

BIOL 105: GENERAL BIOLOGY

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Winter 2021
Credits:	4
Total Contact Hours:	108
Lecture Hours :	54
Lab Hours:	54
Hours Arranged:	0
Outside of Class Hours:	108
Strongly Recommended:	High school biology or chemistry; high school algebra 1 or Integrated Math 1 or equivalent; ENGL 101.
District General Education:	B1. Natural Sciences - Life Sciences, B3. Natural Sciences - Laboratory
Transferable to CSU:	Yes
Transferable to UC:	Yes - Approved
Grading Method:	Standard Letter

Catalog Course Description

A general biology course, lecture and laboratory, for non-majors, with emphasis upon molecular biology, cell structure and function, energy relationships, nutrient processing, reproduction and development, genetics and evolution, ecological interrelationships, and discussion of contemporary issues. The laboratory provides the student with expanded first-hand experience in specific areas of course content. 54 lecture hours, 54 lab hours.

Course Objectives

- demonstrate an understanding of the nature of scientific inquiry, especially the role of the scientific method
- demonstrate an understanding of the basic processes common to all living forms
- demonstrate an understanding of relationships among living organisms on the basis of common form and function
- evaluate the effects of contemporary technological developments upon life forms
- demonstrate the proper use of equipment and procedures commonly used in the biology laboratory
- organize and interpret biological data
- compare scientific to non-scientific systems of methodology and analysis

Major Course Content

1. Introduction and scientific method
2. Chemistry of life
3. Cell and structure and function
4. Metabolism
5. Photosynthesis

6. Cell Respiration
7. Cellular division: Mitosis and Meiosis
8. Genetics
9. DNA and DNA replication
10. Gene Expression
11. Evolution
12. Human reproduction and development
13. Immunity
14. Ecological and environmental science

Lab Content

1. Introduction to the scientific method, graphic analysis, and the metric system
2. Solutions, solubility, pH and concentration
3. Biochemistry
4. Microscopy, cell structure and function
5. Membrane transport
6. Photosynthesis
7. Aerobic and anaerobic cellular respiration
8. Mitosis and meiosis
9. Genetics
10. DNA and electrophoresis
11. Natural selection and evolution

Suggested Reading Other Than Required Textbook

None

Examples of Required Writing Assignments

Writing is examined through short answer and essay questions on exams.

Examples of Outside Assignments

Homework for Biotechnology Section Biology 105

Please answer the following questions from the PowerPoint tutorial on this exercise.

1. What is the structure of a nucleotide?
2. What makes your DNA different than a fish? What makes it similar?
3. Endonucleases are enzymes that can cut up DNA. Where did we discover them? What were they used for?
4. What is another name for the endonucleases?
5. What is the recognition sequence of EcoR1?
6. Why will EcoR1 cut my DNA a different number of times than your DNA?
7. If Jane had 3 restriction sites, how many DNA fragments result?
8. Why will some fragments be large and others small?

9. Using electrophoresis, DNA moves toward the positive charge. Why?
10. Whose DNA matched the DNA from the crime scene, suspect 1, 2 or 3?

Instruction Type(s)

Lecture, Lab, Online Education Lecture, Online Education Lab

IGETC Area 5: Physical and Biological Sciences

5B. Biological Science, 5C. Science Laboratory