

**AGRI 20 Course Outline as of Fall 2018****CATALOG INFORMATION**

Dept and Nbr: AGRI 20 Title: INTRO TO PLANT SCIENCE  
 Full Title: Introduction to Plant Science  
 Last Reviewed: 4/11/2022

Units	Course Hours per Week		Nbr of Weeks		Course Hours Total	
Maximum	3.00	Lecture Scheduled	2.00	17.5	Lecture Scheduled	35.00
Minimum	3.00	Lab Scheduled	3.00	17.5	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	5.00		Contact Total	87.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 70.00

Total Student Learning Hours: 157.50

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: AG 51

**Catalog Description:**

Introduction to plant science including structure, growth processes, propagation, physiology, growth media, biological competitors, and post-harvest factors of food, fiber, and ornamental plants. Laboratory required.

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

Eligibility for ENGL 1A or equivalent

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

Description: Introduction to plant science including structure, growth processes, propagation, physiology, growth media, biological competitors, and post-harvest factors of food, fiber, and ornamental plants. Laboratory required. (Grade or P/NP)

Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 1A or equivalent

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 2019	
	5C	Fulfills Lab Requirement		
<b>CSU Transfer:</b>	Transferable	Effective:	Fall 1981	Inactive:
<b>UC Transfer:</b>	Transferable	Effective:	Fall 1981	Inactive:

### **CID:**

CID Descriptor: AG - PS 106L Introduction to Plant Science (with Laboratory)

SRJC Equivalent Course(s): AGRI20

### **Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Demonstrate understanding of the fundamentals of botany and the taxonomy of plant structure and function.
2. Describe the relationships between plants, soils, and climates.
3. Analyze and compare plants, growing conditions, and types of crop production.

### **Objectives:**

Upon successful completion of this course, the student will be able to:

1. Categorize the roles of higher plants in the living world.
2. Describe the structural components of higher plants.
3. Explain the standard plant propagation methods.
4. Describe sexual and asexual reproduction in higher plants.
5. Explain photosynthesis, respiration, and translocation in higher plants.
6. Describe the physical and chemical properties of soils.
7. Hypothesize solutions for soil erosion problems.
8. Describe the climatic influences on plant growth and development.
9. Categorize the biological competitors of higher plants.
10. Describe the scientific method and explain its application in solving problems in plant and soil science.

### **Topics and Scope:**

- I. The Role of Higher Plants in the Living World

- A. Fossil fuels
- B. Food chains
- C. Industrial products
- D. Lower forms of plant life
- II. Structure of Higher Plants
  - A. The life cycle of a plant
  - B. The cell
  - C. Cell structure
  - D. The plant body
- III. Naming and Classifying Plants
  - A. Climate
  - B. Botanical names
  - C. Botanical classifications
  - D. Plant taxonomy
- IV. Origin, Domestication, and Improvement of Cultivated Plants
  - A. Origin of cultivated plants
  - B. Domestication of plants
  - C. Crop plants
  - D. Germplasm
  - E. Genetic concepts in plant improvement
- V. Propagation of Plants
  - A. Propagation methods
  - B. Sexual propagation
  - C. Vegetative propagation
- VI. Vegetative and Reproductive Growth and Development
  - A. Vegetative growth and development
  - B. Reproductive growth and development
  - C. Plant growth regulators
- VII. Photosynthesis, Respiration, and Translocation
  - A. Photosynthesis
  - B. Plant respiration
  - C. Electron transport system
  - D. Assimilation
- VIII. Soil and Soil Water
  - A. Factors involved in soil formation
  - B. Physical properties of soil
  - C. Chemical properties of soil
  - D. Soil organisms
  - E. Soil organic matter
  - F. Soil water
  - G. Water quality
- IX. Soil and Water Management and Mineral Nutrition
  - A. Land preparation
  - B. Irrigation
  - C. Mineral nutrition
  - D. Soil conservation
- X. Climatic Influences on Crop Production
  - A. Climatic factors affecting plant growth
  - B. Climatic requirements of some crop plants
  - C. Weather and climate
  - D. Climatic influences on plant diseases and pests
- XI. Crops/ Harvest Practices

- A. Crops grown in region
- B. Harvest practices
- C. Post-harvest practices

XII. Biological Competitors of Useful Plants

- A. Weeds
- B. Plant diseases
- C. Plant pests
- D. Nematodes
- E. Rodents
- F. Pesticide impacts on the environment

XIII. The Scientific Method

- A. Developing a hypothesis
- B. Scientific design
- C. Application to plant/soil problems

All areas are covered in both the Lecture and Lab portions of the course.

**Assignment:**

Lecture-Related Assignments:

1. Reading (20 - 30 pages per week)
2. Homework (1 - 2 pages per week)
3. Crop report (6 - 8 pages) on production of selected crop
4. Quizzes, midterm and final exam

Lab-Related Assignments:

1. Lab activities
2. Lab write-ups: drawing and labeling plant specimens, describing the morphology and function of dissections of seeds
3. Plant collection of crop and weed plants

**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, crop report, homework	Writing 10 - 50%
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**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Lab activities and plant collection	Problem solving 10 - 50%
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**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None	Skill Demonstrations 0 - 0%
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**Exams:** All forms of formal testing, other than skill performance exams.

Quizzes, midterm, final exam: Multiple choice, True/false, Matching items, Completion, essay, short answers

Exams  
30 - 60%

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

None

Other Category  
0 - 0%

**Representative Textbooks and Materials:**

Stern's Introductory Plant Biology. 14th ed. Bidlack, James and Jansky, Shelley. McGraw-Hill Education. 2017

Plant Science: Growth, Development, and Utilization of Cultivated Plants. 5th ed. McMahon, Margaret and Kofranek, Anton and Rubatzky, Vincent. Prentice Hall. 2010 (classic)

Instructor-prepared lab manual