

BIOL 0016C - VERNAL POOLS AND THE CALIFORNIA PRAIRIE

Catalog Description

Hours: 13 (7 lecture, 6 laboratory)

Description: Field study that explores the past, present, and future of California's prairie, grassland, and vernal pool ecosystems of the Central Valley. Emphasis on remaining natural areas and conservation efforts. This class may require ability to hike moderate distances on uneven ground. (CSU)

Course Student Learning Outcomes

- CSLO #1: Describe and evaluate the impacts of humans on the prairie, grassland, and vernal pool ecosystems of the Central Valley.
- CSLO #2: Describe the ecological and geological principles that affect the natural prairie, grassland, and vernal pool ecosystems of the Central Valley.
- CSLO #3: Explain the factors that have shaped the evolutionary adaptations of organisms of the prairie, grassland, and vernal pool ecosystems in the Central Valley.
- CSLO #4: Accurately document and interpret ecological observations made on a field trip in prairie, grassland, and/or vernal pool ecosystems in the Central Valley.

Effective Term

Fall 2022

Course Type

Credit - Degree-applicable

Contact Hours

13

Outside of Class Hours

14

Total Student Learning Hours

27

Course Objectives

Course objectives are linked to items listed in the course content outline (in parentheses)

Lecture Objectives:

1. Outline the prairie, grassland, and vernal pool ecosystems of the Central Valley and evaluate the factors that have affected the formation of those ecosystems. (#1, #3, #4, #5, #6)
2. Apply ecological terminology to the description of the prairie, grassland, and vernal pool ecosystems of the Central Valley. (#1, #3, #5)
3. Describe the interactions the local organisms have with the biotic and abiotic factors of their ecosystems (#1, #4, #5, #6)

4. Explain the role that geology plays in the formation and delineation of the prairie, grassland, and vernal pool ecosystems of the Central Valley. (#2, #3)

5. Analyze the past and present effects that humans have on the prairie, grassland, and vernal pool ecosystems of the Central Valley. (#3, #7)
Laboratory/Field Objectives:

1. Demonstrate the use of a dichotomous key or field guide to identify species. (#1)
2. Identify geological features that impact the formation and function of the prairie, grassland, and vernal pool ecosystems in the Central Valley. (#2)
3. Identify and observe the interactions that local organisms have with the biotic and abiotic factors of their ecosystems. (#1, #3)
4. Construct a diagram (top view and/or cross-section) of a typical California vernal pool ecosystem. (#2, #3)
5. Assess the various stages through which the ephemeral California vernal pool passes during a typical season (#1, #2, #3)
6. Create a detailed field journal or summary report documenting the field experience. (#5)

General Education Information

- Approved College Associate Degree GE Applicability
- CSU GE Applicability (Recommended-requires CSU approval)
- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)

Articulation Information

- CSU Transferable

Methods of Evaluation

- Projects
 - Example: To address Course Lecture Objective #3, "Investigate the interactions the local organisms have with the biotic and abiotic factors of their ecosystems," students might be asked, either individually or in groups, to prepare a short oral presentation or written report or participate in a class discussion about the major characteristics of a species of plant or animal occurring in the prairies, grasslands, or vernal pool ecosystems of the Central Valley and its role in the ecosystem. Students could be evaluated based on accuracy of information, attention to detail, and completeness. Students could be evaluated on participation, accuracy of information, attention to details, and completeness.
- Reports
 - Example: To address Course Lab Objective #6, "Create a detailed field journal or summary report documenting the field experience," students might be asked to write a report summarizing the ecosystem(s) visited, geological features observed, and species encountered. Students could be evaluated based on accuracy of information, attention to detail, and completeness of summary.
- Skill Demonstrations
 - Example: To address Course Lab Objective #1, "Demonstrate the use of a dichotomous key or field guide to identify species," students might be asked to use a taxonomic key to correctly identify an organism. Students could be evaluated on the correctness of the answer, technique, and application of terminology in the key.

Repeatable

No

Methods of Instruction

- Laboratory
- Lecture/Discussion

Lab:

1. To address Course Lab Objective #1, "Demonstrate the use of a dichotomous key or field guide to identify species," the instructor might lead the class in a demonstration of the use of a dichotomous key for a known specimen, and then guide students as they attempt the identification of unknown specimens.
2. To address Course Lab Objective #2, "Identify geological features that impact the formation and function of the prairie, grassland, and vernal pool ecosystems in the Central Valley," the instructor might point out such key features in the field, making comparisons to other such geological features observed in the field or described in the classroom, and then students will make and record their own observations and comparisons.

Lecture:

1. To satisfy Course Lecture Objective #4, "Explain the role that geology plays in the formation and delineation of the prairie, grassland, and vernal pool ecosystems of the Central Valley," the instructor might present a lecture (supplemented by images and/or video) that explains the geological history of the Central Valley, including what rock formations make up the region and how those have influenced the development of soils and species assemblages, and then students will make and record their own observations of geological features.
2. To satisfy Course Lecture Objective #5, "Analyze the past and present effects that humans have on the prairie, grassland, and vernal pool ecosystems of the Central Valley," the instructor might lead an in-class discussion about the historical impacts of humans on these ecosystems within the Central Valley (e.g. introduction of species, agriculture, etc.).

Typical Out of Class Assignments Reading Assignments

1. To address Course Lecture Objective #2, students might be asked to read a handout that describes basic ecological terminology related to California's Central Valley ecosystems and then apply this knowledge to descriptions of observations made in the field. 2. To address Course Lecture Objective #3 and Course Lab Objective #3, students might be asked to review the life history information from a handout or the Species Profile on the US Fish & Wildlife Service website for a threatened or endangered species that occurs in the prairie, grassland, or vernal pool ecosystems of the Central Valley and be prepared to discuss this in class.

Writing, Problem Solving or Performance

1. To address Course Lecture Objective #4 and Course Lab Objective #2, students might be asked to write and/or prepare a short oral presentation about a geological feature occurring in the prairies, grasslands, or vernal pools of the Central Valley. 2. To address Course Lab Objective #6, students might be asked to document their observations in the field in

a journal, using any combination of text, sketches, photos, and/or other media.

Other (Term projects, research papers, portfolios, etc.) Required Materials

- The California Naturalist Handbook
 - Author: Greg de Nevers, Deborah Stangerman, Adina Merenlender
 - Publisher: UC Press
 - Publication Date: 2013
 - Text Edition: 1st
 - Classic Textbook?:
 - OER Link:
 - OER:
- Introduction to California Plant Life
 - Author: Robert Ornduff, et al.
 - Publisher: UC Press
 - Publication Date: 2003
 - Text Edition: 1st
 - Classic Textbook?:
 - OER Link:
 - OER:
- Jepson Prairie Preserve Handbook
 - Author: Carol Witham and Kate Mawdsley
 - Publisher: Solano Land Trust
 - Publication Date: 2012
 - Text Edition: 3rd
 - Classic Textbook?:
 - OER Link:
 - OER:
- The Laws Guide to Nature Drawing and Journaling
 - Author: Laws, John Muir
 - Publisher: Heyday Books
 - Publication Date: 2016
 - Text Edition: 1st
 - Classic Textbook?:
 - OER Link:
 - OER:

Other materials and-or supplies required of students that contribute to the cost of the course.