

BIOL 105H: GENERAL BIOLOGY - HONORS

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2019
Credits:	4
Total Contact Hours:	108
Lecture Hours :	54
Lab Hours:	54
Hours Arranged:	0
Outside of Class Hours:	108
Prerequisite:	Student must be eligible for the Citrus College Honors Program or obtain a recommendation from an Honors instructor.
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

This is a general biology course for non-majors, including both a lecture and laboratory component, which emphasizes molecular biology, cell structure and function, energy relationships, human physiological systems (including reproductive anatomy, reproductive cycles, development, and immunity), genetics, evolution, ecological interrelationships, and discussion of contemporary issues. The laboratory provides the student with expanded first-hand experience in specific areas of course content. Students are expected to work and participate at an honors level which includes strong critical thinking skills, through analysis of biological readings, presentations, and leadership skills demonstrated through class participation/presentation and service learning in community. 54 lecture hours, 54 lab hours.

Course Objectives

- Lecture:
 - compare scientific to non-scientific systems of methodology and analysis
 - demonstrate an understanding of the basic life processes
 - 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
- Laboratory:

- demonstrate the proper use of equipment and procedures commonly used in the biology laboratory
- organize, interpret and present biological data

Major Course Content

- Introduction and scientific method
- Chemistry of life
- Cell and structure and function
- Metabolism
- Photosynthesis
- Cell Respiration
- Cellular division: Mitosis and Meiosis
- Genetics
- DNA and DNA replication
- Gene Expression
- Evolution
- Human reproduction and development
- Immunity
- Ecological and environmental science

Lab Content

- Introduction to the scientific method, graphic analysis, and the metric system
- Solutions: pH, solubility, concentration
- Biochemistry
- Microscopy, cell structure and function
- Membrane transport
- Photosynthesis
- Aerobic and anaerobic cellular respiration
- Mitosis and meiosis
- Genetics
- DNA and electrophoresis
- Natural selection and evolution

Suggested Reading Other Than Required Textbook

Journal Articles, such as American Naturalist and PLoS Biology

Examples of Required Writing Assignments

Writing is examined through short answer and essay questions on exams. These questions will require students to utilize critical thinking skills in

order to analyze complex biological concepts. Students will be required to answer questions such as: Explain how photosynthesis influences global warming.

Examples of Outside Assignments

Answer questions such as: 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

IGETC Area 5: Physical and Biological Sciences

5B. Biological Science, 5C. Science Laboratory