



## COURSE OUTLINE OF RECORD

**Number:** BIOL G100

**TITLE:** Introduction To Biology

**ORIGINATOR:** Nikki Plaster

**EFF TERM:** Fall 2021

**FORMERLY KNOWN AS:**

**DATE OF**

**OUTLINE/REVIEW:** 02-18-2020

**CROSS LISTED COURSE:**

**TOP NO:** 0401.00

**CID:**

**SEMESTER UNITS:** 4.0

**HRS LEC:** 54.0

**HRS LAB:** 54.0

**HRS OTHER:** 0.0

**CONTACT HRS TOTAL:** 108.0

**STUDY NON-CONTACT HRS RECOMMENDED:** 108.0

**TOTAL STUDENT LEARNING HRS:** 162.0

### CATALOG DESCRIPTION:

This course emphasizes basic concepts of biology for non-science majors. Unifying concepts to be covered include: cell biology, animal and plant physiology, genetics, evolution, and ecology.

### JUSTIFICATION FOR COURSE:

#### PREREQUISITES:

#### COREQUISITES:

#### ADVISORIES:

#### ASSIGNED DISCIPLINES:

Biological sciences

**MATERIAL FEE:** Yes ☒ No ☐ Amount: \$7.50

**CREDIT STATUS:** Noncredit ☐ Credit - Degree Applicable ☒ Credit - Not Degree Applicable ☐

**GRADING POLICY:** Pass/No Pass ☐ Standard Letter ☒ Not Graded ☐ Satisfactory Progress ☐  
P/NP/SP Noncredit ☐ Letter Noncredit ☐

**OPEN ENTRY/OPEN EXIT:** Yes ☐ No ☒

**TRANSFER STATUS:** CSU Transferable ☐ UC/CSU Transferable ☒ Not Transferable ☐

**BASIC SKILLS STATUS:** Yes ☐ No ☒

**LEVELS BELOW TRANSFER:** Not Applicable

**CALIFORNIA CLASSIFICATION CODES:** Y - Not Applicable

**NON CREDIT COURSE CATEGORY:** Y - Not applicable, Credit Course

**OCCUPATIONAL (SAM) CODE:** E

**REPEATABLE ACCORDING TO STATE GUIDELINES:** No ☒ Yes ☐ **NUMBER REPEATS:**

**CB25 GENERAL EDUCATION STATUS:** Y = Not Applicable

**CB26 SUPPORT COURSE STATUS:** N = Not a support course

**REQUIRED FOR DEGREE OR CERTIFICATE:** No ☐ Yes ☒

Geography (Associate in Arts for Transfer)

Liberal Arts: Emphasis in Science (Associate in Arts)

### GE AND TRANSFER REQUIREMENTS MET:

IGETC Area 5: Physical and Biological Sciences

5B: Biological Science

x

x

CSU GE Area B: Scientific Inquiry and Quantitative Reasoning

B2 - Life Science

B3 - Laboratory Sciences

**PROGRAM LEVEL LEARNING OUTCOME(S) Supported by this course:**

demonstrate a strong factual framework of knowledge about the natural world.

**COURSE LEVEL STUDENT LEARNING OUTCOME(S) Supported by this course:**

1. Explain the core concepts of biology.
2. Connect theoretical concepts in biology with everyday applications and situations.
3. Analyze data in a laboratory setting.
4. Interpret newsworthy biological reports using evidence-based reasoning.

**COURSE OBJECTIVES:**

1. Describe the levels of organization within living things from the composition of atoms, molecules, cells, organ systems, and organisms to the organization and relationships of an ecosystem.
2. Organize and describe the objectives of the key metabolic processes of photosynthesis and cellular respiration.
3. Solve genetics problems determining probabilities of inheritance.
4. Describe the core concepts of evolution including the mechanisms of microevolution and macroevolution.
5. Evaluate one's lifestyle in light of biological principles using evidence-based reasoning.
6. Report orally and in writing, on the results of laboratory experiments.

**COURSE CONTENT:**

**LECTURE CONTENT:**

- A. Introduction
  1. Scientific methodology
  2. Science versus pseudoscience
  3. Methods of communicating science
- B. Properties of life
- C. Chemistry
  1. Atomic structure
  2. Chemical bonds
  3. Properties of water
  4. pH and buffers
  5. Macromolecules: Lipids, carbohydrates, proteins, and nucleic acids
- D. Cell biology
  1. Prokaryotic versus eukaryotic cells
  2. Cell structure and function
  3. Cell membrane structure and function
  4. Structure and function of internal cellular components
  5. Cellular transport
- E. Energy metabolism
  1. Photosynthesis
  2. Cellular respiration
- F. The cell cycle
  1. Mitosis
  2. Cancer
  3. Meiosis

G. Genetics

1. Patterns of inheritance
2. Predicting outcomes of genetic crosses using Punnett squares

H. Molecular genetics

1. DNA replication
2. Transcription
3. Translation
4. Gene regulation

I. Biotechnology

1. Molecular techniques as appropriate
2. Genetically modified organisms
3. Stem cells
4. Other modern pertinent biotechnology

J. Physiology

1. Animal physiology
2. Plant physiology

K. Evolution

1. Charles Darwin's Theory of Evolution
2. Mechanisms of microevolution
3. Mechanisms of macroevolution
4. The Earth's geologic timeline
5. Understanding evolutionary trees

L. Biological diversity

1. Taxonomy and the evolution of biodiversity
2. Viruses
3. Prokaryotes
4. Eukaryotes

M. Ecology

1. Populations, communities, and ecosystems
2. Trophic levels and energy transfer
3. Biogeochemical cycles
4. Benefits of species diversity
5. Human impacts on the environment

**LABORATORY CONTENT:**

A. Scientific methodology

1. Lab safety
2. Lab measuring devices and units of measure
3. Using the Scientific Method to test hypotheses

B. Cell biology

1. Macromolecules, water, pH, and buffers
2. Molecular movement
3. Enzyme function

C. Microscopy

1. Care and use of microscopes
2. Plant and animal cell structure

D. Photosynthesis and cellular respiration

E. Cell growth and genetics

1. Mitosis and meiosis
2. Inheritance

F. Evolution

G. Diversity of life

1. Survey of microorganisms (bacteria, protists, fungi)
2. Survey of Kingdom Plantae

- 3. Survey of Kingdom Animalia
- 4. Human physiology
- H. Ecology

**METHODS OF INSTRUCTION:**

- A. Lecture:
- B. Lab:
- C. Independent Study:
- D. Hybrid:

**INSTRUCTIONAL TECHNIQUES:**

Instructors will present material via lecture, active learning activities, animations/videos, class presentations, readings, and other methods where appropriate.

**COURSE ASSIGNMENTS:**

**Reading Assignments**

- 1. A current text in general biology for non-science majors
- 2. Laboratory manual in general biology

**Writing Assignments**

- A. Pre-lab summaries highlighting core concepts and important safety
- B. Laboratory reports detailing results and conclusions of lab activities
- C. Essays, through homework and examination, that demonstrate proficiency in course objectives
- D. Analyses of current news related to core biological topics

**Out-of-class Assignments**

- A. Individual or group presentations on biological topics
- B. Online pre- or post-lecture assessments or quizzes
- C. Preparation of written/oral summaries of reading assignments
- D. Preparation of the results of self-assessment study skill assignments
- E. Completion of worksheets, study guides, or other study materials

**METHODS OF STUDENT EVALUATION:**

Midterm Exam  
Final Exam  
Short Quizzes  
Written Assignments  
Essay Examinations  
Objective Examinations  
Report  
Projects (ind/group)  
Problem Solving Exercises  
Oral Presentations  
Skills Demonstration

**Demonstration of Critical Thinking:**

Students are required to analyze laboratory data. They may also solve problem sets. Scientific methodology, including detailed observation skills, formulation of general conceptual questions, proposal of hypotheses, data collection and interpretation, and criteria for accepting conclusions and answers are practiced in each laboratory unit.

**Required Writing, Problem Solving, Skills Demonstration:**

Students use laboratory skills to present hypotheses, solve problems, gather data, analyze data, and present conclusions and inferences based upon those data. Students may write laboratory reports and summarize field observations as well as present data to other students. Students will write essays, through homework and examination, that demonstrate proficiency in course objectives.

**TEXTS, READINGS, AND RESOURCES:**

**TextBooks:**

1. Simon, E.. *Biology: The Core*, 3rd ed. Pearson, 2019
2. Faculty and staff of Golden West College. *BioExplorations*, Spring 2020 ed. Golden West College, 2020

**LIBRARY:**

**Adequate library resources include:**

**Comments:**

**Attachments:**

[Attached Files](#)