

SOUTHEAST COMMUNITY COLLEGE
DIVISION OF ARTS AND SCIENCES
Sciences
Revision Date: 07-01-21

I. CATALOG DESCRIPTION

Course Number: BIOS1090
Course Title: Plant Biology
Prerequisite(s): None
Catalog Description: An introductory plant biology course designed for both non-majors and as a foundation for those planning additional work in biology. Concepts include basic plant anatomy and physiology, plant ecology, and a survey of the plant kingdom with an emphasis on plants grown for human purposes. Scientific inquiry and literacy are central themes of the course, explored through conducting simple experiments with plants in the greenhouse and laboratory. This course includes a mandatory concurrent laboratory component.

Credit Hours: 4.0
Class Hours: 45
Lab Hours: 30
Total Contact Hours: 75

II. COURSE OBJECTIVES: *Course will:*

- A. Investigate in detail the structure and function of plant cells and tissues.
- B. Guide the students in understanding the interplay between the plant community and humans.
- C. Instill in the student a greater appreciation for the benefits we enjoy that are made possible by the action of plants.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Describe the major biomes of North America
 - 2. Describe the function of producers, primary consumers, secondary consumers, and decomposers in an ecosystem.
 - 3. Demonstrate the use of a dichotomous key to identify organisms.
 - 4. Contrast growth, differentiation, and development.
 - 5. Describe the relationship between photosynthesis and respiration.
 - 6. List the parts of typical flowers and fruits and describe their functions.
 - 7. Describe how food and nutrients are moved from source to sink in a plant.
 - 8. Explain the functions of typical leaves, stems, and roots.
 - 9. Describe the structure and function of the different plant cells and tissues.
 - 10. Differentiate between the different phyla of the plant kingdom.
 - 11. List economic and environmental considerations of the different plant phyla.
- B. General Education Learning Outcomes
 - 1. GELO #2: Written Communication
 - Outcome: Comprehend, analyze, and evaluate a given text.
 - Outcome: Develop a focused thesis statement and write with a clear purpose, using relevant examples, claims, and evidence.
 - Outcome: Identify and evaluate evidence from a variety of printed, visual, and electronic sources.
 - Outcome: Use content and style appropriate to a given audience.
 - Outcome: Read and write in mechanically-sound, college-level English.

2. GELO #3: Critical Thinking & Problem Solving
Outcome: Collect, identify, interpret and analyze data.
Outcome: Synthesize information to arrive at reasoned solutions to problems.
Outcome: Evaluate ideas presented in writing, media, speech, or artistic presentations.
Outcome: Evaluate the validity of arguments, alternatives, data, outcomes, and/or impacts of actions.

IV. CONTENT/TOPICAL OUTLINE (*course outline may provide more detailed information*)

- A.** Introduction and Background
 1. Human's impact on the environment
 2. Life's dependence on green plants
 3. Different branches of plant study
 4. Matter and the chemical and physical basis for life
- B.** Structure and Function of Plant cells and Tissues
 1. Cells
 2. Tissues
 3. Roots and soils
 4. Stems
 5. Leaves
 6. Flowers, fruits, and seeds
- C.** Metabolism and growth
 1. Photosynthesis
 2. Respiration
 3. Hormonal action
 4. Plant movements
 5. Photoperiodism
- D.** Classification
 1. Binominal nomenclature
 2. Plant names
 3. Major plant groups
- E.** Meiosis and genetics
 1. Mitosis
 2. Meiosis
- F.** Diversity of organisms
 1. Bacteria, archaea, viruses
 2. Protists
 3. Fungi
 4. Bryophytes
 5. Ferns and their relatives
 6. Gymnosperms
 7. Angiosperms
- G.** Ecology overview
 1. Relationships among populations, communities, and ecosystems
 2. Energy flow
 3. Nutrient cycles
 4. Primary and secondary succession
 5. Impact of humans on ecosystems
 6. Characteristics of major biomes
 7. Principal living members of biomes

V. INSTRUCTIONAL MATERIALS

A. Required Text(s):

1. Lee, et al. eBook: *Plant Science: The Biology of Plants Grown for a Purpose*, 3rd ed. 2018. Great River Publishing Company.

VI. METHODS OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following:

1. Lecture
2. Internet animations
3. Role playing
4. Group discussion
5. Transparencies, handouts, videos, powerpoints
6. Gaming

VII. METHODS OF EVALUATION

A. Methods of evaluation typically include a combination of the following:

1. Exams
2. Quizzes
3. Written assignments

B. SCC GRADING SCALE:

A+	95-100	C+	75-79	F	59 or less
A	90-94	C	70-74		
B+	85-89	D+	65-69		
B	80-84	D	60-64		

VIII. SPECIFIC COURSE REQUIREMENTS

A. Determined by individual instructor, communicated at beginning of the course.