JAMESTOWN COMMUNITY COLLEGE
State University of New York

INSTITUTIONAL COURSE SYLLABUS

Course Title: Conservation Biology

Course Abbreviation and Number: BIO 2550 **Credit Hours:** 3 **Course Type:** Lecture

Course Description: Students will study, discuss, and present information related to the global loss of biodiversity. Traditional as well as modern conservation practices will be discussed emphasizing the ways in which the principles of genetics, ecology, and evolutionary biology are being utilized to conserve and protect at-risk species and global biodiversity. The growing need for the application of ecological principles to our human role in the environment, including topics such as habitat alteration and fragmentation, introduction of exotic species, ecological economics, the importance of diversity, and extinction will be discussed. Multiple field trips will be included outside of scheduled class time.

Prerequisite: ENG 1510 and BIO 1551+BIO 1552 or BIO 1570 or BIO 1580.

General Education Requirements Met

SUNY	JCC
Natural Sciences	Global Perspectives
	Scientific Reasoning

Student Learning Outcomes:

Students who demonstrate understanding can:

1. Illustrate an understanding of the past and present philosophies and ethics of conservation biology
2. Explain the importance and nature of biological diversity as it pertains to local and global circumstances
3. Demonstrate an understanding of the economics of biodiversity and natural systems
4. Explain the classifications of threatened, endangered, and extinct species as they pertain to conservation
5. Discuss the rates and causes of extinction
6. Communicate the problems of small populations, habitat degradation and fragmentation, and the introduction of exotic species
7. Explain the roles of zoos, reintroductions, and ecosystem restoration in conservation
8. Illustrate an understanding of sustainable development and the roles of indigenous peoples, governments, and international organizations
9. Demonstrate awareness of global issues and the impact of individual and collective decisions on life around the world. [JCC Gen Ed – Global Perspectives]
10. Demonstrate an understanding of the methods scientists use to explore natural phenomena, including observation, hypotheses development, measurement and data collection, experimentation, evaluation of evidence, and employment of data analysis or mathematical modeling. [SUNY Gen Ed – Natural Sciences]
11. Application of scientific data, concepts, and models in one of the natural sciences. [SUNY Gen Ed – Natural Sciences]

Topics Covered:

- Defining conservation biology
  - Nature and origins
  - Conservation biology's ethical principles
  - Achievements and challenges
- What is biological diversity (biodiversity) and where is it found?
  - Levels of diversity
    - Species diversity
    - Genetic diversity

        - Ecosystem diversity
    - Biodiversity worldwide
- The value of biodiversity
    - Ecological economics: direct and indirect economic values
    - Existence value environmental ethics
- Threats to biodiversity
    - Human population growth and its impacts
    - Habitat destruction an d fragmentation
    - Environmental degradation and pollution
    - Global climate change
    - Overexploitation
    - Invasive species
    - Disease
- Extinction if forever
    - Rates of extinction
    - Vulnerability to extinction
    - The problems of small populations
- Conserving populations and species
    - Applied population biology
    - Conservation categories
    - Establishing new populations
    - Ex situ conservation strategies: zoos, aquariums, botanical gardens, seed banks
    - Legal protection of species
- Protected areas
    - Establishment and classification of protected areas
    - The effectiveness of protected areas
    - Designing protected areas
    - Landscape ecology and park design
    - Managing protected areas and its challenges
- Conservation outside protected areas
    - Unprotected public and private lands
    - Human-dominated landscapes
    - Working with local people
    - Ecosystem management and restoration
- The challenge of sustainable development
    - Sustainable development at the local and national levels
    - International approaches
    - Funding for conservation
    - Conservation education
    - The role of conservation biologists

Information for Students

- Expectations of Students
    - Civility Statement
    - Student Responsibility Statement
    - Academic Integrity Statement
- Accessibility Services
  Students who require accommodations to complete the requirements and expectations of this course because of a disability must make their accommodation requests to the Accessibility Services Coordinator.
- Get Help: JCC & Community Resources
- Emergency Closing Procedures

- Course grade is determined by the instructor based on a combination of factors, including but not limited to, homework, quizzes, exams, projects, and participation. Final course grade can be translated into a grade point value according to the following:

A=4.0	B+=3.5	B=3	C+=2.5	C=2	D+=1.5	D=1	F=0

- Veterans and active duty military personnel with special circumstances (e.g., upcoming deployments, drill requirements, VA appointments) are welcome and encouraged to communicate these to the instructor.

Effective Date: Fall 2023