BIO 16 Course Outline as of Fall 2016

CATALOG INFORMATION

Dept and Nbr: BIO 16 Title: NON MAJOR BIOLOGY
Full Title: Introduction to Biology For Non-Majors
Last Reviewed: 10/23/2023

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	4.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	4.00	Lab Scheduled	3.00	8	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	6.00		Contact Total	105.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00 Total Student Learning Hours: 210.00

Title 5 Category:	AA Degree Applicable
Grading:	Grade Only
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	

Catalog Description:
An introduction for non-majors to the core concepts of biology by studying current issues in modern biology with an emphasis on the scientific method and scientific literacy.

Prerequisites/Corequisites:

Recommended Preparation:
Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Schedule of Classes Information:
Description: An introduction for non-majors to the core concepts of biology by studying current issues in modern biology with an emphasis on the scientific method and scientific literacy. (Grade Only)
Prerequisites/Corequisites:
Recommended: Eligibility for ENGL 100 or ESL 100
Limits on Enrollment:
Transfer Credit: CSU;UC.

Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**		Effective:	Inactive:
	C	Natural Sciences	Fall 2014	
CSU GE:	**Transfer Area**		Effective:	Inactive:
	B2	Life Science	Fall 2014	
	B3	Laboratory Activity		
IGETC:	**Transfer Area**		Effective:	Inactive:
	5B	Biological Sciences	Fall 2014	
	5C	Fulfills Lab Requirement		

CSU Transfer:	Transferable	Effective:	Fall 2014	Inactive:
UC Transfer:	Transferable	Effective:	Fall 2014	Inactive:

CID:

Certificate/Major Applicable:
Major Applicable Course

COURSE CONTENT

Outcomes and Objectives:
Upon completion of the course, students will be able to:
1. Explain the scientific method and assess information about current scientific issues using this methodology
2. Compare and contrast science and pseudoscience
3. Assess the role of science in society
4. Demonstrate knowledge of each of the following core concepts: evolution, structure and function, flow of information, flow of matter, systems biology
5. Apply core concepts to specific current issues in modern biology
6. Analyze and critically evaluate a current issue in biology and current events using the principles of the scientific method
7. Apply the steps in the scientific method for problem solving and biological investigation
8. Apply laboratory techniques, including proper microscope use, to observing and experimenting with biological phenomena

Topics and Scope:

I. Science and the Scientific Method
- A. Science and the scientific process
- B. Science versus pseudoscience
- C. Science's role in and influence on society
- D. Assessment of the quality of scientific research
- E. The scientific method

1. experimental design
2. hypothesis testing
3. science writing

II. Core Concepts of Biology

A. Evolution
    1. natural selection
    2. speciation
B. Structure and Function
    1. relationship of anatomy and physiology
    2. role of natural selection
    3. examples in cell biology, organismal biology, evolutionary biology
C. Flow of Information
    1. molecular genetics
    2. Mendelian genetics
D. Flow of Energy and Matter
    1. metabolism
    2. physiology
    3. biogeochemical cycles
    4. energy movement in ecosystems
E. Systems Biology- levels of biological organization
F. Applications of core concepts to current issues in biology
III. Laboratory Exercises
Compound and dissecting microscope use
Scientific method
Experimental design
Hypothesis testing
Enzyme structure and function
Properties of water
Molecular genetics
Mendelian genetics
Eukaryotic biodiversity

Assignment:

1. Assigned reading from text and instructor prepared material (10-30 pages/week)
2. Participation in class exercises, analysis of case studies, and discussions relating to specific current biological topics and their relationship to current events
3. Response papers (3-4) analyzing current issues in the context of the biological knowledge gained in the course (2-4 pages each)
4. Oral report on biological topics and their relationship to current events
5. Quizzes (5-10) on lecture and reading material
6. Written lecture exams (3-4) and lab exams (2) covering biological content and applications to current issues in biology

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Response papers	Writing 10 - 30%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Analysis of case studies	Problem solving 5 - 10%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None	Skill Demonstrations 0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Lecture exams: Multiple choice, Matching items, Completion, Short answer, Essay; Quizzes; Laboratory Exams	Exams 40 - 60%

Other: Includes any assessment tools that do not logically fit into the above categories.

Oral report, attendance and participation	Other Category 15 - 25%

Representative Textbooks and Materials:
ebook: Principles of Biology, Last Revised: December 20, 2012, Nature Education, the educational division of Nature Publishing Group

Instructor prepared materials