# 2. General Information

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<th>Date</th>
<th>11/15/2016</th>
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<tbody>
<tr>
<td>Department</td>
<td>Science &amp; Technology</td>
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<tr>
<td>Course Prefix:</td>
<td>BIO</td>
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<tr>
<td>Course Number:</td>
<td>251</td>
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<td>Course Title:</td>
<td>Plant Structure and Function</td>
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# 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