### SCIENCE EDUCATION (SCED)

See Course Description Symbols and Terms for an explanation of course description terminology and symbols, the course numbering system, and course credit units.

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### SCED 198 Special Topics

**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

### SCED 300W Scientific Innovations Behind Modern Technology (W)

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 Inq/Quant Reason (UBD); 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

### SCED 321W Scientific Inquiry (W)

**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

### SCED 300W Scientific Innovations Behind Modern Technology (W)

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 Inq/Quant Reason (UBD); 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

### SCED 321W Scientific Inquiry (W)

**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

### SCED 342 Concepts in Earth and Space Science

**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:

- **Graded**: You may take this course for a maximum of 3 units.
- **Lower Division**: This course is designed for lower division students.
- **Upper Division**: This course is designed for upper division students.
- **Writing Course**: This course includes writing as a significant component.
- **Scientific Inquiry (W)**: This course is a writing-intensive scientific inquiry course.
SCED 343 Concepts in Environmental Sciences 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
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; Sustainable Course

SCED 350 Learning Assistant Training 2 Units
Prerequisite: Acceptance as a Learning Assistant.

Typically Offered: Fall and spring
This course is required for all first year Learning Assistants (LAs). The course prepares students to be effective LAs by working with faculty and peers to transform undergraduate learning environments. 2 hours discussion. (021657)

Grade Basis: Graded
Repeatability: You may take this course for a maximum of 2 units
Course Attributes: Upper Division

SCED 352 Science Museum Docent Training 1 Unit
Prerequisite: SCED 342 or SCED 343 (may be taken concurrently).

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. 3 hours laboratory. (020964)

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

SCED 389 Teaching Science in Outdoor Settings 2 Units
Prerequisite: SCED 142; SCED 342 or SCED 343 (may be taken concurrently).

Typically Offered: Spring only
This course requires a 1-hr seminar and 3-hours of directed internship with local environmental educators in private or public settings to gain experience teaching science in outdoor settings to children and adults of all ages. 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. 3 hours independent study, 1 hour seminar. (021901)

Grade Basis: Graded
Repeatability: You may take this course for a maximum of 2 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 2 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