

**Course Outline**  
**Biology 104**  
**Introductory Botany**  
**4 Semester Hours**  
**3 Lecture Hours**  
**3 Laboratory Hours**

**The Community College of Baltimore County**

**Description**

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, photosynthesis, 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. 3 lecture hours and 3 laboratory hours per week.

*Prerequisite: (ENGL052 or ESOL052 or LVE2) and (RDNG 052 or LVR2) and (MATH081 or LVMI).*

**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.

Date Revised: 3/2009