

Course Outline
BIOL 104
Introductory Botany
4 Credits
Community College of Baltimore County

Description

BIOL 104 – 4 credits – Introductory Botany explores plant science with emphasis on the seed plants, particularly the flowering plants. Topics include plant cell biology, structure, chemistry, tissues, stems, roots, leaves, respiration, photo- synthesis, life cycles, genetics, physiology, reproduction, development, evolution and ecology. This course may be taken to meet General Education Lab Science requirements but is often taken by prospective Biology major transfer students and Horticulture students.

Credits: (3 lecture hours, 3 laboratory hours)

Prerequisite: ACLT 052 or ACLT 053 and MATH 081

Overall Course Objectives

Upon completion of this course students will be able to:

1. apply the scientific method and appropriate technology to solve problems involving plants;
2. use laboratory equipment such as computers, spectrosopes, chromatography and simple chemical tests to illustrate plant physiology and plant constituents and graph data;
3. explain plant evolution and plant classification from a scientific perspective;
4. find, evaluate, use and cite appropriate academic resources to investigate plant evolution, physiology, or behavior;
5. use a plant key to identify specimens;
6. analyze the organization of plants from molecules to organelles to cells to tissues to plant parts to whole plants;
7. identify the kinds of plant tissues and their functions;
8. analyze how plants differ from animals in their solution to the problems of living: nutrition, circulation, respiration and waste removal;
9. diagram plant lifecycles and reproductive strategies;
10. analyze the process of photosynthesis with respect to its usefulness to plants and to humans;
11. discuss through class room discussions and mini oral presentations how different societies deal with bioconservation, introduced and invasive species in regards to their cultural and political norms;
12. develop effective written and oral skills to communicate scientific data to a variety of audiences;

13. present information using effective written, oral or signed communications;
14. identify, find, evaluate and cite appropriate resources for research in order to support scientific hypotheses in evidence based assignments; and
15. use multiple points of comparison to analyze similarities and differences of diverse cultures and how the cultural, social and economic practices relate to the production and consumption of food (Foodways).

Major Topics

- I. Scientific Method
- II. Plant Diversity And Evolution
- III. Threatened And Endangered Species/Habit Protection and Restoration
 - A. Local & global issues
- IV. Invasive Species
- V. The Five Kingdoms Of Life And Plant Classification
- VI. The Plant Cell And Its Organelles
- VII. Plant Parts And Their Function
 - A. Roots, Shoots, Leaves
 - B. Flowers, Fruit, Seeds
 - C. Plant Circulation
 - D. Respiration
 - E. Photosynthesis

Course Requirements

Grading procedures will be determined by the individual faculty member but will include a minimum of:

Presentation and reports must use appropriate academic resources.

Multiple assessments will infuse CCBC General Education Program objectives.

- 2 lecture exams; lecture exams will include at least 25% essay questions
- 1 PowerPoint presentation
- Final exam
- 2 laboratory practical exams
- 6 laboratory exercises at least 2 of which will be completed in groups
- 1 Formal written laboratory report that will account for a minimum of 10% of the course grade. The assignment will allow students to demonstrate at least 5 of the 7 General Education Program outcomes.

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.