

BOTANY 10 Course Outline as of Fall 2008**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	17.5	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:**

Eligibility for ENGL 1A

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

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. (Grade or P/NP)

Prerequisites/Corequisites:

Recommended: Eligibility for 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:

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

CID:

Certificate/Major Applicable:

Major Applicable Course

COURSE CONTENT

Outcomes and Objectives:

Upon completion of this course students will be able to:

1. Outline the history of plant science.
2. Explain the methods of scientific investigation.
3. Categorize and explain the multiple factors associated with plant ecology, especially man's impact on natural landscapes.
4. Examine 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. Describe plant physiological mechanisms, including metabolism, water relations, transport, nutrition, photosynthesis, growth and development.
6. Explain the basis of plant inheritance, including Mendelian, chromosomal and molecular genetics.
7. Describe plant evolution and phylogeny, including variation, natural selection, genetic drift, speciation, macroevolution and major phylogenetic trends.
8. Compare and contrast the morphology and phylogenetic relationships of fungi, algae, bryophytes, seedless vascular plants and seed plants.
9. Evaluate the relevance and importance of plants to human cultures.
10. Evaluate the importance of biodiversity and conservation efforts.

Topics and Scope:

- I. Botany as Science:
 - A. Course introduction
 - B. The methods of natural science
 - C. Brief history of plant sciences

II. 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

III. 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

IV. 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.

V. 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

VI. Plant Diversity:

- A. Fungi
- B. Algae
- C. Bryophytes
- D. Seedless vascular plants
- E. Seed plants

VII. Conclusion:

- A. Summary of plant relevance to humans, both economical and ecological
- B. Plant biodiversity and conservation
- C. Why study Botany?

Assignment:

1. Read text and other assigned readings, approximately 20-40 pages weekly
2. Lab reports
3. Research paper on botanical topic, 3-6 pages, may be required
4. Quizzes; lab practical exams: completion; midterm and final exams

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.

Research paper

Writing
10 - 20%

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

Lab reports, Lab practical exams

Problem solving
20 - 30%

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

None

Skill Demonstrations
0 - 0%

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

Midterm exams: objective and essay questions

Exams
50 - 70%

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, 10th ed., by K. Stearn, Wm.C. Brown, 2005
Introduction to Botany, M.W. Nabors, Benjamin Cummings, 2004