Common Course Outline
Biol 110
General Biology
4 credits
The Community College of Baltimore County

Description

Biology I: Molecular & Cells serves as a pre-requisite course for science and allied health majors. It stresses the basic biological principles common to all living things. Evolution and homeostasis serve as central themes for the topics, which include cell structure and function (both physical and chemical), molecular and cellular reproduction, and genetics. The laboratory introduces the student to various biological techniques and emphasizes the process of science. Students may receive credit for only one of the following: BIOL 100, BIOL 108, or BIOL 110.

Prerequisites: (ENGL Q52 or LVE)2 and (RDNG 052 or ESOL 054 or LVR2) and (MATH 083 or LVM3)

Overall Course Objectives

Upon completion of this course the student will be able to:

1. Apply the principles and assumptions that underlie scientific information and apply the scientific method to simulated problem-solving situations. (I, III, VI, 1, 2, 4)
2. Organize data into tables or graphs (where appropriate) and be able to draw inferences from the graphs. (I, II, III, 1, 2, 3)
3. Apply chemical principles to the functioning cell. (V, 1)
4. Explain how a cell is the basic unit of life including the function of organelles. (I, 1, 7)
5. Explain the principles of bioenergetics, including the processes of photosynthesis and respiration. (I, 1)
6. Explain how living organisms store and process genetic information to control their life functions and activities. (I, IV, 1, 4, 7)
7. Compare and contrast asexual and sexual reproduction. (I, 1)
8. Solve genetic problems involving simple Mendelian traits, incomplete dominance, co-dominance and sex-linked traits. (III, 2, 3)
9. Explain how ethnic diversity applies in the area of genetic inheritance and disorders using Mendelian genetics. (IV, V, 3, 7)
10. Determine the relevancy of biotechnological advances to your life. (IV, VI, 5, 6)
11. Outline the biological, geological and empirical evidence for evolution and explain the basic process for evolution in terms of variation, over production and natural selection. (I, V, VI, 4, 7)

Major Topics

1. Chemistry of life
2. Characteristics and classification of life
3. Cell types, structures and functions
4. Cell membrane structure and function
5. Cellular metabolism (including enzymes, photosynthesis & cellular respiration)
6. Cellular reproduction (including DNA, mitosis & meiosis)
7. Molecular genetics (including transcription & translation)
8. Classical genetics
9. Evolution
10. Biotechnology
11. The process of science

Course Requirements (II, VII)

1. No more than 30% of a student's total grade may come from homework, non-proctored work or open book tests.

2. Lab schedules are to be determined by each campus course committee representative . Each instructor must do all the labs that are assigned.

3. Where percents are listed for an assessment tool, the percent is to be determined by the individual campus or by the individual instructor, with permission from the campus course committee representative.

4. Grades earned in lecture will count 70-80% of the total course grade with the rest of the grade coming from lab.

5. Lecture Assessment Tools:
    a. At least 3 unit exams where each exam is worth 10-20% of the total course grade
    b. A comprehensive final exam worth 10-25% of the total course grade

6. Lab Assessment Tools:
    a. At least three of the following are to be used and will be determined by the campus course committee representative. Each assessment tool is to be worth at least 15% of the total lab grade.
        i. Weekly lab reports
        ii. Pre-lab assignments
        iii. Lab notebook
        iv. At least two lab practicals
        v. Quizzes
        vi. Formal lab report(s)
    b. Credit will not be given for lab reports unless the student attends lab

Other Course Information

This course can be used to meet the General Education requirement of a four-credit course in the science domain for general education.

Individual faculty members may include additional course objectives, major topics, and other course requirements to the minimum expectations stated in the Common course Outline.

Date revised: 8/24/2004