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Semester effective: Fall 2026

Biology (BIOL) C1001 Introduction to Biology (3 Units) CSU:UC  
[formerly Biology 1, formerly Biology 1500]

Prerequisites: None

Co-Requisites: None

Advisory: Eligibility for English C1000, C1000E, or 1502 strongly recommended

Hours and Units Calculations:

48 hours lecture. 96 Outside of class hours. (144 Total Student Learning Hours) 3 Units

Catalog Description:

Part 1 (Identical and Required):

This lecture course provides the non-biology major with an introduction to living things and their environment. Students develop important critical thinking skills as they learn about the process of science, the building blocks of life, the role and regulation of DNA, how populations change over time, the movement of energy within and between life forms, and how species interact with each other and their surroundings. By the end of the course, students will be able to apply an understanding of biological concepts to current issues and their impacts on society.

Part 2 (Optional Expanded Description, Local College Discretion):

Not open to students who have successfully passed BIOL C1000

Type of Class/Course: Degree Credit

Representative Texts, Manuals, OER, and Other Support Materials

Part 1 (Identical and Required):

Texts used by individual institutions and even individual sections will vary.

OER Example:

• Fowler, S., Wise, J., & Roush, R. (2024). *Concepts of Biology*. OER: OpenStax.  
<https://openstax.org/books/concepts-biology/pages/1-introduction>

Traditional Examples:

- Hoefnagels, M. (2021). *Biology: The Essentials*. 4th ed.: McGraw Hill.
- Taylor, M., Simon, E., Dickey, J., & Reece, J. (2020). *Campbell Essential Biology*. 7th ed.: Pearson.



Part 2 List Sample Textbooks, Manuals, or Other Support Materials (optional):

Text:

Johnson, George B. *The Living World*. 11th ed., McGraw-Hill, 2024.

Additional Required Materials: None

Course Objectives:

Part 1 (Identical and Required):

At the conclusion of this course, the student should be able to:

1. Apply the scientific method, including recognizing the elements of experimental design and interpreting results.
2. Demonstrate scientific literacy by evaluating social, ethical, and equity issues connected to biological sciences.
3. Describe how living things are made of smaller structures that work together to enable the organism to survive.
4. Compare how living things depend on each other and the physical environment as they interact to obtain, change, and exchange matter and energy.
5. Explain how the diversity of living things is the result of evolution of organisms through mechanisms such as heredity, random change, and natural selection.

Part 2 Optional objectives/outcomes (optional):

At the conclusion of this course, the student should be able to:

Course Level Student Learning Outcomes

Identify and explain the definitive characteristics of living organisms in a clear and concise manner.

Local General Education Learning Outcomes

1. Develop an understanding of the relationship between science and other human behaviors.
2. Demonstrate the scientific method.

Course Scope and Content:

Part 1: Required Topics (Identical):

1. The scientific method and the process of science
2. Cellular chemistry and biochemistry
  - a. Atoms and bonding
  - b. Properties of water
  - c. Structure and function of biological molecules
3. Cell structure and function
  - a. Cells, membranes, and organelles
  - b. Prokaryotes versus eukaryotes
  - c. Transport across the cell membrane
4. Cellular metabolism
  - a. Enzyme structure and function
  - b. Photosynthesis
  - c. Cellular respiration
  - d. Fermentation
5. Cellular division

- a. Prokaryotic binary fission
  - b. Eukaryotic cell cycle
  - c. Eukaryotic asexual reproduction (mitosis)
  - d. Eukaryotic sexual reproduction (meiosis)
6. DNA structure and function
- a. DNA replication
  - b. Transcription and translation
  - c. Regulation of gene expression
  - d. The impact of mutations
  - e. The impact of biotechnology
7. Principles of heredity
- a. Mendelian genetics
  - b. Non-Mendelian genetics
  - c. Application to human genetics
8. Principles of evolution
- a. Evolutionary mechanisms
  - b. Evolutionary evidence
  - c. Speciation and classification
  - d. The effect of extinction
  - e. Survey of biodiversity across Domains
9. Principles of ecology
- a. Biosphere and biomes
  - b. Population growth and regulation
  - c. Community interactions
  - d. Flow of energy and matter in ecosystems
  - e. Human interactions with the biosphere
  - f. Conservation biology and sustainability

### Representative Assignments

#### Reading:

Weekly readings from textbook chapters and supplemental science articles.

#### Writing:

Short written responses in discussion, vocabulary-based writing assignments, and essay-style questions on exams.

### Learning Activities Required Outside of Class:

The students in this class will spend a minimum of 6 hours per week outside of the regular class time doing the following:

1. Studying
2. Answering questions
3. Skill practice
4. Completing required reading
5. Problem solving
6. Written work

### Methods of Instruction:

1. Assigned readings from text and selected references
2. Recorded Video Lectures
3. PowerPoint presentations
4. Class discussions

Methods of Evaluation:

Part 1 (Identical and Required):

Examples of evaluation methods used to observe or measure students' achievement of course outcomes and objectives may include but are not limited to quizzes, exams, projects, evaluation of scientific literature, etc.

Methods of evaluation are at the discretion of local faculty.

Supplemental Data:

TOP Code:	040100 - Biology
SAM Priority Code:	E: Non-Occupational
Funding Agency:	Y: Not Applicable
Program Status:	1: Program Applicable
Noncredit Category:	Y: Not Applicable
Special Class Status:	N: Course is not a special class
Basic Skills Status:	N: Not Applicable
Prior to College Level:	Y: Not Applicable
Cooperative Work Experience:	N: Course is not a part of a cooperative education program
Eligible for Credit by Exam:	No
Eligible for Pass/No Pass:	Yes
Discipline	Biological Sciences