEM 4830: Instruction in Chemistry
- CHEM 4840: Service Learning in Chemistry: Leadership
- CHEM 4908: Senior Seminar in Chemistry

**Senior Subtotal** | **84-88**

**Additional Units Needed Towards Graduation** | **0-1**

**Total Units** | **122-127**

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<sup>1</sup> Or Satisfaction of the entry-level Mathematics requirement and a score of at least 70 on the Math Placement Exam

<sup>2</sup> Or Satisfaction of the entry-level Mathematics requirement and a score of at least 80 on the Math Placement Exam

<sup>3</sup> Recommended Chemistry Concentration

<sup>4</sup> Recommended

<sup>5</sup> Some major requirements may be used to satisfy GE: GEOL 2010 Physical Geology satisfies Area B1; BIOL 2010 Introductory Biology - Cells satisfies Area B2; CHEM 1001 Foundations of Chemistry Laboratory satisfies Area B3; MATH 2010 Calculus for the Biological and Chemical Sciences I satisfies the Quantitative Reasoning Foundational Skill (Area B4), CHEM 3908 Seminar in Chemical Literature satisfies SELF and GWAR, CHEM 4908 Senior Seminar in Chemistry satisfies the GE Capstone.

<sup>6</sup> It is recommended that JYDR be satisfied by EDTE 3308 Socio-Cultural Foundations of Education
See appropriate links at https://www.csub.edu/ge/Students1/General_Education_Requirements/index.html or current lists of courses satisfying university-wide General Education requirements.