BIOL-112: INTRODUCTION TO ECOLOGY

Effective Term
Fall 2026

CC Approval
12/05/2025

AS Approval
12/11/2025

BOT Approval
12/18/2025

COCI Approval
02/26/2026

SECTION A - Course Data Elements

CB04 Credit Status
Credit - Degree Applicable

Discipline

Minimum Qualifications	And/Or
Biological Sciences (Master's Degree)	

Subject Code
BIOL - Biology
Course Number
112

Department
Biology

Division
Science and Engineering (SE)

Full Course Title
Introduction to Ecology

Short Title
Introduction to Ecology

CB03 TOP Code
0401.00 - Biology, General

CB08 Basic Skills Status
NBS - Not Basic Skills

CB09 SAM Code
E - Non-Occupational

Rationale
Update dating and DEI.

SECTION B - Course Description

Catalog Course Description
This course explores basic principles of ecology and environmental biology, including study of major biomes and habitat types, biological diversity, interactions of organisms with the physical environment, plant and animal interactions, nutrient cycling and energy flow in ecosystems, and the interdependence of organisms in biological communities. The role of humans in the environment will also be examined. This is an introductory course for science majors as well as non-majors.

SECTION C - Conditions on Enrollment

Open Entry/Open Exit
No

Repeatability
Not Repeatable

Grading Options
Letter Grade or Pass/No Pass

Allow Audit
Yes

Requisites

SECTION D - Course Standards

Is this course variable unit?
No

Units
3.00

Lecture Hours
54

Outside of Class Hours
108

Total Contact Hours
54

Total Student Hours
162

Distance Education Approval

Is this course offered through Distance Education?
Yes

Online Delivery Methods

DE Modalities	Permanent or Emergency Only?
Entirely Online	Permanent
Hybrid	Permanent
Online with Proctored Exams	Permanent

SECTION E - Course Content

Student Learning Outcomes

	Upon satisfactory completion of the course, students will be able to:
1.	Apply qualitative models that describe population growth and dynamics.
2.	Describe and compare competitive interactions between two species.

Course Objectives

	Upon satisfactory completion of the course, students will be able to:
1.	Apply methods of science and scientific investigation to ecological studies.
2.	Discuss the history of the discipline, including the science of ecology, conservation, environmentalism, and the development of environmental ethics.

3.	Understand the basic principles of ecology and evolution.
4.	Relate the basic climatic, physiographic, chemical and biotic processes of the biosphere to the distribution of species.
5.	Describe ecosystem structure and function including trophic structure (eg. food webs), productivity, and mineral cycles.
6.	Explain community dynamics, including factors influencing the distribution of organisms, species diversity and dominance, vegetation ecology, niche, species interactions and ecological succession.
7.	Investigate population dynamics, including patterns of distribution and dispersal, age structure, and growth.

Course Content

1. Ecology as science: Scientific approaches to problems
2. Environmental law
   a. History of ecology
   b. U.S. environmental legislation
3. Economics and ecology
4. Environmental ethics
5. Evolution
   a. Natural selection
   b. Plant and animal adaptations to the environment
6. Major Biomes
7. Biological communities including habitats and niches
8. Interactions between organisms
9. Energy flow through ecosystems including trophic levels
10. Cycling of material within ecosystems, including the carbon cycle and the nitrogen cycle.
11. Environmental health issues
12. Pollution
13. Principles of population ecology
    a. Logistic population growth
    b. Reproductive strategies
    c. Carrying capacity
14. Management of natural resources including energy and water

Methods of Instruction

Methods of Instruction

Types	Examples of learning activities
Activity	
Discussion	Group discussion of relevant research and topics
Lecture	Lecture covering topics in course content with images

Online Adaptation

Types	Examples of learning activities
Activity	
Directed Study	
Discussion	
Group Work	
Individualized Instruction	
Journal	
Lecture	

Instructor-Initiated Online Contact Types

Announcements/Bulletin Boards
Chat Rooms
Discussion Boards
E-mail Communication
Telephone Conversations
Video or Teleconferencing

Student-Initiated Online Contact Types

Chat Rooms
Discussions
Group Work

Course design is accessible

Yes

Methods of Evaluation

Methods of Evaluation

Types	Examples of classroom assessments
Exams/Tests	Exams/Tests 1. Homework assignments 2. Midterm and final exams Example 1: Draw a food web containing organisms in a Napa County freshwater pond. Example 2: Midterm exam will cover topics including significant events in environmental law, principles of natural selection, and food webs.
Quizzes	
Projects	
Essays/Papers	
Homework	

Assignments

Reading Assignments

Reading assignments from textbooks and from relevant news articles and scientific journals.

Example 1: Read chapters 4 and 5 from textbook to prepare for lecture on ecosystems

Example 2: Read journal article from "Science" concerning global climate change

Writing Assignments

Homework assignments Attendance of public meetings

Example 1: Attend a city council meeting

Example 2: Review the research concerning global climate change and write a report discussing the impact on human populations around the world.

SECTION F - Textbooks and Instructional Materials

Material Type

Textbook

Author

Relyea, R., R. Ricklefs.

Title

Ecology: The Economy of Nature

Edition/Version

8th

Publisher

Macmillan

Year

2018

SECTION G - Diversity, Equity and Inclusivity

How does your course and/or course outline of record reflect strategies for accommodating and engaging diverse student populations, advancing equitable outcomes, and fostering inclusion for all students?

This course supports diverse student populations through the use of multiple representations of concepts, varied applications, and technology. Strategies may also include collaborative learning, transparent assessment practices, low-cost resources, and opportunities for students to connect course material to their own experiences, fostering equitable outcomes and an inclusive classroom environment.

Course Codes (Admin Only)

CB00 State ID

CCC000304568

CB10 Cooperative Work Experience Status

N - Is Not Part of a Cooperative Work Experience Education Program

CB11 Course Classification Status

Y - Credit Course

CB13 Special Class Status

N - The Course is Not an Approved Special Class

CB23 Funding Agency Category

Y - Not Applicable (Funding Not Used)

CB24 Program Course Status

Program Applicable

Allow Pass/No Pass

Yes

Only Pass/No Pass

No