

# PROGRAM OF STUDY

## Plant and Soil Science Associate in Science Degree

Students completing this program will be well-informed of physical, chemical, and biological principles and processes of plants and soils. Mastering these principles allow the selection of effective programs of plant development, irrigation, fertility, pest management, and soil management. Completion of the program prepares students for careers in management of tree, vine, vegetable, and field crops; for transfer into California State University and University of California institutions; and entry-level technical positions in the production agriculture industry.

Purpose: To provide practical knowledge and specific skills in plant and soil sciences as required in vineyard, orchard, vegetable, and field crop management systems. Program Learning Outcomes: 1. Comprehension and identification of the structures and functions of plant cells, organelles, tissues, organs, and integrate important plant processes such as growth, photosynthesis, respiration, and translocation with plant management practices. 2. Experience with the physical, chemical, and biological properties of soils, and the incorporation of analytical testing procedures for nutrients, moisture, and physical characteristics with economical stewardship of soil management. 3. Developed awareness of theoretical and practical applications to orchard, vineyard, and vegetable production systems with emphasis on San Joaquin Valley specifics for irrigation, fertility, cultural, and pest managements. 4. Measurable knowledge and skills of irrigation science with its effects on plant growth and development, yield and profitability, soil properties and reclamation. Additional competence developed includes predictive models and scheduling; system design, operation, and evaluation; and historical, political, and societal interactions with irrigation. 5. Understanding of the principles of integrated pest management, including population dynamics and selection, and the use of biological, chemical, regulatory, genetic, cultural, and physical/mechanical control options in a systems approach that optimizes economics and minimizes environmental side effects. 6. Competency in quantitative and qualitative data analyses related to performance of crop variety, fertilizer treatments, cultural effects, and environmental stresses. Evaluation and establishment of laboratory, test plot, and field conditions to determine if significant differences exist and can be identified. 7. Proficiency in machinery management and operation of farm equipment. 8. Demonstrate a breadth of knowledge in the agriculture industry which provides a base for effective decision making and credibility in personal interactions and career decisions.

### **Plant & Soil Science core - 17 units**

#### **and select from Option A (15 units) or Option B (20-21 units)**

	<b>Units</b>	
AGBS3	Agriculture Accounting	3
AGBS4	Computer Applications in Agriculture	3
PLS1	Introduction to Plant Science	3
PLS1L	Introduction to Plant Science Laboratory	1
PLS2	Soils	3
PLS2L	Soils Laboratory	1
PLS11	Machinery Technology	3

### **Option A - 15 units**

#### **This pathway is designed for students primarily interested in acquiring an entry-level position within the plant soil science industry.**

	<b>Units</b>	
Select 1 course - 3 units		
AS1	General Livestock Production	3
AS2	Beef Production	3
AS3	Sheep Production	3
AS4	Swine Production	3
AS5	Animal Nutrition	3
Select a minimum of 12 units from the following: - 12 units:		
EH43	Plant Propagation/Production	3
PLS3	General Viticulture	3
PLS4A	Tree and Vine Management	3
PLS5	Principles of Irrigation Management	3
PLS6	Pesticides	3
PLS7	Integrated Pest Management	3
PLS8	Vegetable Production	3
PLS9	Biometrics	3
PLS14	Plant Nutrition	3
PLS16	Wine Sensory Analysis and Evaluation	3
PLS17	Winery Laboratory Techniques and Equipment Operation	3

PLS18	Introduction to Enology	3
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**Option B - 20-21 units**

**This pathway, along with additional transferable general education courses is designed for students seeking to transfer to a four-year plant and soil science degree program.**

**Units**

Required Courses - 13 units

AGBS2	Agricultural Economics	3
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CHEM3A	Introductory General Chemistry	4
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PLS5	Principles of Irrigation Management	3
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PLS7	Integrated Pest Management	3
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Select one course - 3-4 units

CHEM3B	Introductory Organic and Biological Chemistry	4
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CHEM8	Elementary Organic Chemistry	3
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Select one course - 4 units

STAT7	Elementary Statistics	4
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MATH11	Elementary Statistics	4
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PLS9	Biometrics	3
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**Total Units**

**32 - 38**

Effective Term: Fall 2018

PID 724