

BIOL 108

Investigating the Living World

4 Credits (3 hours lecture, 3 hours laboratory)

Community College of Baltimore County
Common Course Outline

Description

BIOL 108 – Investigating the Living World: is a course which provides a general overview of the basic principles of biology, an introduction to scientific thought, and methodology and necessary skills for science literacy. Topics include biochemistry, cell structure and function, genetics, evolution, biodiversity, and ecology.

Pre-requisites: ACLT 053 or (ESOL 052 and ESOL 054); and MATH 081

Co-requisites: ENGL 101

Overall Course Objectives

Upon completion of this course, students will be able to:

1. describe levels of organization and related functions in living organisms, including the human body;
2. describe characteristics and processes of sexual and asexual reproduction at the cellular and organismal level;
3. analyze possible genotypes and phenotypes of simple hypothetical mating experiments and inheritance of human characters using principles of Mendelian genetics and basic mathematical calculation;
4. discuss basic concepts, processes, theories, and misconceptions of biological evolution;
5. describe basic terms and methods in the study of population dynamics of living organisms;
6. identify the relationships between species in a community of living organisms;
7. describe trophic levels and nutrient cycling in ecosystems;
8. discuss interrelationships between living organisms, including human beings, and their environments;
9. discuss the importance of biodiversity at various levels, including human ethnic and cultural diversity, from biological and social perspectives;
10. find, evaluate, use, and cite appropriate sources of information for effective scientific communication and discussion;
11. use appropriate instruments and technology in biological investigations and everyday problem solving;
12. employ basic mathematical skills in data collection and presentations using graphs and tables;
13. propose explanations and/or solutions to real world issues using scientific method, critical analysis, logical reasoning, and related biological knowledge; and
14. evaluate biological and biotechnological topics from social and ethical perspectives.

The Common Course Outline (CCO) determines the essential nature of each course.

For more information, see your professor's syllabus.

Major Topics

- I. Basic chemistry of life
- II. Cell structure and function
- III. Energy processing in cells
 - a. Cellular respiration
 - b. Fermentation
 - c. Photosynthesis
- IV. Reproduction
 - a. Mitosis and meiosis
 - b. Sexual and asexual reproduction
 - c. Human reproduction
- V. Transmission genetics
- VI. Molecular biology
 - a. DNA replication
 - b. Gene expression
 - c. Biotechnology
- VII. Evolution
 - a. Natural selection
 - b. Adaptation
 - c. Evidence of evolution
 - d. Speciation
 - e. Misunderstandings about evolution
- VIII. Diversity of life
- IX. Population and community ecology
- X. Ecosystem ecology and human nature interaction
- XI. Human body structures and functions

Course Requirements

Grading will be determined by the individual faculty member, but shall include the following, at minimum:

- three closed-book lecture exams (The lecture portion of the course will account for 60-80% of the grade.)
- one project assignment that infuses CCBC General Education Program Outcomes
- two different ways of assessing lab performance as determined by the individual instructor, such as lab reports, lab quizzes, pre-lab assignments, lab practical exams

Written assignments and research projects: Students are required to use appropriate academic resources in their research and cite sources according to the style selected by their professor.

Other Course Information

This course is an approved 4–credit General Education course in the Biological and Physical Sciences and fulfills the laboratory requirement.

One or more assignments will infuse CCBC General Education Program outcomes and will account for a minimum of 10% of the total course grade. The assignment(s) will allow students to demonstrate at least 5 of the 7 General Education program outcomes.

The Common Course Outline (CCO) determines the essential nature of each course.

For more information, see your professor's syllabus.

Date Revised: 1/17/2023

The Common Course Outline (CCO) determines the essential nature of each course.
For more information, see your professor's syllabus.