SCIENCE EDUCATION (SCED)

See Course Description Symbols and Terms (https://catalog.csuchico.edu/academic-standards-policies/course-description-symbols-terms/) for an explanation of course description terminology and symbols, the course numbering system, and course credit units.

SCED 101 Introduction to Earth System Science 3 Units GE
Typically Offered: Fall and spring
This course focuses on the principles and scientific thought processes as they relate to climate change, air and water resources, and ecosystem alteration. The Earth's physical environment is the primary focus, although a portion of the course covering ecosystems bridges physical and biological interrelatedness of the global environment. Problem solving skills and skills in analyzing environmental issues are emphasized. 2 hours activity, 2 hours discussion. (020268)

General Education: Laboratory Activity (B3); Physical Science (B1)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Lower Division

SCED 102 Introduction to Living Systems 3 Units GE
Typically Offered: Fall and spring
An integrated study of the nature and interactions of living things and their environments. This course is an introduction to the processes of evolution and speciation, ecology and ecosystem processes, cellular biology and organismal physiology. The course is primarily for students without a strong background in high school biology or chemistry. The course includes online content delivery, in-class discussion, and a hands-on activity session. 2 hours activity, 2 hours discussion. (020372)

General Education: Laboratory Activity (B3); Life Science (B2)
Cross listing(s): BIOL 102
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Lower Division

SCED 140 Teaching Science in a Museum Setting 1 Unit
Typically Offered: Fall and spring
Students in this course facilitate the elementary grade level field trip activities for visiting K-8 students at the Gateway Science Museum to foster an appreciation and understanding of the natural world around them. 2 hours laboratory. (022437)

Grade Basis: Graded
Repeatability: You may take this course for a maximum of 1 unit
Course Attributes: Lower Division

SCED 141 Concepts in the Physical Sciences 3 Units
Prerequisite: Recommended: Concurrent enrollment in or prior completion of MATH 110.
Typically Offered: Fall and spring
Basic concepts of motion, force, energy, chemical change, and their interactions. Intended for Science Education or Liberal Studies majors. 4 hours activity, 1 hour lecture. (004132)

Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Lower Division

SCED 142 Concepts in Life Science 3 Units
Prerequisite: SCED 141 or completion of GE Physical Sciences (B1).
Typically Offered: Fall and spring
Study of the nature and interactions of living things on the planet. Includes cell organization; diversity and physiology of plants and animals; DNA and genetics; ecology, and evolution. Intended for Science Education or Liberal Studies majors or others interested in K-8 teaching. 4 hours activity, 1 hour lecture. (020915)

Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Lower Division

SCED 143 Explore Teaching Science in Outdoor Settings 1 Unit
Typically Offered: Spring only
This course is for students with an interest and/or background in environmental issues who want to learn how to facilitate learning about environmental problems and solutions in a variety of outdoor settings. 1 hour seminar. (022438)

Grade Basis: Graded
Repeatability: You may take this course for a maximum of 1 unit
Course Attributes: Lower Division

SCED 198 Special Topics 1-3 Units
Prerequisite: Department permission.
Typically Offered: Fall and spring
This course is for special topics offered for 1.0-3.0 units. Typically the topic is offered on a one-time-only basis and may vary from term to term and be different for different sections. See the Class Schedule for the specific topic being offered. 1 hour lecture. (006394)

Grade Basis: Graded
Repeatability: You may take this course more than once
Course Attributes: Lower Division

SCED 300W Scientific Innovations Behind Modern Technology (W) 3 Units GE, W
Prerequisite: GE Oral Communication (A1); GE Written Communication (A2); GE Critical Thinking (A3); GE Physical Sciences (B1); GE Life Sciences (B2); GE Mathematics/Quantitative Reasoning (B4) requirements, or consent of the instructor.
Typically Offered: Fall and spring
This course explores the history of innovations in the natural sciences that have contributed to major breakthroughs in technology. Students examine the intended and unintended consequences of these innovations on society. The second half of the course looks at innovations of the digital age. Students research possible implications of new technologies on the quality of life for future generations. An emphasis will be placed on evidence-based reasoning and writing skills. 3 hours lecture. (021115)

General Education: Upper-Division Scientific Inquiry/Quantitative Reasoning (UDB); Innovation, Design, and the Arts Pathway; Science, Technology, and Society Pathway
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Upper Division; Writing Course
### SCED 321W Scientific Inquiry (W)

3 Units  W, GW

**Prerequisite:** Completion of GE Written Communication (A2) requirement, SCED 141, SCED 142.

**Typically Offered:** Spring only

This course engages students in inquiry into topics that span the scientific disciplines. Skills addressed include experimental design, modeling, representation, dissemination of results, and critique of peers’ work. Content topics include light, color and sound, from biological, chemical and physics perspectives. 4 hours activity, 1 hour lecture.  (020914)

**Grade Basis:** Graded

**Repeatability:** You may take this course for a maximum of 3 units

**Course Attributes:** Upper Division; Writing Course; Graduation Writing Assessment

### SCED 342 Concepts in Earth and Space Science

3 Units

**Prerequisite:** SCED 141 or completion of GE Physical Sciences (B1); and SCED 142 or completion of GE Life Sciences (B2).

**Typically Offered:** Fall and spring

Fundamental concepts in (1) the solar system and the universe, (2) the structure and composition of the solid Earth, and (3) Earth’s atmosphere and water. Intended for Science Education or Liberal Studies majors and students pursuing a single subject teaching credential in science. 4 hours activity, 1 hour lecture.  (004144)

**Grade Basis:** Graded

**Repeatability:** You may take this course for a maximum of 3 units

**Course Attributes:** Upper Division

### SCED 343 Concepts in Environmental Sciences

3 Units

**Prerequisite:** SCED 141 or completion of GE Physical Science (B1); and SCED 142 or completion of GE Life Science (B2).

**Typically Offered:** Fall and spring

A course designed to introduce basic principles and concepts in environmental science. Field investigations in the local environment provide a natural setting for scientific inquiry and student research on environmental processes and conditions that shape the local landscape. Intended for Science Education or Liberal Studies majors and students pursuing a single subject teaching credential in science. 4 hours activity, 1 hour lecture.  (020916)

**Grade Basis:** Graded

**Repeatability:** You may take this course for a maximum of 3 units

**Course Attributes:** Upper Division

### SCED 389 Internship

1-3 Units

**Typically Offered:** Inquire at department

This course is an internship. You must register directly with a supervising faculty member. 0 hours supervision.  (022439)

**Grade Basis:** Credit/No Credit

**Repeatability:** You may take this course for a maximum of 15 units

**Course Attributes:** Upper Division

### SCED 398 Special Topics

1-3 Units

**Prerequisite:** Department permission.

**Typically Offered:** Fall and spring

This course is for special topics offered for 1.0-3.0 units. Typically the topic is offered on a one-time-only basis and may vary from term to term and be different for different sections. See the Class Schedule for the specific topic being offered. 3 hours lecture.  (020470)

**Grade Basis:** Graded

**Repeatability:** You may take this course more than once

**Course Attributes:** Upper Division

### SCED 490 Natural Sciences Seminar

2 Units

**Prerequisite:** Senior standing.

**Typically Offered:** Fall only

This course is a capstone experience for Natural Sciences Majors. In this course, students reflect on their work in the program, read and discuss the relevant literature, and synthesize their accomplishments across the sciences into a professional portfolio. In addition, students are required to present a portion of their portfolio as a departmental seminar. 2 hours seminar.  (021290)

**Grade Basis:** Graded

**Repeatability:** You may take this course for a maximum of 6 units

**Course Attributes:** Upper Division

### SCED 495 Science Education Capstone

3 Units

**Prerequisite:** SCED 490.

**Typically Offered:** Spring only

This course is intended for future middle school and informal science teacher educators. Students explore and analyze discipline-based education research articles and apply the principles of behavioral sciences within a science learning environment. Students demonstrate an understanding of Physical Science, Life Science, Environmental Science, and Earth and Space Science by designing and facilitating student-centered activities using energy as a cross-cutting disciplinary concept. 3 hours lecture.  (021884)

**Grade Basis:** Graded

**Repeatability:** You may take this course for a maximum of 3 units

**Course Attributes:** Upper Division

### SCED 499 Special Problems

1-3 Units

**Prerequisite:** Faculty permission.

**Typically Offered:** Fall and spring

This course is an independent study of special problems offered for 1.0-3.0 units. You must register directly with a supervising faculty member. 0 hours supervision.  (021538)

**Grade Basis:** Credit/No Credit

**Repeatability:** You may take this course for a maximum of 6 units

**Course Attributes:** Upper Division