Common Course Outline
BIOL 126
Forensic Biology
4 Credits

Community College of Baltimore County

Description

BIOL 126 – 4 credits – Forensic biology is a general education lab science course designed for students with a broad interest in forensic science. It also provides an option for students majoring in criminal justice and for those who wish to prepare for transfer to a 4-year college or university forensic science program. It stresses the integration of the underlying principles of physical science, cell biology, and anatomy and physiology as they apply to forensic biology and emphasizes the process of science. The laboratory portion introduces the students to various biotechnological and laboratory techniques used in forensic science laboratories.

4 Credits: 3 lecture hours and 3 lab hours

Prerequisites: ACLT 052 or ACLT 053
Co-requisite: Math 083

Overall Course Objectives

Upon completion of this course students will be able to:

1. apply the principles and assumptions that underlie scientific information and apply the scientific method to simulate problem-solving situations;
2. explain how scientific evidence may be admitted into the courtroom and determine the admissibility of various forms of forensic evidence;
3. evaluate literature related to forensic biology and present credible information in an organized manner;
4. explain the parts and function of various categories of lab instrumentation and how they are used;
5. follow detailed directions to demonstrate the appropriate use of laboratory equipment to gather and analyze data;
6. organize data into tables and/or graphs (when appropriate) and incorporate the data into a report;
7. apply the principles of physical and biological science to forensic techniques such as soil and DNA analysis;
8. apply basic principles of cell theory that aid in forensic science techniques such as identification of body fluids;
9. discuss biotechnology techniques used to analyze biological samples and relate them to forensic evidence;
10. explain the basic principles of serology and state the importance of proteins in forensic investigations;

11. apply the basic principles of inheritance, natural selection, population genetics, and evolution as they pertain to forensic evidence;
12. identify and describe the major tissue types and organ systems of the human body and relate them to forensic pathology;
13. identify the major bones of the body and inheritable ethnic traits on selected bones, and relate them to forensic anthropology;
14. identify the life stages of various organisms important to a forensic investigation and relate them to forensic evidence;
15. describe the educational background of various specialists in forensic science and related fields;
16. compare and contrast forensic science procedures and standards used in the United States with those used in other countries; and
17. use academic resources to analyze the ethical issues, both scientific and legal, that can arise during the course of an investigation.

Major Topics

I. Process and application of science
II. Introduction to forensic science
III. Scientific evidence in a criminal investigation
IV. Basic concepts in physical science
V. Soil and fiber analysis
VI. Basic concepts in biology including cell structure and function
VII. Identification of body fluids
VIII. Introduction to forensic biology including DNA and proteins
IX. Population genetics and evolution
X. Introduction to forensic pathology
XI. Introduction to forensic anthropology
XII. Introduction to forensic entomology
XIII. Introduction to forensic botany
XIV. Ethical considerations in forensic science

Course Requirements

Grading procedures will be determined by the individual faculty member but will include the following:

Grading/exams

1. Minimum lecture content assessments
    a. 3 or more unit exams
and/or
    b. 8-10 mini-tests
and
    c. a comprehensive final exam

2. Minimum lab content assessments
    a. 2 lab exams

and/or

b. 4 lab quizzes

Credit will not be given for lab reports unless the student attends lab.
In order to pass the course, the student must earn a passing grade (60%) in each portion - lecture and laboratory - of the course. Earning less than 60% in either portion will result in failure of the entire course. If the student repeats the course, he/she must repeat both the lecture and laboratory portions.

Written Assignments: The number of informal written components such as written lecture assignments or lab reports will be at the discretion of the individual instructor. Multiple assignments will infuse CCBC General Education Program objectives; at least one assignment worth a minimum of 5% of the total course grade will allow students to demonstrate at least 5 of the 7 General Education Program outcomes. A minimum of one formal paper will be required. Students are required to utilize appropriate academic resources.

Other Course Information

This course is an approved 4-credit General Education course in the Biological and Physical Sciences category that fulfills the laboratory requirement. Please refer to the current CCBC Catalog for General Education course criteria and outcomes.