EVS 130 Environmental Science: Ecology and Ecosystems

Course Description: A course on environmental science and ecology. Topics include: types of ecosystems and how they function, elementary soil science, biodiversity, and population growth and sustainability. Students provide transportation to off-campus field trips.

Prerequisites(s): AFL 085 or appropriate placement test score

Corequisite(s): No corequisite

Lecture Hours: 3	Lab Hours: 2	Credit Hours: 4
Lab Fee: 70	Supplemental Fee: 0	Purpose:
☐ Transfer Assurance Guide Course (TAG)	☒ Transfer Module Course (TM)	
Course Format: Lec/Lab	Grading: A/B/C/D/F/I	
Delivery Method: □ Web	□ Hybrid	x Classroom
Semesters Offered: x Fall	Spring	x Summer

Course Primary Text:

Title: Environmental Science	Edition: 12 Edition
Author(s): Wright and Boorse	
Publisher: Pearson	

Supplemental Materials:

Course Outcomes:

- Describe the ways people of the world interact with their environments and how this has led to problems in the past.
- Discuss current global trends that cause concern for the future of the environment.
- Explain what is meant by sustainability and how it can be obtained.
- Describe the significant modern events that have created the environmental movement.
- Explain the nature of science and scientific investigation.
- Describe ecosystems and how they are organized.
- Describe the trophic and non–trophic relationships in the ecosystems.
- Describe the effects of abiotic factors on ecosystems.
- Describe the flow of energy in an ecosystem.
- Outline the recycling of elements in an ecosystem and explain how the alteration of cycles can disturb the system.

- Identify basic patterns of population growth.
- Explain how density, predators, parasites, grazers, foreign species, competition and fire can effect population.
- Describe ecological succession.
- Discuss the consequences of ecological imbalance.
- Describe biological evolution and the forces that effect evolution.
- Explain the current controversy concerning evolution.
- Describe the impact of ecological degradation on evolution.
- Discuss the different patterns of human population growth and current issues resulting from the current population explosion.
- Discuss the issues of poverty and high fertility as they relate to human population growth.
- Explain the approaches currently used to alter human population growth.
- Describe the nature of soils and how they are classified.
- Describe the current problems occurring as the result of human stewardship of soil.
- Describe the agricultural practices of today and the effects these practices have on the environment.
- Identify the factors that lead to hunger and malnutrition today.
- Describe the value of wild species and the nature of biodiversity.
- Describe examples of ecosystems as resources, describe their importance and how they should or should not be managed.
- An ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments.
- An ability to function effectively as a member of a technical team.
- An understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity.
- A commitment to quality, timeliness, and continuous improvement.

Course Topics:

Week	Topic
1	Basic Needs of Living Things **Lab**: **Dendrochronology Lab**
2	**Lab: Caldwell Park Forest Inventory** Population and Communities
3	Energy Flow, Food Webs, and Biomes **Lab: Climatographs**, **Winogradsky Column**
4	Wild Species and Diversity **Lab**: **Citizen Science Action Lab**
5	**Exam 1** Ecosystem Value, Use, and Restoration
6	**Fernald Preserve: Ecosystem Restoration (off site)**
7	Human Population **Lab: Human Demographics Virtual Lab**

8	Population and Development **Movie:** Living on a Dollar, notes and reflection
9	Water **Lab: Cochabamba!**
10	**Lab: Newport Aquarium (off site) Water quality and testing**
11	**Exam 2** **Movie:** Dirt! notes and reflection
12	Soil **Movie:** Soil Carbon Cowboys **Lab**: **Soil Texture Ribbon Test and Mason Jar Test** **Web Soil Survey**
13	Global Climate Change **Lab: Leopold Phenology Activity**
14	Energy Sources; Historic, Current, and Future
15	**Exam 3**

Methods of Evaluation/Assessment

x□ Formative: x□ Summative

List assessment activities (e.g. quizzes, discussions, essays, research papers, debates, oral presentations, exams):

Tests and Quizzes
Homework
Lab assignments
Research paper
Attendance/Participation

Course Keeper: Glen Schulte Date Completed: 4/08/19