Discipline: Agriculture	Sub-discipline: Plant Science
General Course Title: **Introduction to Plant Science (with Laboratory)**	Min. Units: **3 Semester**
	Proposed Suffix: **L**

Course 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.

Required Prerequisites or Co-Requisites[1]

Advisories/Recommended Preparation[2]

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

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

Course Content:

1. The role of higher plants in the living world
   A. Fossil fuels
   B. Food chains
   C. Industrial products
   D. Lower forms of plant life

2. Structure of higher plants
   A. The life cycle of a plant
   B. The cell
   C. Cell structure
   D. The plant body

3. Naming and classifying plants
   A. Climate
   B. Botanical names
   C. Botanical classifications
   D. Plant taxonomy

4. 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

Introduction to Plant Science w/ Lab
(Content continued)

[1] Prerequisite or co-requisite course need to be validated at the CCC level in accordance with Title 5 regulations; co-requisites for CCCs are the linked courses that must be taken at the same time as the primary or target course.

[2] Advisories or recommended preparation will not require validation but are recommendations to be considered by the student prior to enrolling.

5. Propagation of plants
   A. Propagation methods
   B. Sexual propagation
   C. Vegetative propagation

6. Vegetative and reproductive growth and development
   A. Vegetative growth and development
   B. Reproductive growth and development
   C. Plant growth regulators

7. Photosynthesis, respiration, and translocation
   A. Photosynthesis
   B. Plant respiration
   C. Electron transport system
   D. Assimilation

8. 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

9. Soil and water management and mineral nutrition
   A. Land preparation
   B. Irrigation
   C. Mineral nutrition
   D. Soil conservation

10. 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

11. Biological competitors of useful plants
   A. Weeds
   B. Plant diseases
   C. Plant pests
   D. Nematodes
   E. Rodents
   F. Pesticide impacts on the environment

12. The scientific method
   A. Developing a hypothesis
   B. Scientific design
   C. Application to plant/soil problems

Laboratory Activities: Individual Laboratory Activities are designed to support course objectives.

Methods of Evaluation: Lecture Comprehensive Quizzes and Exams Written Critical Thinking Scenarios	Methods of Evaluation: Laboratory Laboratory Skill Validation by Observation Laboratory Reports

Problem Analysis and Solution Research and Term Papers	Laboratory Research Projects and Reports Laboratory Skill Practicum Exams
Typical Textbooks, Manuals, or Other Support Materials Plant Science: Growth, Development, and Utilization of Cultivated Plants. Hartmann, Hudsen T., et.al, (1988). Prentice-Hall, NJ (ISBN: 0-13-680307-5)	
CSU GE Area B.2 Life Science	
Statewide Articulation: Formally CAN AG 8, CSUF-PLANT 1, CSUC-PSSC 101, UCD-PLS 2, other universities as lower division elective.	
FDRG Lead Signature: Mark E. Bender, PhD CSU Stanislaus	Date:
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