Bachelor of Science (B.S.) in Natural Sciences
Educating tomorrow’s teachers and scientists

The B.S. in Natural Sciences offers a broad foundation in all four of the natural science areas (Biology, Chemistry, Geology, and Physics). The disciplinary concentrations add depth preparation in one of the four areas, while the foundational science concentration adds teaching credential coursework to this foundation. Although this degree program has been developed for prospective middle and high school science teachers, it also serves as excellent preparation for employment in any area of business, industry, or government where scientific skills are in demand.

This degree program offers the required subject matter content to help prepare prospective science teachers for subject matter certification in California by taking the California Subject Matter Examinations for Teachers (CSET) in Science. For students who already have a degree and would like to be certified as subject matter competent in the sciences, please see www.cset.nesinc.com for information on the CSET Exams.

Disciplinary Concentrations

The four disciplinary concentrations within the B.S. in Natural Sciences allow the student to select a concentration within a specific science discipline (Biology, Chemistry, Geology, or Physics). An optional minor in a second science discipline, Mathematics, or Statistics is highly recommended.

The disciplinary concentrations prepare the candidate for three CSET 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 concentration. With appropriate credential coursework, the disciplinary concentrations are designed to prepare high school science teachers.

Foundational Science Concentration

The Foundational Science concentration requires the same core coursework as the disciplinary concentrations, but the concentration in science is replaced by teaching credential coursework. The Foundational Science concentration has been developed for individuals seeking the Foundational Science Credential for Middle School and Junior High School science teachers (grades 6-8 only). This blended 4-year program includes both science and credential coursework.

The foundational science concentration prepares students for the foundational science CSET exams (two exams covering science breadth). Additional appropriate post-baccalaureate coursework and CSET exams can be taken to add an authorization for high school level single subject certification.
BS in Natural Sciences Disciplinary Concentrations
Students complete core coursework, a primary concentration, and an optional minor.

I. Core Coursework (46-50 Units)

**Life Science** (12 units)
BIOL 2010, 2110, and 2120

**Chemistry** (11 Units)
CHEM 1000, 1001, 1100, 1600 and 2300

**Earth and Planetary Science** (11 Units)
GEOL 2010 and 2040
One of:
GEOL 3080 or PHYS 1609

**Math** (4-10 Units)
MATH 2010^1 or 2200 or 2510^2
AND satisfaction of necessary prerequisites of course chosen

**Physics**^3 (8-12 Units)
PHYS 2110 & 2120
or
PHYS 2210^2, 2220^2, & 2230^2

II. Concentrations -- Select one

**Biology Concentration:** (32 Units)
BIOL 3010, 3020, 3110, 3120, 3410, 4100 & 4910
One of: BIOL 2220 or 3550
One elective from: MATH 2020 (or higher), BIOL 2210, or any additional BIOL ≥ 3220 & ≥ 3 units
One BIOL Elective ≥4200 & ≥ 4 units

**Chemistry Concentration:** (32 units)
MATH 2020
CHEM 2200, 2400, 2840, & 2900
CHEM 3100, 3300, 3301, 3600, 3900, 4830, 4840, & 4900

**Geology Concentration:** (32 Units)
GEOL 3010, 3020, 3030, 3040, 3070, 3090, & 4908
One GEOL elective > 3000 & ≥ 4 units

**Physics Concentration**^4: (31 units)
MATH 2520 & 2530
PHYS 3010, 3070, 3500, 3510, & 4900
PHYS electives ≥ 3000 Totaling ≥ 6 units.

III. Optional Minors^3.

Students are encouraged to complete a minor in a second science, mathematics or applied statistics. For students pursuing science minors, 2 or more courses (8 units) from the core, in the same discipline as the minor, will be counted towards the minor. Minors are highly recommended. Additional subject matter competency can be established via the CSET in the area of the minor, increasing versatility and job prospects of the prospective teacher.

BS in Natural Sciences: Foundational Science Concentration (196 units)

I. **Core Coursework:** see I above (46-50 Units)

II. **Concentration in education:** (43-46 units):
   a. Foundational/prerequisite courses: EDTE 3000 (or 3100), 4100, 3308 & 4200
   b. Semester I: EDSE 5100, 5210, 5300; EDTE 4310 & 4320
   c. Semester II: EDSE 5400, 5500; EDTE 4330, 4340; & either EDTE 5800 or EDSE 5800.

III. **Senior Seminar:** SCI 4110

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^1 Required in the Biology or Chemistry concentrations; Physics minors may substitute Math 2510

^2 Required for the Physics Concentration or minor.

^3 See Appropriate Department description for requirements.