

FLCC Course Syllabus

Response ID:120 Data

2. General Information

Date

11/15/2016

Department

Science & Technology

Course Prefix:

BIO

Course Number:

251

Course Title:

Plant Structure and Function

3. Course Information

Credit Hours

4

Lecture Contact Hours

3

Laboratory Contact Hours

3

Other Contact Hours**Catalog Description**

This course is an integrated approach to the study of plant anatomy and physiology dealing with both the total plant and its constituent parts. Emphasis is on plant growth, development and regulatory mechanisms. The student will follow the growth of a plant from germination to maturity, examining its anatomical and physiological development.

New Analysis Question**Prerequisites**

BIO 121 OR BIO 125

Co-requisites**Grading Scheme**

Letter Grade

This course can be taken more than once for credit

This course is designated as satisfying a requirement in the following SUNY Gen Ed category

First Year Experience

Capstone

4. FLCC Values

College Learning Outcomes Addressed by the Course

Inquiry
Interconnectedness
Perseverance

5. Course Learning Outcomes

Course Learning Outcomes

- 1 : Describe the internal and external anatomy of non-vascular plants, vascular seedless plants, gymnosperms, and angiosperms.
- 2 : Describe the life cycles of non-vascular plants, vascular seedless plants, gymnosperms, and angiosperms.
- 3 : Describe the function and steps of major physiological processes such as cellular respiration, photosynthesis and transport.
- 4 : Describe plant adaptations to various environmental conditions.

6. Program Affiliation

This course is required as a core program course in the following program(s)

AAS Horticulture
Horticulture Certificate
AAS Viticulture and Wine Technology - Main Track
AAS Viticulture and Wine Technology - Viticulture Track
AAS Viticulture and Wine Technology - Enology Track

8. Outline of Topics Covered

Outline of Topics Covered in Course

New Analysis Question

Outline of Topics Covered

- I. The history, scope, and importance of Botany
- II. Introduction to plant evolution
- III. Introduction to plant taxonomy and the characteristics of the major groups.
- IV. Plant cell structure and function
- V. Structure functions of the cell wall and organelles and how each interacts within the cell.
- VI. Structure and function of different plant cell types: parenchyma, collenchyma, sclerenchyma

VII. Structure and Function of both primary and secondary plant tissue systems

VIII. External plant anatomy and life cycles of non-vascular, vascular seedless, gymnosperms and angiosperms

IX. Structure and function of secondary and primary roots including specialized root structures and symbiotic relationships

X. Structure and function and diversity of shoots, leaves, and flowers.

XI. Structure and function and diversity of seeds and fruits.

XII. Biochemical pathways:

a. Photosynthesis: light dependent reactions and the C₃, C₄, and CAM Pathways

b. Cellular respiration: glycolysis, formation of Acetyl CoA, Krebs cycle, and oxidative phosphorylation

XIII. Acquisition and transport of water, nutrients and photosynthates.

XIV. Plant responses to the environment: Hormones