

BIOL 105H: GENERAL BIOLOGY - HONORS

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2025
Credits:	4
Total Contact Hours:	108
Lecture Hours :	54
Lab Hours:	54
Hours Arranged:	0
Outside of Class Hours:	108
Total Student Learning Hours:	216
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 C1000.
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
- Laboratory:

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

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. Ecological and environmental science

Lab Content

1. Introduction to the scientific method, graphic analysis, and the metric system
2. Solutions: pH, solubility, 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

Journal Articles, such as American Naturalist and PLoS Biology
Resources from reputable science organizations like National Institutes of Health

Examples of Required Writing Assignments

Writing is examined through short answer and essay questions on exams. In addition, students have a few out of class writing homework assignments. These questions will require students to utilize critical thinking skills in order to analyze complex biological concepts. In many cases, an additional goal of these writing assignments is to get students to apply scientific concepts to their own personal life. As one example, students are asked to keep a "green journal" for 3 weeks where they need to: 1) describe an activity that they did (or did not do) to reduce their carbon emissions, 2) explain clearly how this act reduces carbon emissions, using terminology and concepts from lecture and 3) explain whether it was easy or difficult to do and whether you will continue to do it.

Laboratory: Students will write research proposals including summary of established research findings, proposal of goals for their original project, and properly cited references.

Examples of Outside Assignments

With your assigned group, you will create either a Photosynthesis OR Cellular Respiration Poster. The poster must include all the individual phases of your assigned process (i.e., Photosynthesis: Light Reaction & Calvin Cycle) or Cellular Respiration: Glycolysis, Krebs's Cycle, Electron Transport Chain) either in diagrams, pictures, flowcharts. It should NOT be just an exact copy of images from the textbook or the internet. All images must be hand-drawn and hand-labelled. Important molecules and structures should be labelled or color-coded. In addition, your poster must identify the following 10 items to earn full credit:

An enzyme, its substrate and product
An example of kinetic energy & potential energy
An example of passive transport & active transport
Inputs and outputs of the entire process
A specific membrane structure

Instruction Type(s)

Lab, Lecture

IGETC Area 5: Physical and Biological Sciences

5C. Science Laboratory, 5B. Biological Science