NAU NORTHERN ARIZONA UNIVERSITY

Course Title: BIO 226 Ecology
Term: Winter 2023
Instructor: TBA
Course Credit: 3
Mode of Instruction: Online

Course Description:

This course introduces ecological principles, including the distribution and abundance of organisms, population dynamics, community organization, energy flow, and nutrient cycling. Besides, the physiological ecology of plants and animals, trophic ecology, food webs, biodiversity, ecosystem function and co-existence will be studied. Some laboratory related to ecology will be also provided.

Course Prerequisites:

BIO 181 Unity Of Life I: Life Of The Cell;

BIO 182 Unity Of Life II: Lives Of Multicellular Organisms

Learning Outcomes:

By the end of the course, the student should be able to:

A. Gain insights into the key concepts and major topics in ecology, including organisms, populations, structure and function of ecosystems, etc.

B. Comprehend the factors controlling the abundance and distribution of organisms;

C. Carry out a scientific research project about an ecological question: formulate clear, precise and potentially answerable questions, collect unbiased data and test hypotheses;

D. Master the various techniques used in ecology, from computation to experimental, and apply these techniques to address ecological questions.

Course Material:

Begon, M., Townsend, C. R. & Harper, J. L., ***Ecology From Individuals to Ecosystems***, 4th Edition, Blackwell Science, 2006.

Evaluation:

- 5 Lab Reports [50%]
- Mid-term Exam [20%]
- Final Exam [30%]

Description of the Evaluation tasks:

Assignment/ Essay/ ... : During the term, students will be required to finish several evaluation tasks within due date. All the tasks are linked with specific course topics/outcomes and will adequately assess students' competence and learning outcomes. Students are encouraged to meet with instructor about these tasks at any point.

Mid-term/ Final Exams/ Quiz/... : There may be periodic quizzes given at the beginning of lecture sessions; the feedback from these quizzes will monitor the progress of the learners and help to set learning priorities. There will be mid-term exam/ final exam for the course. They are the basic criteria for the evaluation of students' learning outcomes and final grade.

Grading Policy:

Students are supposed to finish each online lecture. Prior to each class, students should finish the required readings. During the class time, students are encouraged to make use of all relevant online course resources and communicate with the instructor. Students' grades are accumulated based on the cumulative evaluations.

Students' letter grade will be assigned according to the following scale:

A+ 90-100	A 85-89	A- 80-84
B+ 77-79	B 73-76	B- 70-72
C+ 67-69	C 63-66	C- 60-62
D+ 57-59	D 53-56	D- 50-52
F < 50		

Academic Integrity:

Students must strictly adhere to the university's academic integrity rule; and all essays, exams and any other form of academic assignments must adhere to these rules. Any form of plagiarism, cheating, or misappropriation of materials will be considered a violation of academic integrity and will be punishable by the university.

Withdrawal from the Course(s):

Students will be able to apply for a transfer or withdrawal within 3 days of the starting date of the course. If a withdrawal is applied for within 3 working days, the tuition fee will be fully refunded. After 3 days, the tuition fee will not be refunded. If a withdrawal is applied for in the first two weeks, it will be recorded as W (Withdraw) on the course transcript. After this initial two-week period, the class will be recorded as F (Fail).

Tentative Schedule:

1	Ecology and its Domain
2	Organisms in their Environments: the Evolutionary Backdrop
3	Conditions
4	Resources
5	Life, Death and Life Histories **Lab Report 1**

6	Intraspecific Competition
7	Dispersal, Dormancy and Metapopulations
8	Ecological Applications at the Level of Organisms and Single-Species Populations
9	Population Growth
10	Species Interactions; Interspecific Competition **Lab Report 2**
11	**Midterm Test**
12	The Nature of Predation
13	The Population Dynamics of Predation
14	Decomposers and Detritivores
15	Parasitism and Disease **Lab Report 3**
16	Symbiosis and Mutualism
17	Abundance
18	Ecological Applications at the Level of Population Interactions
19	Pest Control and Harvest Management
20	The Nature of the Community: Patterns in Space and Time **Lab Report 4**
21	Ecological Applications at the Level of Communities and Ecosystems
22	Food Webs
23	Ecosystem Functioning and Biodiversity **Lab Report 5**
24	Final Exam Reviews
25	**Final Exam**