

Course Code: BIO 109 (IAI L1 901L)

Course Title: Introduction to Plant Biology

Department: Natural Sciences

Effective Date: Summer 2026

PCS Code: 1.1 - Baccalaureate/Transfer

CIP Code: 26.0301

Repeatability: 0

Credit Hours

Catalog Notation: 3-3-4

Credit Hour Distribution:

Lecture: 3

Lab: 3

Clinical: 0

Total: 4

General Course Information

Catalog Description

Introduction to diversity, structure and function, and importance of plant life to ecological and human systems. Emphasis on scientific inquiry of real-world problems involving plant anatomy and growth, responsiveness, evolution, reproduction, economics, and symbiosis of plants.

General Course Objectives

Students will learn basic plant biology concepts including structure and function, responsiveness, evolution, reproduction, and ecology. Students will understand why the knowledge of plants is important to their lives with regard to society, economics, history, biodiversity, landscapes, and symbiosis. Labs will include field trips that will introduce students to local botany.

Minimum Placement Levels

English	Reading	Math
Placement out of ENG 099	Placement out of CCS 098	None

Prerequisites

None

Methods of Evaluation

8 objective tests, at least 12 lab assignments, 2 analysis reports, participation/discussion, miscellaneous instructor points, a final project, and final exam.

Instructional Materials and Additional Supplies

[Stern's Introduction to Plant Biology](#), Bidlack.

For online sections, students must purchase a lab kit from the Parkland bookstore and some supplies from grocery or pharmacy.

Course Content

General Learning Outcomes (GLOs)

- Critical Thinking and Information Literacy: Students will demonstrate the ability to evaluate perspectives, evidence, and implications, and to locate, assess, and use information effectively.
- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Importance of Plants	<ol style="list-style-type: none"> 1. Describe general characteristics and structure of plants. 2. Classify general groups of plants. 3. Determine the reasons for the usefulness of plants. 4. Propose and evaluate botanical experiments. 	4	4	0
Plant Cells	<ol style="list-style-type: none"> 1. Describe the basic structure and organelles of a plant cell. 2. Interpret diagrams or models of cells. 3. Summarize the processes of diffusion, osmosis, and mitosis. 4. Relate the importance of diffusion, osmosis, and mitosis in plant functions. 	6	6	0
Importance of Starch	<ol style="list-style-type: none"> 1. Describe the light dependent and independent reactions in photosynthesis. 2. Describe the process of cellular respiration. 3. Chemically and functionally compare photosynthesis and cellular respiration in plants. 4. Define basic chemistry vocabulary. 5. Recognize, categorize, and test for major macromolecules. 	6	6	0
Body	<ol style="list-style-type: none"> 1. Describe basic plant anatomy of roots, stems, and leaves. 2. Describe how plants grow indeterminately using meristems. 3. Describe water and sugar (sap) transportation in plants. 4. Describe the plant meristem and how plant growth occurs from it. 5. Be able to identify meristem tissues. 	6	6	0
Uses of Plants	<ol style="list-style-type: none"> 1. Describe through specific plants how medicinal plants have biological, economic, ecological, and societal influences. 	5	5	0
Heredity	<ol style="list-style-type: none"> 1. Explain the relationships between DNA, RNA, and proteins. 2. Summarize the processes of DNA replication, transcription, and translation. 3. Illustrate the process of meiosis. 4. Relate basic genetic principles to genetic engineering processes. 	6	7	0
Birds and Bees	<ol style="list-style-type: none"> 1. Describe basic plant anatomy of flowers, fruits, and seeds. 2. Identify differences in these organs. 3. Examine the plant life cycle. 4. Identify gametophyte and sporophyte generations. 5. Describe pollination syndromes. 	6	6	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Ecology	<ol style="list-style-type: none"> 1. Describe and recognize major terrestrial biomes. 2. Explain the abiotic factors that allow plants to grow where they grow. 3. Examine major nutrient cycles and food webs. 4. Describe how succession occurs in terrestrial biomes. 5. Describe why plant species are well-adapted to environmental conditions. 6. Explain why some species are endangered. 	6	5	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
45	45	0