

Common Course Outline

Biology 104

Introductory Botany

4 Semester Hours

3 Lecture Hours

3 Laboratory Hours

The Community College of Baltimore County

Description

Botany

Discusses plant science with emphasis on the seed plants, particularly angiosperms; topics include cell processes, structure/chemistry, tissues, stems, roots/leaves, respiration/photo-synthesis, reproduction/life cycles, plant genetics, evolution, growth and development.

Prerequisite: (RDNG 052 or LVR 2), (ENGL 052 or LVE 2) and (MATH 081 or LVM 1)

Overall Course Objectives

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

1. Apply the scientific method to solving problems involving plants. I, II, VI, VII, 1, 2
2. Explain plant evolution and plant classification from a scientific perspective. I, II, IV, V, 1, 7
3. Use laboratory equipment such as computers, spectrosopes, chromatography and simple chemical tests to illustrate plant physiology and plant constituents. I, III, IV, VII, 1, 2, 3, 4, 6
4. Use a plant key to identify specimens. I, II, III, V, IV, VII, 1, 4
5. Analyze the organization of plants from molecules to organelles to cells to tissues to plant parts to whole plants. I, II, IV, 1
6. Identify the kinds of plant tissues and their function. I, III, VII, 1, 6
7. Analyze how plants differ from animals in their solution to the problems of living: nutrition, circulation, respiration and waste removal. I, II, V, IV, 1
8. Diagram plant lifecycles and reproductive strategies. I, II, III, IV, VII, 1, 4, 6
9. Analyze the process of photosynthesis with respect to its usefulness to plants and to humans. I, II, VI, 1
10. Discuss basic biotechnology using plants or plant materials. I, II, IV, 1, 4, 5, 7

Major Topics

Scientific method

Plant Diversity and Evolution

The Five Kingdoms of Life and Plant Classification

The plant cell and its organelles

Plant parts and their function – roots, shoots, leaves, flowers, fruit, seeds

Plant circulation, respiration, waste handling, nutrition, hormones

Photosynthesis

Plant Biotechnology

Course Requirements (VII)

Grading – procedures will include at least 2 lecture exams, and 2 laboratory practical exams.
Lecture exams will include at least 25% essay questions.
Laboratories will include some exercises to be completed in groups.

Other Course Information

This course meets the general education requirement for a laboratory science.