BS in Natural Sciences (Science Teaching)

The Departments of Biology, Chemistry, Geology, and Physics offer a Bachelor of Arts in Natural Sciences.

This degree program offers the required subject matter content to help prepare prospective science teachers to apply for subject matter certification in California by taking the California Subject Matter Examinations for Teachers (CSET) in Science. The four disciplinary concentrations within the BS in Natural Sciences prepare the candidate for the CSET Science exams, which consist of three exams: two covering breadth in science (Life Science, Chemistry, Earth and Planetary Science, and Physics), and one covering depth in one of these areas, corresponding to the primary concentration. Passage of the CSET in science is required to certify subject matter competency before entering a teacher credential program for prospective teachers. Consult with your advisor or the Department of Education for details on other entry requirements for pursuing a secondary teaching credential.

The foundational science concentration prepares students for the foundational science CSET exams (two exams covering science breadth, as above) and includes credential coursework, providing science subject matter and the credential in a blended program. The BS in Natural Sciences offers a broad foundation in all four of the natural science areas (Biology, Chemistry, Geology, and Physics). The disciplinary concentration adds depth preparation in one of the four areas, while the foundational science concentration adds credential coursework to this foundation. While this broad foundation has been developed for prospective teachers, it also serves as excellent preparation for employment in any area of business, industry or government where scientific skills are in demand.

**Disciplinary concentrations**

Consist of two components:

**I. Core Coursework**

covers all four sciences plus mathematics and which all students complete.

**II. Primary Concentration**

consisting of 6-7 additional upper division courses within a specific science discipline (Biology, Chemistry, Geology or Physics), and

An Optional Secondary Concentration (minor)

in a second science discipline, Mathematics, or Statistics can allow you to satisfy subject matter competency in a 2nd subject, increasing your attractiveness to employers.

The foundational science concentration has been developed for individuals seeking the Foundational Science Credential for Middle School and Junior High School science teachers, and prepares the candidate for the CSET exams in Foundational Science, which consist of 2 exams covering breadth in science (Life Science, Chemistry, Earth and Planetary Science and Physics). This allows students to earn the Foundational Science Credential in a blended, 4-year program including both science and credential coursework. Please be advised that the Foundational Science Credential is valid only for teaching grades 6-8. Additional appropriate post-baccalaureate coursework and CSET exams can be taken to add an authorization for High School level single subject certification.

**For more Information:**

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School of Natural Sciences and Mathematics
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Requirements for the BS in Natural Sciences

BS in Natural Sciences Disciplinary Concentrations

Students complete the core coursework (I) a primary concentration (II) and may choose an optional minor (III)

I. Core Coursework (70-73 Units)

Life Science (15 units)
BIOL 201, 202, and 203

Chemistry (15 Units)
CHEM 211, 212, and 213

Earth and Planetary Science (15 Units)
GEOL 201, and 204
One of: GEOL 205, 308 or PHYS 110,

Math (10 Units)
MATH 192 (all concentrations)
MATH 201 (Geol/Phys Concentration) OR
MATH 211 (Bio/Chem Concentration) OR
MATH 140 or 201 or 211 (Foundational)

Physics (15-18 Units)
PHYS 201, 202 and 203
OR
PHYS 221, 222 and 223

II. Concentrations -- Select one

Biology Concentration: (29-30 Units)
BIOL 304, 305, 306, 470, and 490
One of BIOL 318 or 357
One upper division Biology Elective
(must be a 5-unit lab course)

Chemistry Concentration: (30 units)
CHEM 331, 332, 340, 390, and 490
One of CHEM 421 or 422
One upper division Chemistry elective
(must be a 5-unit lab course)

Geology Concentration: (30 Units)
GEOL 303, 306, 307, 309, 475, and 490

Physics Concentration: (32 units)
PHYS 207, 307, 324, 325, and 490
4 units of upper division Physics
Electives OR 4 units from CHEM 361, 362 and/or 363

III. Optional Minors

For science minors, 10 units from core, in the same discipline as the minor, are counted toward the minor instead of the core. Courses listed below are recommendations to choose from: only 10 Upper division units are required.

Biology Minor (10 Units)
BIOL 304, 305, 306, 470

Chemistry Minor (10 Units)
CHEM 331, 350

Geology Minor: (10 Units)
GEOL 303 307, 309, 475

Mathematics Minor (20 Units)
MATH 202 or 212, MATH 203, + 10 upper division units in Mathematics

Physics Minor (10 Units)
PHYS 307, 324

Statistics minor (20 Units)
MATH 140, 338, 339, and 415

BS in Natural Sciences: Foundational science concentration (196 Units)

I. Core Coursework: see I above (70-73 Units)

II. Concentration in education: (51 units):
EDSE 531, 532, 533, 534, 535 & 599.
EDSP 301.
EDTE 310, 401, 402, 403, 404, 410, 415, 416

III. Senior Seminar: SCI 490

1 Students in the Physics Concentration or minor must complete the PHYS 221, 222 & 223 sequence. MATH 202 &/or 203 are prerequisites for most upper division Physics courses. The Math Minor is strongly encouraged for the Physics concentration. MATH 304 and 302 are recommended to satisfy the upper division Math requirement for the Math Minor if Physics is the primary concentration.

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