

**BOTANY 10 Course Outline as of Fall 1997****CATALOG INFORMATION**

Dept and Nbr: BOTANY 10 Title: PLANT BIOLOGY

Full Title: Plant Biology

Last Reviewed: 1/28/2019

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	4.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	4.00	Lab Scheduled	3.00	17	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	6.00		Contact Total	105.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00

Total Student Learning Hours: 210.00

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

**Catalog Description:**

A general education course in plant biology emphasizing the structure and function of seed plants. Includes genetics, ecology, evolution, reproduction and diversity of plant life forms.

**Prerequisites/Corequisites:****Recommended Preparation:**

Completion of or concurrent enrollment in Engl 1A.

**Limits on Enrollment:****Schedule of Classes Information:**

Description: A general education course in plant biology emphasizing the structure & function of seed plants. Includes genetics, ecology, evolution, reproduction & diversity of plant life forms. (Grade or P/NP)

Prerequisites/Corequisites:

Recommended: Completion of or concurrent enrollment in Engl 1A.

Limits on Enrollment:

Transfer Credit: CSU;UC.

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>		Effective:	Inactive:
	C	Natural Sciences	Fall 1981	
<b>CSU GE:</b>	<b>Transfer Area</b>		Effective:	Inactive:
	B2	Life Science	Fall 1981	
	B3	Laboratory Activity		
<b>IGETC:</b>	<b>Transfer Area</b>		Effective:	Inactive:
	5B	Biological Sciences	Fall 1981	
	5C	Fulfills Lab Requirement		
<b>CSU Transfer:</b>	Transferable	Effective:	Fall 1981	Inactive:
<b>UC Transfer:</b>	Transferable	Effective:	Fall 1981	Inactive:

**CID:**

**Certificate/Major Applicable:**

Not Certificate/Major Applicable

## **COURSE CONTENT**

### **Outcomes and Objectives:**

Students completing Botany 10 will be able to describe, understand, analyze and demonstrate knowledge in the following areas by means of oral and written assignments, exams and lab skill demonstrations:

1. History of plant science.
2. Methods of scientific investigation.
3. Plant ecology, including plant-environment interactions, plant distribution, vegetation structure, local vegetation types, plant succession, population dynamics, ecosystem processes and man's impact on natural landscapes.
4. Plant morphology and anatomy, including cell structure and function, vegetative and reproductive morphology, major tissue systems and anatomy of roots, stems, leaves, flowers, fruits and seeds.
5. Plant physiology and metabolism, including diffusion, osmosis, passive and active transport, water relations, soil interactions, mineral nutrition, energetics, photosynthesis, respiration and regulation of growth and development.
6. Plant inheritance, including Mendelian, chromosomal and molecular genetics.
7. Plant evolution and phylogeny, including variation, natural selection, genetic drift, speciation, macroevolution and major phylogenetic trends.
8. Plant diversity, including morphology and phylogenetic relationships of fungi, algae, bryophytes, seedless vascular plants and seed plants.
9. Relevance and importance of plants to human cultures.
10. Conservation and biodiversity.

## **Topics and Scope:**

1. Botany as Science:
  - A. Course introduction
  - B. The methods of natural science
  - C. Brief history of plant sciences
2. Plant Ecology:
  - A. Environmental constraints to plant distribution
  - B. Plant adaptation and evolutionary history
  - C. Vegetation types and communities
  - D. Ecosystem structure and function
  - E. Ecological succession
  - F. Ecosystem management
3. Plant Structure:
  - A. Cell structure and cell division
  - B. Major cell and tissue types
  - C. Morphology and anatomy of roots, stems, leaves, flowers, fruits and seeds
  - D. Functional morphology and adaptation
4. Plant Physiology:
  - A. Diffusion, osmosis and passive transport
  - B. Plant water relations and xeric adaptations
  - C. Plants and soils - mineral nutrition
  - D. Plant metabolism and energetics
  - E. Photosynthesis
  - F. Cellular respiration
  - G. Internal and external regulation of growth and development.
5. Plant Inheritance and Evolution:
  - A. Mendelian patterns of inheritance
  - B. Chromosomal genetics
  - C. Polyploidy in plants
  - D. Mechanisms of evolution - microevolution and macroevolution
  - E. Plant phylogeny - major evolutionary patterns
6. Plant Diversity:
  - A. Fungi
  - B. Algae
  - C. Bryophytes
  - D. Seedless vascular plants
  - E. Seed plants
7. Conclusion:
  - A. Summary of plant relevance to humans, both economical and ecological
  - B. Plant biodiversity and conservation
  - C. So why study Botany?

## **Assignment:**

1. Read text and other assigned readings.
2. Laboratory reports.

## Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Lab reports, Essay exams

Writing  
10 - 30%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Lab reports, Quizzes, Exams

Problem solving  
15 - 25%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Class performances, Performance exams

Skill Demonstrations  
15 - 30%

**Exams:** All forms of formal testing, other than skill performance exams.

Multiple choice, Matching items, Completion

Exams  
20 - 40%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

None

Other Category  
0 - 0%

## Representative Textbooks and Materials:

INTRODUCTORY PLANT BIOLOGY, 7th ed., by K. Stearn, Wm.C. Brown, 1996

THE BOTANICAL WORLD, 2nd ed., Northington and Schneider, Wm.C. Brown, 1996