

# PLANT AND SOIL SCIENCE BS

The Bachelor of Science in Plant and Soil Science prepares you to make a positive difference in the world. It is designed for students interested in a scientific understanding of how plants grow in agricultural soils under intensive management. Plant and soil science expertise is needed to address many of society's most pressing problems. These issues include producing enough food and fiber to feed, house, and clothe a growing world population beset by climate change and regenerating our soils and agroecosystems to produce healthy and nutritious food. The University Farm is integral to our classroom instruction providing practical hands-on experiences in organic vegetable production, aquaponics, greenhouse production, field and tree crop production, soil carbon accrual methods, pollinator habitat establishment, cover crop production, and regenerative agriculture methods.

**The option in crops and horticulture.** This option prepares students to manage agricultural enterprises for the production of food, feed, fuel, fiber, and ornamental crops. It comprises protection of these crops and resources against pests (insects, diseases, weeds, and vertebrates) and stewardship of their natural resources (soil, water, air, and biota). The option emphasizes sustainable land use and crop production practices and equips students with skills to competitively pursue graduate education or other professional opportunities in agricultural consulting, production, conservation, research, and regulation.

**The option in regenerative agriculture.** This option is designed to equip students with the knowledge, skills, and competencies needed to implement and advocate for agricultural practices that restore ecosystems, enhance biodiversity, and promote sustainable food systems. Courses in this option reflect the interdisciplinary nature of regenerative agriculture and prepare students for careers locally, nationally, and internationally.

## Advising Requirement

Advising is mandatory for this program. Consult your department advisor or program coordinator for information.

## E-advising Tools

Use the interactive e-advising tools designed to help students graduate within four years. These tools can be accessed through the Student Center in the Portal (<https://portal.csuchico.edu>).

## Grading Requirement

All courses taken to fulfill program course requirements must be taken for a letter grade except those courses specified by the department as credit/no credit grading only.

## Course Requirements for the Major: 81-88 units

Completion of the following courses, or their approved transfer equivalents, is required of all candidates for this degree. Courses in this program may complete more than one graduation requirement.

Course	Title	Units
<b>Lower Division Core</b>		
ABUS 101	Introduction to Agricultural Business and Economics	3
AGET 150	Agricultural Machine Systems	3

AGRI 180	The University Experience	1
MATH 105	Introduction to Statistics	3
PSSC 101	Introduction to Plant Science	3
PSSC 250	Introduction to Soil Science	3
Select one of the following:		3
ANSC 101	Introduction to Animal Science	
ANSC 230	Animal Feeds and Nutrition	
Select one of the following:		4
CHEM 107	General Chemistry for Applied Sciences	
CHEM 111	General Chemistry I	
Select one of the following:		4
CHEM 108	Organic Chemistry for Applied Sciences	
CHEM 112	General Chemistry II	
Select six to eight units from the following:		6-8
In consultation with your advisor, any major core course not previously selected		
ABUS 231	Computer Applications in Agriculture	
ABUS 261	Farm Accounting	
ERTH 265	Soils and Surficial Processes	
GEOG 101	Earth Systems and Physical Geography	
GEOG 211	Introduction to Geographical Information Systems	
PSSC 160	West Coast Crop Production	
PSSC 260	Foundational Principles of Regenerative Agriculture	
PSSC 266	California Orchard Production and Management	
PSSC 274	Greenhouse Management	
<b>Upper Division Core</b>		
AGRI 305	Agricultural Genetics	3
AGRI 331	Agricultural Ecology	3
AGRI 482W	Agricultural Issues (W)	3
AGRI 490W	Agricultural Experimental Research (W)	4
PSSC 441	Principles of Integrated Pest Management	3
PSSC 459	Crop Physiology	4
Select one of the following:		3
PSSC 356	Soil Health and Regenerative Management	
PSSC 453	Soil Fertility and Plant Nutrition	
Select one of the following:		3-4
ABUS 321	Agribusiness Management	
ABUS 341	Natural Resource Economics	
ABUS 464	Farm and Ranch Appraisal	
Select two units from the following:		2
PSSC 309A	Directed Work in Field and Row Crops	
PSSC 309B	Directed Work in Vegetable Crops	
PSSC 389	Internship in Plant and Soil Science	
<b>Major Option</b>		
Select one of the following options:		20-24
Crops and Horticulture (p. 2)		
Regenerative Agriculture (p. 2)		
<b>Total Units</b>		<b>81-88</b>

## Major Option Course Requirements

Students must select at least one of the following options for completion of the major course requirements.

### The Option in Crops and Horticulture: 20-22 units

Course	Title	Units
<b>Foundation</b>		
PSSC 353	Plant Protection Materials, Methods, and Regulations	3
<b>Crop Production</b>		
Select two of the following:		6
AGET 360	Irrigation	
PSSC 345	Horticultural Therapy	
PSSC 361	Agronomic Crops	
PSSC 363	Forage Crops	
PSSC 365	Sustainable Vegetable Crop Production	
PSSC 366	Fruit and Nut Production	
PSSC 369	Seed Production	
<b>Agricultural Pests and Management</b>		
Select one of the following:		3-4
BIOL 446	Plant Pathology	
PSSC 340	Economic Entomology	
PSSC 343	Introduction to Weed Science	
<b>Crops and Horticulture Electives</b>		
Select eight to nine units from the following: <sup>1</sup>		8-9
AGRI 301	California Agriculture Seminar	
PSSC 305	Introduction to Wines	
PSSC 390	Food Forever: Comparisons of Sustainable Food Production Systems	
	or PSSC 392 World Food and Fiber Systems	
<b>Total Units</b>		<b>20-22</b>

<sup>1</sup> Select additional upper-division courses from the major core, option, listed courses, or other courses in consultation with your advisor. Students may take either PSSC 390 or PSSC 392 to satisfy up to three units of upper-division electives in this option. Check with your advisor on which one is most appropriate for your career path.

### The Option in Regenerative Agriculture: 24 units

Course	Title	Units
<b>Foundation</b>		
PSSC 351	Survey of Regenerative Cropping Systems	3
PSSC 356	Soil Health and Regenerative Management	3
PSSC 432	Farm and Ranch Planning and Design	3
PSSC 442	Pollinator Habitat Planning and Design	3
PSSC 450	Advanced Regenerative Agriculture Management	3
PSSC 466	Climate Impacts on Agricultural Systems	3
<b>Regenerative Agriculture Electives</b>		
Select six units from the following: <sup>1</sup>		6
PSSC 330	Rangeland Resources and Management	
PSSC 361	Agronomic Crops	
PSSC 365	Sustainable Vegetable Crop Production	

PSSC 366 Fruit and Nut Production

**Total Units**

**24**

<sup>1</sup> Select additional upper-division courses from the major core, listed courses, or other courses in consultation with your advisor.

## Honors in the Major

Honors in the Major is a program of independent work in your major. It requires six units of honors coursework completed over two semesters.

The Honors in the Major program allows you to work closely with a faculty mentor in your area of interest on an original performance or research project. This year-long collaboration allows you to work in your field at a professional level and culminates in a public presentation of your work. Students sometimes take their projects beyond the University for submission in professional journals, presentation at conferences, or academic competition. Such experience is valuable for graduate school and professional life. Your honors work will be recognized at your graduation, on your permanent transcripts, and on your diploma. It is often accompanied by letters of commendation from your mentor in the department or the department chair.

Some common features of Honors in the Major program are:

- You must take six units of Honors in the Major coursework. All six units are honors courses (marked by a suffix of H), and at least three of these units are independent study (399H, 499H, 599H) as specified by your department. You must complete each course with a minimum grade of B.
- You must have completed 9 units of upper-division coursework or 21 overall units in your major before you can be admitted to Honors in the Major. Check the requirements for your major carefully, as there may be specific courses that must be included in these units.
- Your cumulative GPA should be at least 3.5 or within the top 5% of majors in your department.
- Your GPA in your major should be at least 3.5 or within the top 5% of majors in your department.
- Most students apply for or are invited to participate in Honors in the Major during the second semester of their junior year. Then they complete the six units of coursework over the two semesters of their senior year.
- Your honors work culminates with a public presentation of your honors project.

Honors in the Major is not part of the Honors Program. Each department administers its own program. Please contact your major department or major advisor to apply.

See Bachelor's Degree Requirements (<https://catalog.csuchico.edu/undergraduate-requirements/bachelors-degree-requirements/>) for complete details on general degree requirements. A minimum of 39 units, including those required for the major, must be upper division.

## General Education Requirements: 43 units

See General Education (<https://catalog.csuchico.edu/colleges-departments/undergraduate-education-academic-success/general-education/#general-education-requirements>) and the Class Schedule (<http://www.csuchico.edu/schedule/>) for the most current information on General Education requirements and course offerings.

This major has approved GE modification(s). See below for information on how to apply these modification(s).

- ANSC 101 is an approved major course substitution for Biological Science (5B).
- AGRI 482W is an approved major course substitution for Upper-Division Social and Behavioral Sciences (UD-4).

## American Institutions Course Requirements: 6 units

The American Institutions graduation requirement, as mandated in Title 5, Section 40404 ([https://govt.westlaw.com/calregs/Document/I56C041434C6911EC93A8000D3A7C4BC3/?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=\(sc.Default\)](https://govt.westlaw.com/calregs/Document/I56C041434C6911EC93A8000D3A7C4BC3/?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default))), requires that students satisfactorily complete courses in United States history, the US Constitution, and government and American ideals (including California state and local government). At Chico State, HIST 130 meets the US history requirement (US-1), and POLS 155 meets the US Constitution and government requirement (US-2) and the California state and local government requirement (US-3). POLS 155 also fulfills three units of GE Area 4, Social and Behavioral Sciences. See Bachelor's Degree Requirements (<https://catalog.csuchico.edu/undergraduate-requirements/bachelors-degree-requirements/#amin>) for more information.

## Diversity Course Requirements: 6 units

You must complete a minimum of two courses that focus primarily on cultural diversity. At least one course must be in US Diversity (USD) and at least one in Global Cultures (GC). See Diversity Requirements (<https://catalog.csuchico.edu/undergraduate-requirements/diversity-requirements/>) for a full list of courses. Many courses taken to satisfy these requirements may also apply to General Education (<https://catalog.csuchico.edu/colleges-departments/undergraduate-education-academic-success/general-education/>).

## Upper-Division Writing Requirement

Writing Across the Curriculum (EM 17-009 (<https://www.csuchico.edu/pres/em/2017/17-009.shtml>)) is a graduation requirement and may be demonstrated through satisfactory completion of four Writing (W) courses, two of which are designated by the major department. See Writing and Math Requirements (<https://catalog.csuchico.edu/undergraduate-requirements/writing-math-requirements/>) for more details on the four courses. The first of the major designated Writing (W) courses is listed below.

- AGRI 490W Agricultural Experimental Research (W)

The second major-designated Writing course is the Graduation Writing Assessment Requirement (GW) (EO 665 (<https://calstate.policystat.com/policy/9585618/latest/>)). Students must earn a C- or higher to receive GW credit. The GE English Composition (1A) (<https://catalog.csuchico.edu/colleges-departments/undergraduate-education-academic-success/general-education/#1A>) requirement must be completed before a student is permitted to register for a GW course.