ESEC A141: DESERT ECOLOGY

Item	Value
Curriculum Committee Approval Date	12/02/2021
Top Code	049900 - Other Biological Sciences
Units	1 Total Units
Hours	36 Total Hours (Lecture Hours 9; Lab Hours 27)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)

Course Description

Deserts cover 20% of the Earth and provide wildlife habitat, as well as, economic and recreational value. This course will provide students an opportunity to learn and assess the ecological processes in various deserts on Earth including the deserts of Southwestern United States and Mexico. Field trips are required. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Assess ecological relationships within a desert habitat.
2. Analyze data and form conclusions based on research and experiments.
3. Describe differences between different desert habitats.

Course Objectives

- 1. Describe the abiotic characteristics of a desert habitat.
- 2. Describe the biotic characteristics of a desert habitat.
- 3. Investigate ecological relationships among desert organisms and their habitat.
- 4. Assess the effects of non-native species on native desert organisms.
- 5. Conduct an experiment to understand an ecological process in the desert.
- 6. Develop field-note taking skills and create a comprehensive field course notebook.
- 7. Compare the ecology of various deserts.
- 8. Understand the global role of deserts on Earth.

Lecture Content

I. Desert Characteristics A. Geographical influence B. Annual temperature and precipitation C. Soil types II. Deserts around the World A. North and South America B. Africa C. Australia D. Europe/ AsiaIII.Desert Organisms A. Plant adaptations B. Animal adaptations C. Additional organisms IV. Organism Interactions A. Predation B. Competition C. Mutualism D. Parasitism E. Commensal

Lab Content

I. Research and Experimentation A. Literature search B. Forming a testable question C. Designing an experiment D. Data collectiom E. Analyzing data F. Forming conclusions

Method(s) of Instruction

- Lecture (02)
- Lab (04)

Instructional Techniques

Lecture, discussion, field work, and data analysis.

Reading Assignments

Students will spend 1 hour per week reading the provide text material and reading literature research.

Writing Assignments

Students will spend 1 hour per week maintaining their field journals and writing their results from projects/experiments.

Out-of-class Assignments

Students will spend 1 hour per week researching the literature for projects, completing assignments, and designing experiments.

Demonstration of Critical Thinking

1. Assessing experimental data to formulate conclusions. 2. Answering exam questions.3. Participation in class discussions

Required Writing, Problem Solving, Skills Demonstration

1. Designing an experiment. 2. Maintaining a field journal. 3. Participation in field data collection and analysis.

Eligible Disciplines

Biological sciences: Masters degree in any biological science OR bachelors degree in any biological science AND masters degree in biochemistry, biophysics, or marine science OR the equivalent. Masters degree required. Earth science: Masters degree in geology, geophysics, earth sciences, meteorology, oceanography, or paleontology OR bachelors degree in geology AND masters degree in geography, physics, or geochemistry OR the equivalent. Masters degree required. Ecology: Masters degree in ecology or environmental studies OR the equivalent OR see interdisciplinary studies. Masters degree required.

Other Resources

1. Selected readings about desert biomes, organisms, and scientific methodology.