Barns, shops, greenhouses, orchards and laboratories at the University Farm, along with ample classrooms and well-equipped laboratories on the main campus, provide the student with a fine environment in which to study and learn about agriculture, natural resources and agricultural business management.

The Agricultural Teaching and Research Center offers students the opportunity to obtain practical experience in many different areas of both plant and animal production systems. In addition, students have excellent opportunities to participate in funded applied agricultural research activities conducted by faculty and staff.

Career Outlook
Career opportunities appear excellent. Federal reports indicate that in the 21st century there will be more professional job openings in the agricultural and natural resource management sectors than there will be qualified graduates to fill those positions.

Some graduates in agriculture enter positions leading to management responsibilities on the farm or ranch, in industry, in business, in governmental land management and regulatory agencies, or in research and education. Other agriculturists are finding employment in various agriculturally related careers such as purchasing, advertising, public relations, transportation, inspection, and market reporting. And still others have taken positions with agricultural cooperatives, food and dairy product companies, agrichemical manufacturing and sales companies, farm credit, and agricultural communications.

For today’s commercial farmer and natural resource manager, a degree in agriculture provides the technical and business background necessary to keep up with rapid changes that are taking place within the agricultural industry. The professional areas of teaching, agricultural extension, rural development, and basic or applied research also attract many graduates.
The Bachelor of Science in Agriculture

Total Course Requirements for the Bachelor's Degree: 120 units

See “Requirements for the Bachelor's Degree” in the University Catalog for complete details on general degree requirements. A minimum of 40 units, including those required for the major, must be upper division.

A suggested Major Academic Plan (MAP) has been prepared to help students meet all graduation requirements within four years. Please request a plan from your major advisor or view it and other current advising information on the CSU, Chico Web.

General Education Requirements: 48 units

See “General Education Requirements” in the University Catalog and the Class Schedule for the most current information on General Education Requirements and course offerings. The course requirements marked below with an asterisk (*) may also be applied toward General Education.

For both the BS in Agriculture and the BS in Agricultural Business, ABUS 101 may be applied to General Education Breadth Area D1.

Cultural Diversity Course Requirements: 6 units

See “Cultural Diversity” in the University Catalog. Most courses taken to satisfy these requirements may also apply to General Education.

American Institutions Requirement: 6 units

See the “American Institutions Requirement” under “Bachelor's Degree Requirements.” For this major, this requirement is normally fulfilled by completing HIST 130 and POLS 155. For this major, HIST 130 may also be applied to General Education Breadth Area C1, C2, or C3, and POLS 155 may also be applied to General Education Breadth Area D1, D2, or D3.

Literacy Requirement:

See “Mathematics and Writing Requirements” in the University Catalog. Writing proficiency in the major is a graduation requirement and may be demonstrated through satisfactory completion of a course in your major, which has been designated as the Writing Proficiency (WP) course for the semester in which you take the course. Students who earn below a C– are required to repeat the course and earn a C– or better to receive WP credit. See the Class Schedule for the designated WP courses for each semester. You must pass ENGL 130 (or its equivalent) with a C– or better before you may register for a WP course.

Course Requirements for the Major: 83 units

The following courses, or their approved transfer equivalents, are required to complete this degree. Additional required courses, depending upon the selected option or advising pattern, are outlined following the degree core program requirements.

Major Core Program: 46 units

Lower-Division Core: 33 units

2 courses required:

AGRI 180 The University Experience 1.0 FS
MATH 105 Statistics 3.0 FS *
Prerequisites: Completion of ELM requirement.

1 course selected from:

CHEM 107 Gen Chem for Applied Sciences 4.0 FS *
Prerequisites: Intermediate Algebra.
CHEM 111 General Chemistry 4.0 FS *
Prerequisites: Second-year high school algebra, one year high school chemistry. (One year of high school physics and one year of high school mathematics past Algebra II are recommended.)

1 course selected from:

CHEM 108 Organic Chem for Applied Sci 4.0 FS
Prerequisites: CHEM 107 or CHEM 111 or equivalent.
CHEM 112 General Chemistry 4.0 FS
Prerequisites: CHEM 111

1 course selected from:

ABUS 101 Intro to Ag Business/Economics 3.0 FS *
ABUS 261 Farm Accounting 3.0 FS

1 course selected from:

AGET 120 Intro to Ag Mechanics 3.0 FA
AGET 150 Agricultural Machine Systems 3.0 FS

Note: Students selecting the Option in Agricultural Science and Education must complete both AGET 120 and AGET 150. The additional course counts toward elective units.

1 course selected from:

ANSC 101 Introduction to Animal Science 3.0 FS *
ANSC 230 Animal Feeds and Nutrition 3.0 FS

Note: Students selecting the Option in Animal Science must complete both ANSC 101 and ANSC 230. The additional course counts toward elective units.

1 course selected from:

PSSC 101 Introduction to Plant Science 3.0 FS *
PSSC 250 Introduction to Soil Science 3.0 FS
Prerequisites: CHEM 107 or CHEM 111.

Note: Students selecting the Option in Crops, Horticulture, and Land Resource Management must complete both PSSC 101 and PSSC 250. The additional course counts toward elective units.

9 units selected from:

Any combination of lower division courses in Agriculture (AGRI), Agricultural Engineering Technology (AGET), Animal Science (ANSC), Plant Science (PSSC), and Agricultural Business (ABUS). All courses must be approved by your advisor.

Upper-Division Core: 13 units

4 courses required:

AGRI 331 Agricultural Ecology 3.0 FS
Prerequisites: Completion of lower division core or faculty permission.
AGRI 482 Agricultural Issues 3.0 FS WP
Prerequisites: ENGL 130 with a grade of C– or higher.
AGRI 490 Agricultural Experimental Res 4.0 FS
Prerequisites: AGRI 331.
AGRI 491 Agricultural Experimental Res 3.0 FS
Prerequisites: AGRI 490.

Major Option Course Requirements: 37 units

The following courses, or their approved transfer equivalents, are required depending upon the option chosen. Students must select one of the following options for completion of the major course requirements.

The Option in Agricultural Science and Education: 37 units

This option prepares students for careers in the broad field of agriculture or for careers in teaching at the secondary level. The option consists, therefore, of two parallel adjoining patterns: Agricultural Science and Agricultural Education. The Agricultural Science area of study prepares students for diverse careers in agricultural production where the integration of animal, plant, and agri-business knowledge and skills is required. The Agricultural Education area of study prepares students to receive a secondary teaching credential in agriculture.

Option Core Requirements: 25 units

Genetics

1 course required:

AGRI 305 Agri Genetics & Biotechnology 4.0 SP
Prerequisites: ANSC 101 or BIOL 108 or PSSC 101; CHEM 107 or CHEM 111.

Animal Science

2 courses selected from:

ANSC 301 Intermediate Animal Systems 3.0 FS
Prerequisites: ANSC 101.
ANSC 330 Animal Nutrition 3.0 SP
Prerequisites: ANSC 101, ANSC 230.
ANSC 340 Repro Physiol Domestic Animals 3.0 FA
Prerequisites: ANSC 101 or BIOL 108.
ANSC 360 Animal Health and Disease 3.0 SP
Prerequisites: ANSC 101.

Plant and Soil Science

2 courses selected from:

PSSC 274 Greenhouse Management 3.0 SP
PSSC 353 Agrichemicals 3.0 FA
Prerequisites: CHEM 107 or CHEM 111; PSSC 250.
PSSC 356 Soil Quality and Health 3.0 SA
Prerequisites: PSSC 250 or instructor permission.
PSSC 360 Ecology of Crop Production 3.0 SA
Prerequisites: AGRI 331.
PSSC 361 Production of Annual Crops 3.0 FA
Prerequisites: Upper-division standing.
PSSC 366 Fruit and Nut Production 3.0 SP

Agricultural Engineering Technology

1 course selected from:

AGET 340 GPS/GIS in Ag/Nat Res Mgmt 3.0 FA
AGET 360 Irrigation 3.0 SP
Prerequisites: PSSC 101 or PSSC 250.

Agricultural Business

1 course selected from:

ABUS 321 Agribusiness Management 3.0 FS
Prerequisites: ABUS 101 or equivalent.
ABUS 331 Agricultural Mgmt Info Systems 3.0 FS

Note: Students selecting the Option in Animal Science must complete both ANSC 101 and ANSC 230. The additional course counts toward elective units.
Natural Resources

1 course selected from:
- AGRI 432 Holistic Management 3.0 F2
  Prerequisites: AGRI 331 or faculty permission.
- PSSC 330 Rangeland Resources/Management 3.0 FA
- PSSC 334 Wetland/Riparian Res and Mgmt 3.0 F1
  Prerequisites: Completion of lower-division core.

Area of Study: 12 units

The following courses, or their approved transfer equivalents, are required depending upon the area of study chosen. Students must select one of the following areas of study for completion of the major course requirements. Courses must be approved in advance by the academic advisor.

Agricultural Science Area of Study

12 units selected from:

Any upper-division courses in agricultural science and related subject matter approved by the advisor. Students selecting this area of study are strongly encouraged to gain practical skills and knowledge through an approved internship or directed work experience.

Agricultural Education Area of Study

The required course work in agriculture and in agricultural education for this option and area of study fulfills the requirements for two teaching credentials—the Single Subject Credential in Agriculture, and the Specialist Credential in Agricultural Education. Students pursuing this career objective should also complete PSCS 451 and EDTE 302 and pass the California Basic Education Skills Test.

5 courses required:
- AGRI 201 Intro to Agricultural Educ 3.0 FA
- AGRI 210 Directed Field Exp in Ag Ed 2.0 FA
- AGRI 321 Program Dev in Ag Education 2.0 SP
- AGRI 420 Tech in Vocational Ag Instruct 2.0 SP
- AGRI 421 Curric/Method Tch Ag Mechanics 3.0 SP
  Prerequisites: AGRI 201 or faculty permission.
- AGRI 422 Ag Leadership & Fair Mgmt 3.0 FA
  Prerequisites: AGET 120. Recommended: AGET 130.

The Option in Animal Science: 37 units

This option prepares students for diverse careers involving all aspects of animal agriculture. Careers in animal production, allied industries, and pre-professional preparation for graduate study, are possible directions for students in this option. The option emphasizes science-based study of animal production, including nutrition, health, reproduction, genetics, and meat science. In addition, management level courses in several domestic animal species are offered. Students who pursue this option have the flexibility to follow one of several different areas of study that directly prepares them for their career goals.

5 courses required:
- AGRI 305 Agri Genetics & Biotechnology 4.0 SP
  Prerequisites: ANSC 101 or BIOl 108 or PSSC 101; CHEM 107 or CHEM 111.
- ANSC 301 Intermediate Animal Systems 3.0 FS
  Prerequisites: ANSC 101.
- ANSC 330 Animal Nutrition 3.0 SP
  Prerequisites: ANSC 101; ANSC 230.
- ANSC 340 Repro Physiol Domestic Animals 3.0 FA
  Prerequisites: ANSC 101 or BIOl 108.
- ANSC 360 Animal Health and Disease 3.0 SP
  Prerequisites: ANSC 101.

1 course selected from:
- ANSC 471 Beef Production & Management 3.0 SP
  Prerequisites: ANSC 101.
- ANSC 474 Dairy Production & Management 3.0 FA
  Prerequisites: ANSC 101.

1 course selected from:
- ANSC 272 Sheep Production & Management 3.0 FA
  Prerequisites: ANSC 101.
- ANSC 273 Swine Production & Management 3.0 SP
  Prerequisites: ANSC 101.

Area of Study: 15 units

15 units selected from:

Courses must be selected in advance and approved by the advisor. In selecting courses to meet this requirement, students must create a concentration of courses that best meets their career goals. The following courses are recommended for the indicated areas of study.

Animal Production Area of Study: 15 units

3 courses required:
- ABUS 321 Agribusiness Management 3.0 FS
  Prerequisites: ABUS 101 or equivalent.
- ANSC 320 Advanced Livestock Selection 3.0 FA
- ANSC 350 Meat and the Consumer 3.0 FS

1 course selected from:
- PSSC 330 Rangeland Resources/Management 3.0 FA
- PSSC 363 Forage Crops 3.0 Inq
  Prerequisites: PSSC 101 or PSSC 330.

3 units selected from:

Select an additional 3 units in consultation with your advisor.

Animal Industry Area of Study: 15 units

4 courses required:
- ABUS 211 Ag Selling & Consulting 3.0 SP
- ABUS 311 Ag Markets and Pricing 3.0 FS
  Prerequisites: ABUS 101.
- ABUS 321 Agribusiness Management 3.0 FS
  Prerequisites: ABUS 101 or equivalent.
- ABUS 331 Agricultural Mgmt Info Systems 3.0 FS

1 course selected from:
- AGRI 380A Fair Mgmt & Ag Leadership 3.0 FA
- AGRI 380B Ag Leadership & Fair Mgmt 3.0 SP
  Prerequisites: AGRI 380A or permission of the instructor.

Pre-professional: Food Animal Veterinary Medicine Area of Study: 15 units

3 courses required:
- BIOL 151 Prin of Cell and Molec Biology 4.0 FS
  Prerequisites: Recommend CHEM 111 or concurrent enrollment.
- CHEM 270 Organic Chemistry 4.0 FS
  Prerequisites: CHEM 112.
- CHEM 370 Organic Chemistry 3.0 FS
  Prerequisites: CHEM 270.

1 course selected from:
- BIOL 152 Prin Ecol, Evol, Org Biology 4.0 FS
  Prerequisites: BIOL 151; recommend CHEM 112 or concurrent enrollment.
- BIOL 211 Allied Health Microbiology 4.0 FS
  Prerequisites: A college course in biology and in general chemistry.

Note: Students selecting this area of study must select CHEM 111 and CHEM 112 in the lower-division core. Additional requirements for application to veterinary school include PHYS 202A, PHYS 202B, BIOL 416, and CHEM 250. In order to complete all requirements for a degree in Agriculture (Option in Animal Science) and requirements for admission to veterinary school, student programs will exceed 120 units.

The Option in Crops, Horticulture, and Land Resource Management: 37 units

This option prepares students to manage agricultural enterprises for the production of plant crops for human and animal consumption, for the protection of these crops and resources against pests (insects, diseases, weeds, vertebrates), and for the stewardship of their natural resources (soil, water, air, and biota). The option emphasizes sustainable land use and crop production practices. Career opportunities may be found in agricultural production industry, in agricultural research, and in agricultural consulting, assistance, and regulation.

Option Core Requirements: 12 units

1 course selected from:
- PSSC 356 Soil Quality and Health 3.0 S2
  Prerequisites: PSSC 250 or instructor permission.
- PSSC 453 Soil Fert & Plant Nutrition 3.0 F2
  Prerequisites: PSSC 250.

1 course selected from:
- BIOL 414 Plant Physiology 4.0 FS
  Prerequisites: BIOL 108 or BIOL 153; CHEM 108 or CHEM 270; or faculty permission
- BIOL 44B Plant Diversity/Identification 4.0 SP
  Prerequisites: BIOL 152 or faculty permission.

1 course selected from:
- ABUS 321 Agribusiness Management 3.0 FS
  Prerequisites: ABUS 101 or equivalent.
- ABUS 331 Agricultural Mgmt Info Systems 3.0 FS
- ABUS 464 Farm and Ranch Appraisal 3.0 FA
  Prerequisites: ABUS 101.
- AGRI 432 Holistic Management 3.0 F2
  Prerequisites: AGRI 331 or faculty permission.

1 course selected from:
- PSSC 309A Dir Work in Field/Row Crops 2.0 FA
- PSSC 309B Dir Work in Field/Row Crops 2.0 SP
  Prerequisites: PSSC 309A or faculty permission.
- PSSC 310A Directed Work in Orchard Crops 2.0 SP
  Prerequisites: PSSC 101.
- PSSC 310B Directed Work in Orchards Crops 2.0 FA
  Prerequisites: PSSC 101.
- PSSC 332 Dir Work in Greenhouse Prod 2.0 FS
Agriculture

PSSC 389 Internship 1.0–6.0 FS
Prerequisites: Junior standing, faculty permission.

PSSC 389 must be taken for 2 units.

Area of Study: 25 units

The following courses, or their approved transfer equivalents, are required depending on the area of study chosen. Students must select one of the following areas of study for completion of the major course requirements. Courses must be approved in advance by the academic advisor.

Crops and Horticulture Area of Study: 25 units

2 courses required:
AGRI 305 Agri Genetics & Biotechnology 4.0 SP
Prerequisites: ANSC 101 or BIOL 108 or PSSC 101; CHEM 107 or CHEM 111.

PSSC 353 Agrochemicals 3.0 FA
Prerequisites: CHEM 107 or CHEM 111; PSSC 250.

Crop Production

2 courses selected from:
AGET 360 Irrigation 3.0 SP
Prerequisites: PSSC 101 or PSSC 250.

PSSC 274 Greenhouse Management 3.0 SP

PSSC 361 Production of Annual Crops 3.0 FA

PSSC 364 Seed Production 3.0 F2
Prerequisites: PSSC 101 or faculty permission.

PSSC 366 Fruit and Nut Production 3.0 SP
Prerequisites: Upper-division standing.

Agricultural Pests and Control

2 courses selected from:
PSSC 342 Plant Pathology Prerequisites: PSSC 101.

Note: Students may substitute BIOL 446, Plant Pathology, for PSSC 342.
PSSC 340 Economic Entomology 3.0 FA

PSSC 343 Introduction to Weed Sci 3.0 SP
Prerequisites: AGRI 331.

PSSC 441 Principles Integrated Pest Mgmt Prerequisites: AGRI 331; PSSC 340 or PSSC 342 or PSSC 343.

5–6 units selected from:
To fulfill the requirements of this option, select additional courses from the option core and area of study.

Land Resource Management Area of Study: 25 units

3 courses required:
BIOL 350 Fundamentals of Ecology 3.0 FS WP
Prerequisites: BIOL 152 or faculty permission. Some taxonomic background is recommended.

PSSC 334 Wetland/Riparian Res and Mgmt 3.0 F1
Prerequisites: Completion of lower-division core.

PSSC 451 Soil Genesis & Classification 3.0 F1
Prerequisites: PSSC 250 or faculty permission.

1 course selected from:
AGET 340 GPS/GIS in Ag/Nat Res Mgmt 3.0 FA

GEOG 219 Maps, Images and Mapping Data 3.0 FS

GEOG 319 Intro to Geog Info Systems 3.0 FS
Prerequisites: GEOG 219 or equivalent.

1 course selected from:
GEOG 342 Geomorphology 3.0 FA
Prerequisites: GEOG 101 or GEOG 102 or equivalents, or faculty permission.

GEOG 325 Geology of California 3.0 FA
Prerequisites: GEOG 101 or GEOG 102 or consent of instructor.

9 units selected from:
To fulfill the requirements of this option, select additional courses from the option core and area of study.

Electives Requirement:

To complete the total units required for the bachelor's degree, select additional elective courses from the total University offerings. You should consult with an advisor regarding the selection of courses which will provide breadth to your University experience and possibly apply to a supportive second major or minor.

Students may double count only one approved upper-division General Education theme course with a required course option elective.

Grading Requirement:

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

Advising Requirement:

Advising is mandatory for all majors in this degree program. Consult your undergraduate advisor for specific information.

A sample program for students who wish to complete their major in four years is available in the Office of the College of Agriculture, CSU, Chico, CA 95929.

Honors in the Major

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

While Honors in the Major is part of the Honors Program, each department administers its own program. Please contact your major department or major advisor to apply.

The Bachelor of Science in Agricultural Business

Total Course Requirements for the Bachelor's Degree: 120 units

See “Requirements for the Bachelor's Degree” in the University Catalog for complete details on general degree requirements. A minimum of 40 units, including those required for the major, must be upper division.

A suggested Major Academic Plan (MAP) has been prepared to help students meet all graduation requirements within four years. Please request a plan from your major advisor or view it and other current advising information on the CSU, Chico Web.

Please see the General Education, Cultural Diversity, and U.S. History, Constitution and American Ideals requirements under the BS in Agriculture.

Literacy Requirement:

See “Mathematics and Writing Requirements” in the University Catalog. Writing proficiency in the major is a graduation requirement and may be demonstrated through satisfactory completion of a course in your major which has been designated as the Writing Proficiency (WP) course for the semester in which you take the course. Students who earn below a C– are required to repeat the course and earn a C– or better to receive WP credit. See the Class Schedule for the designated WP courses for each semester.

You must pass ENGL 130 (or its equivalent) with a C– or better before you may register for a WP course.

Course Requirements for the Major: 83 units

The following courses, or their approved transfer equivalents, are required of all candidates for this degree.

Lower-Division Requirements: 35 units

9 courses required:
ABUS 101 Intro to Ag Business/Economics 3.0 FS *

ABUS 261 Farm Accounting 3.0 FS

ABUS 262 Mgmt Accounting for Ag 3.0 FS
Prerequisites: ABUS 261 or ACCT 201.

AGRI 380 The University Experience 1.0 FS

BLAW 302 Managing the Legal Environment 3.0 FS
Prerequisites: At least junior standing.

CHEM 107 Gen Chem for Applied Sciences 4.0 FS *
Prerequisites: Intermediate Algebra.
**The Minor in Agriculture**

**Course Requirements for the Minor: 24 units**

The following courses, or their approved transfer equivalents, are required of all candidates for this minor. 

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 102 Principles of Macro Analysis</td>
<td>3.0 FS</td>
<td>*</td>
</tr>
<tr>
<td>MATH 105 Statistics</td>
<td>3.0 FS</td>
<td>*</td>
</tr>
<tr>
<td>PSSC 250 Introduction to Soil Science</td>
<td>3.0 FS</td>
<td>Prerequisites: CHEM 107 or CHEM 111.</td>
</tr>
<tr>
<td>1 course selected from:</td>
<td></td>
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</tr>
<tr>
<td>ANSC 101 Introduction to Animal Science</td>
<td>3.0 FS</td>
<td>*</td>
</tr>
<tr>
<td>PSSC 101 Plant Science</td>
<td>3.0 FS</td>
<td>*</td>
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<tr>
<td>6 units selected from:</td>
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</tr>
<tr>
<td>Any lower-division Agricultural Business (ABUS), Agricultural Engineering Technology (AGET), Animal Science (ANSC), Plant and Soil Science (PSSC), or Agriculture (AGRI) course.</td>
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**Upper-Division Requirements: 48 units**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS 301 Ag Production Econ Analysis</td>
<td>3.0 FS</td>
<td></td>
</tr>
<tr>
<td>Prerequisites: ABUS 101 or ECON 103.</td>
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</tr>
<tr>
<td>ABUS 311 Ag Markets and Pricing</td>
<td>3.0 FS</td>
<td></td>
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<tr>
<td>Prerequisites: ABUS 101.</td>
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<tr>
<td>ABUS 321 Agribusiness Management</td>
<td>3.0 FS</td>
<td></td>
</tr>
<tr>
<td>Prerequisites: ABUS 101 or equivalent.</td>
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<tr>
<td>ABUS 331 Agricultural Mgmt Info Systems</td>
<td>3.0 FS</td>
<td></td>
</tr>
<tr>
<td>ABUS 415 Agricultural Price Analysis</td>
<td>3.0 FS</td>
<td>Prerequisites: ABUS 101 and MATH 105.</td>
</tr>
<tr>
<td>Prerequisites: ABUS 301.</td>
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<tr>
<td>ABUS 421 Advanced Agribusiness Mgmt</td>
<td>3.0 SP</td>
<td></td>
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<tr>
<td>Prerequisites: ABUS 301, ABUS 321.</td>
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<tr>
<td>ABUS 451 Agricultural Policy</td>
<td>3.0 FS</td>
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<tr>
<td>Prerequisites: Senior standing, ABUS 301, ECON 102.</td>
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</tr>
<tr>
<td>ABUS 465 Agricultural Finance</td>
<td>3.0 SP</td>
<td></td>
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<tr>
<td>Prerequisites: ABUS 101 and ABUS 261.</td>
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<tr>
<td>AGRI 331 Agricultural Ecology</td>
<td>3.0 FS</td>
<td></td>
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<tr>
<td>Prerequisites: Completion of lower-division core or faculty permission.</td>
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<tr>
<td>AGRI 482 Agricultural Issues</td>
<td>3.0 WP</td>
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<tr>
<td>Prerequisites: ENGL 130 (or its equivalent) with a grade of C- or higher.</td>
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</tbody>
</table>

**1 course selected from:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS 389 Internship in Agribusiness</td>
<td>1.0–3.0 FS</td>
<td>Prerequisites: Permission of Internship Coordinator.</td>
</tr>
<tr>
<td>AGET 389 Internship</td>
<td>1.0–3.0 FS</td>
<td>Prerequisites: Prior approval of academic goals by the Internship Coordinator.</td>
</tr>
<tr>
<td>ANSC 389 Internship in ANSC</td>
<td>1.0–3.0 FS</td>
<td>Prerequisites: Prior approval of academic goals by the Internship Coordinator.</td>
</tr>
<tr>
<td>PSSC 389 Internship</td>
<td>1.0–6.0 FS</td>
<td>Prerequisites: Junior standing, faculty permission.</td>
</tr>
</tbody>
</table>

3 units of internship are required.

**3 units selected from:**

Any upper-division production course from Animal Science (ANSC) or Plant and Soil Science (PSSC). These courses are limited to those offerings that have either ANSC 101 or PSSC 101 as a prerequisite.

**12 units selected from:**

Any upper-division College of Agriculture courses selected with approval of your advisor. Nine of the 12 units should be Agricultural Business courses.

**Electives Requirement:**

To complete the total units required for the bachelor’s degree, select additional elective courses from the total University offerings. You should consult with an advisor regarding the selection of courses which will provide breadth to your University experience and possibly apply to a supportive second major or minor.

Students may double count only one approved upper-division General Education theme course with a required option elective.

**Grading Requirement:**

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

**Advising Requirement:**

Advising is mandatory for all majors in this degree program. Consult your undergraduate advisor for specific information.

A sample program for students who wish to complete their major in four years is available in the Office of the College of Agriculture, CSU, Chico, CA 95929.

**Honors in the Major**

Honors in the Major is a program of independent work in your major. It involves six units of honors course work 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 competition in shows. Such experience is valuable for graduate school and later professional life. Your Honors work will be recognized at your graduation, on your permanent transcript, 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

1. You must take 6 units of Honors in the Major course work. At least 3 of these units are independent study (399, 499H) as specified by your department. You must complete each class with a minimum grade of B.
2. You must have completed 9 units of upper-division course work 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.
3. Your cumulative GPA should be at least 3.5 or within the top 5% of majors in your department.
4. Your GPA in your major should be at least 3.5 or within the top 5% of majors in your department.
5. 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 6 units of course work over the two semesters of their senior year.

Your honors work culminates with a public presentation of your honors project.

While Honors in the Major is part of the Honors Program, each department administers its own program. Please contact your major department or major advisor to apply.

**The Minor in Agricultural Business**

**Course Requirements for the Minor: 27 units**

The following courses, or their approved transfer equivalents, are required of all candidates for this minor.

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS 101 Intro to Ag Business/Economics</td>
<td>3.0 FS</td>
<td>Prerequisites: ABUS 101 and ABUS 261.</td>
</tr>
<tr>
<td>ECON 103 Principles of Micro Analysis</td>
<td>3.0 FS</td>
<td>Prerequisites: ABUS 101 or ECON 103, but not both.</td>
</tr>
<tr>
<td>Note: You may count ABUS 101 or ECON 103, but not both.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 261 Farm Accounting</td>
<td>3.0 FS</td>
<td>Prerequisites: ABUS 101 or ACCT 201, but not both.</td>
</tr>
<tr>
<td>OR (the following course may be substituted for the above)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCT 201 Intro to Financial Accounting</td>
<td>3.0 FS</td>
<td>Note: You may count ABUS 261 or ACCT 201, but not both.</td>
</tr>
<tr>
<td>OR (the following course may be substituted for the above)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 105 Statistics</td>
<td>3.0 FS</td>
<td>Prerequisites: Completion of ELM requirement.</td>
</tr>
<tr>
<td>12 units selected from:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any upper-division courses in AGR, AGET, ANSC, or PSSC.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Written Notice**

Departmental approval is required before you begin course work for this minor. Approval can be obtained by providing written notice of your intention to declare this minor to the department office.
Agriculture

1 course selected from:

- ABUS 261 Farm Accounting 3.0 FS
- ACCT 201 Intro to Financial Accounting 3.0 FS

12 units selected from:

Any agricultural business courses, including at least 9 units of upper-division courses.

Written Notice

Departmental approval is required before you begin course work for this minor. Approval can be obtained by providing written notice of your intention to declare this minor to the department office.

The Certificate in Plant Protection

Course Requirements for the Certificate: 46 units

The following courses, or their approved transfer equivalents, are required of all candidates for this certificate:

This certificate fulfills the eligibility requirements for taking the State of California Pest Control Advisor (PCA) exam. An overall grade point average of 2.5 is required for the entire program.

Chemistry: 4 units

1 course selected from:

- CHEM 107 Gen Chem for Applied Sciences 4.0 FS *
  Prerequisites: Intermediate Algebra.

- CHEM 111 General Chemistry 4.0 FS *
  Prerequisites: Second-year high school algebra; one year high school chemistry; (One year of high school physics and one year of high school mathematics past Algebra II are recommended.)

Physical and Biological Sciences: 9 units

3 courses required:

- AGRI 331 Agricultural Ecology 3.0 FS
  Prerequisites: Completion of lower-division core or faculty permission.

- PSSC 101 Introduction to Plant Science 3.0 FS *
  Prerequisites: CHEM 107 or CHEM 111

- PSSC 250 Introduction to Soil Science 3.0 FS
  Prerequisites: CHEM 107 or CHEM 111

Factors Affecting Crop Health: 12 units

4 courses selected from:

- BIOL 341 Agri Entomology/Insect Control 3.0 SP
  Prerequisites: BIOL 101 or BIOL 108.

- PSSC 340 Economic Entomology 3.0 FA
  Prerequisites: PSSC 101.

- PSSC 342 Plant Pathology 3.0 F2
  Prerequisites: PSSC 101.

- PSSC 343 Introduction to Weed Sci 3.0 SP
  Prerequisites: AGRI 331.

- PSSC 453 Soil Fert & Plant Nutrition 3.0 F2
  Prerequisites: PSSC 250.

Pest Management Systems and Methods: 9 units

3 courses selected from:

- AGRI 432 Holistic Management 3.0 F2
  Prerequisites: AGRI 331 or faculty permission.

- PSSC 353 Agrichemicals 3.0 FA
  Prerequisites: CHEM 107 or CHEM 111; PSSC 250.

- PSSC 356 Soil Quality and Health 3.0 S2
  Prerequisites: PSSC 250 or instructor permission.

- PSSC 441 Principles Integral Pest Mgmt 3.0 SP
  Prerequisites: AGRI 331; PSSC 340 or PSSC 342 or PSSC 343.

Production Systems: 12 units

12 units selected from:

- AGET 360 Irrigation 3.0 SP
  Prerequisites: PSSC 101 or PSSC 250.

- PSSC 274 Greenhouse Management 3.0 SP

- PSSC 309A Dir Work in Field/Row Crops 2.0 FA
  Prerequisites: PSSC 309A or faculty permission.

- PSSC 309B Dir Work in Field/Row Crops 2.0 SP
  Prerequisites: PSSC 309A or faculty permission.

- PSSC 310A Directed Work in Orchard Crops 2.0 SP
  Prerequisites: PSSC 101.

- PSSC 310B Directed Work in Orchard Crops 2.0 SP
  Prerequisites: PSSC 101.

- PSSC 312 Dir Work in Greenhouse Prod 2.0 FS

- PSSC 330 Rangeland Resources/Management 3.0 FA

- PSSC 361 Production of Annual Crops 3.0 FA

- PSSC 366 Fruit and Nut Production 3.0 SP
  Prerequisites: Upper-division standing.

The Single Subject Matter Preparation Program in Agriculture and the Specialist Teaching Credential in Agriculture

There are two credentials available for students who wish to pursue a career as an agricultural education teacher in California: the Single Subject Teaching Credential and the Specialist Credential. The Single Subject Teaching Credential in Agriculture authorizes the holder to teach in the classroom. Candidates who fulfill the requirements for the Specialist Credential in Agriculture are prepared to teach in out-of-classroom settings such as serving as an FFA advisor and Supervised Agricultural Experience Program supervisor.

The Single Subject Teaching Credential in Agriculture includes two components—a Subject Matter Preparation program and a Professional Education program. Students can complete the Subject Matter Preparation program by completing the Agriscience and Education Option. Students completing another option or major in agriculture should consult the agricultural credential advisor to identify additional course requirements. Candidates may also demonstrate subject matter competence by successfully passing the appropriate Single Subject Assessment Test (SSAT). The subject matter preparation advisor is responsible for verifying that subject matter preparation has been completed.

The Professional Preparation component of the Single Subject Teaching Credential includes professional education courses, a part-time Practicum I and a half-time Practicum II student teaching experience. This portion of the credential program is administered by the Department of Education within the School of Education. For prerequisites and other admissions requirements for professional education programs, see the “Education” chapter of this catalog and the Focus on Teaching.

You may want to consider adding the following courses to your undergraduate program: EDUC 302, ENGL 371, and HCSV 451. All of these courses are prerequisites for the credential program.

All credential candidates recommended by CSU, Chico are authorized to teach all students, including English language learners, in the regular classroom. You may also want to qualify for the BCLAD (Bilingual, Cross-cultural, Language, and Academic Development) emphasis if you have skills in Spanish language and culture.

The requirements for the Specialist Credential in Agriculture include a series of agricultural education courses and a student teaching experience. These courses are included in the Agriscience and Education Option. Student teaching is combined with the student teaching experience required for the Single Subject Teaching Credential in Agriculture.

If you are interested in obtaining your credentials, confer with the appropriate credential advisor(s) early in your university career. Credential advisors can assist you in planning an educational program that will prepare you for both the B5 in Agriculture and the teaching credential requirements.

The Faculty

Lee S. Allier, 1995, Professor, PhD, Cornell U.

Patrick T. Berends, 2003, Assist Professor, PhD, Kansas State U.

Cynthia A. Daley, 1998, Assoc Professor, PhD, UC Davis.

David A. Daley, 1990, Coordinator, Professor, PhD, Colorado State U.

Bradley W. Dodson, 2000, Coordinator, Assoc Professor, PhD, Texas A&M U.

Stephen P. Doyle, 2003, Assist Professor, PhD, Colorado State U.

Mitchell M. Johns, 1998, Assoc Professor, PhD, Montana State U.

Celina R. Johnson, 2005, Assist Professor, PhD, Oklahoma State U.


Todd A. Lone, 1995, Assist Professor, PhD, Washington State U.

Richard C. Rosecrance, 1998, Assoc Professor, PhD, UC Davis.

Jennifer A. Ryder Fox, 2006, Dean, Professor, PhD, New Mexico State U.

Michael Spiess, 2003, Assoc Professor, PhD, UC Davis.

Timothy Tripp, 2005, Assoc Professor, PhD, U Georgia.

Emeritus Faculty

Marian W. Baldy, 1971, Professor Emerita, PhD, UC Davis.

Richard W. Baldy, 1970, Professor Emeritus, PhD, UC Davis.

Ronald C. Borge, 1974, P Voc Ins Emeritus, MS, Ohio State U.

A. Charles Crabb, 1999, Professor Emeritus, PhD, UC Davis.

Henricus C. Jansen, 1969, Professor Emeritus, PhD, UC Berkeley.

Westley R. Patton, 1968, Professor Emeritus, PhD, Oregon State U.

Lal Singh, 1969, Professor Emeritus, EdD, Oklahoma State U.

Henry N. Wallace, 1982, Professor Emeritus, PhD, UC Davis.
**Agriculture Course Offerings**

Please see the section on “Course Description Symbols and Terms” in the University Catalog for an explanation of course description terminology and symbols, the course numbering system, and course credit units. All courses are lecture and discussion and employ letter grading unless otherwise stated. Some prerequisites may be waived with faculty permission. Many syllabi are available on the Chico Web.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 180</td>
<td>The University Experience</td>
<td>1.0</td>
<td>Fa/Spr</td>
</tr>
<tr>
<td>AGRI 181</td>
<td>Coordinating Group Agricultural Activities</td>
<td>1.0–2.0</td>
<td>Fa/Spr</td>
</tr>
<tr>
<td>AGRI 198</td>
<td>Special Topics</td>
<td>1.0–3.0</td>
<td>Fa/Spr</td>
</tr>
<tr>
<td>AGRI 201</td>
<td>Introduction to Agricultural Education</td>
<td>3.0</td>
<td>Fall</td>
</tr>
<tr>
<td>AGRI 210</td>
<td>Directed Field Experience</td>
<td>2.0</td>
<td>Fall</td>
</tr>
<tr>
<td>AGRI 305</td>
<td>Agricultural Genetics and Biotechnology</td>
<td>4.0</td>
<td>Spring</td>
</tr>
<tr>
<td>AGRI 311</td>
<td>Agricultural Ecology</td>
<td>3.0</td>
<td>Fa/Spr</td>
</tr>
<tr>
<td>AGRI 321</td>
<td>Program Development in Agricultural Education</td>
<td>2.0</td>
<td>Spring</td>
</tr>
<tr>
<td>AGRI 331</td>
<td>Agricultural Ecology</td>
<td>3.0</td>
<td>Fa/Spr</td>
</tr>
<tr>
<td>AGRI 380A</td>
<td>Fair Management and Ag Leadership</td>
<td>3.0</td>
<td>Fall</td>
</tr>
<tr>
<td>AGRI 380B</td>
<td>Agricultural Leadership and Fair Management</td>
<td>3.0</td>
<td>Spring</td>
</tr>
<tr>
<td>AGRI 389</td>
<td>Internship in Agriculture</td>
<td>1.0–3.0</td>
<td>Fa/Spr</td>
</tr>
</tbody>
</table>

**AGRI 398 Special Topics** | 1.0–3.0 | Spring

This course is for special topics offered for 1.0–3.0 units. Typically the topic is offered on a one-time-only basis and may vary from term to term and be different for different sections. See the Class Schedule for the specific topic being offered.

**AGRI 399 Special Problems** | 1.0–3.0 | Fa/Spr

Prerequisites: Upper-division standing. This course is an independent study of a topic or problem and is offered for 1.0–3.0 units. Students must register with a supervising faculty member. Study/research in agriculture under direct supervision of a faculty member. You may take this course more than once for a maximum of 6.0 units. Credit/no credit grading only.

**AGRI 420 Techniques in Vocational Agricultural Instruction** | 2.0 | Spring

Prerequisites: AGRI 201 or faculty permission. Preparation for student teaching in agriculture. Orientation to classroom situations. Development of plans for teaching, including daily lessons and unit plans, utilization of source information, and resources. Class demonstration in teaching procedures, analysis, and evaluation. Special fee required; see the Class Schedule.

**AGRI 421 Curriculum and Methods in Teaching Agricultural Mechanics** | 3.0 | Spring

Prerequisites: AGET 120. Recommended: AGET 150. Curriculum development and methods of teaching and motivating students in agricultural mechanics. 2.0 hours seminar, 3.0 hours laboratory.

**AGRI 432 Holistic Management** | 3.0 | EvnFa

Prerequisites: AGRI 311 or faculty permission. A study of the design of sustainable, ecologically sound agricultural production systems. Case studies, problem-solving, and simulation modeling will be used to explore the influence of management decisions on the short- and long-term viability of agroecosystems.

**AGRI 482 Agricultural Issues** | 3.0 | Fa/Spr

Prerequisites: ENGL 130 (or its equivalent) with a grade of C– or higher. An interdisciplinary treatment of physical and biological environments used for agriculture. Historical and ecological nature of agriculture its impact on the landscape and society. Comparison of sustainable and non-sustainable agricultural practices. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see the Class Schedule.

**AGRI 490 Agricultural Experimental Research** | 4.0 | Fa/Spr

Prerequisites: AGRI 311. Students will design and execute applied agriculture research projects that seek to improve the management of agricultural enterprises. Students will learn the most common experimental designs for agricultural research, utilize computer programs to analyze and interpret experimental data and further develop scientific writing skills. 3.0 hours lecture, 3.0 hours laboratory. Special fee required; see the Class Schedule.

**AGRI 491 Agricultural Experimental Research** | 3.0 | Fa/Spr

Prerequisites: AGRI 490. This course is a continuation of AGRI 490. Students complete a research project and professional research paper and present research findings through public forums. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see the Class Schedule.

**AGRI 498 Special Topics** | 1.0–3.0 | Fa/Spr

This course is for special topics offered for 1.0–3.0 units. Typically the topic is offered on a one-time-only basis and may vary from term to term and be different for different sections. See the Class Schedule for the specific topic being offered.

**AGRI 499H Honors Research in Agriculture** | 6.0 | Fa/Spr

An intensive 6-unit, one-year course in agricultural research. See College office for details. Open only to students with at least a 3.0 GPA in the major. The course consists of a faculty-supervised research project, a thesis, and a public presentation.

**AGRI 520 Supervised Teaching: Agriculture** | 10.0 | Fa/Spr

Prerequisites: Acceptance into the fifth-year program in agricultural education. Supervised teaching in public secondary school daily for one semester. Candidate will arrange his/her schedule so that he/she is free from all campus obligations.

**AGRI 521 Curriculum and Methods of Teaching Vocational Agricultural** | 3.0 | Fa/Spr

Prerequisites: Acceptance into the fifth-year program in agricultural education. Principles of curriculum development in agriculture; methods of teaching and organization of teaching material.
### Agricultural Business Course Offerings

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Terms</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS 101</td>
<td>Introduction to Agricultural Business and Economics</td>
<td>3.0 Fa/Spr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 211</td>
<td>Agricultural Selling and Consulting</td>
<td>3.0 Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 261</td>
<td>Farm Accounting</td>
<td>3.0 Fa/Spr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 262</td>
<td>Management Accounting for Agriculture</td>
<td>3.0 Fa/Spr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 298</td>
<td>Special Topics</td>
<td>1.0–3.0 Inquire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 300</td>
<td>Agricultural Business Competition</td>
<td>1.0 Fa/Spr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 301</td>
<td>Agricultural Production Economics and Quantitative Analysis</td>
<td>3.0 Fa/Spr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 311</td>
<td>Agricultural Markets and Pricing</td>
<td>3.0 Fa/Spr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 312</td>
<td>Wholesaling and Retailing Food Products</td>
<td>3.0 Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 321</td>
<td>Agribusiness Management</td>
<td>3.0 Fa/Spr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 327</td>
<td>Agricultural Business Seminar</td>
<td>1.0–2.0 Inquire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 331</td>
<td>Agricultural Management Information Systems</td>
<td>3.0 Fa/Spr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 341</td>
<td>Natural Resource Economics</td>
<td>3.0 Inquire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 389</td>
<td>Internship in Agribusiness</td>
<td>1.0–3.0 Fa/Spr</td>
<td></td>
<td>Permission from Internship Coordinator. You must register directly with a supervising faculty member. Experience may be related to agribusinesses, including financial institutions, marketing agencies, management firms, farms, ranches, private or public agencies. Experience must be related to business aspects of agriculture. Supervised by faculty, and staff of cooperating banks, farms, agencies, and corporations. You must take this course more than once for a maximum of 15.0 units. Credit/no credit grading only.</td>
</tr>
<tr>
<td>ABUS 390</td>
<td>World Food and Hunger Issues</td>
<td>3.0 Fa/Spr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 398</td>
<td>Special Topics</td>
<td>1.0–3.0 Inquire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABUS 399</td>
<td>Special Problems</td>
<td>1.0–3.0 Fa/Spr</td>
<td></td>
<td>Faculty permission. This course is an independent study of special problems and is offered for 1.0–3.0 units. You may take this course more than once for a maximum of 6.0 units.</td>
</tr>
<tr>
<td>ABUS 411</td>
<td>Agricultural Marketing Planning</td>
<td>3.0 Fall</td>
<td></td>
<td>ABUS 311 or faculty permission. To provide an in-depth understanding of operating marketing planning and implementation. Development of a marketing plan including product and market assessment, financial evaluation justification, a plan of action, and an evaluation/control component. Special fee required; see the Class Schedule.</td>
</tr>
<tr>
<td>ABUS 425</td>
<td>Cooperatives Seminar</td>
<td>3.0 Fall</td>
<td></td>
<td>ABUS 101, ABUS 311, senior standing. Cooperative principles and philosophy, Types and importance of cooperative activity in the U.S. Accounting for cooperative activity. You may take this course more than once for a maximum of 6.0 units. Special fee required; see the Class Schedule.</td>
</tr>
<tr>
<td>ABUS 426</td>
<td>Farm Labor</td>
<td>3.0 Inquire</td>
<td></td>
<td>Senior standing; completion of 6 units of upper-division ABUS courses. An examination of the critical role played by labor in the development and vitality of California's agricultural industry. Emphasis on policy issues related to functioning of labor markets, employment practices, unionization and collective bargaining, immigration, and mechanization.</td>
</tr>
<tr>
<td>ABUS 437</td>
<td>Computers in Agriculture Seminar</td>
<td>3.0 Inquire</td>
<td></td>
<td>ABUS 331 or equivalent. An advanced study of microcomputer applications for agribusiness management. Students are trained in advanced uses of a data base manager, an electronic spreadsheet, and various applications software for cost accounting, production management, and planning.</td>
</tr>
<tr>
<td>ABUS 451</td>
<td>Agricultural Policy</td>
<td>3.0 Fa/Spr</td>
<td></td>
<td>Senior standing, ABUS 301, ECON 102. Domestic and international issues in U.S. agricultural food policy. A study of the major problems confronting agriculture, the process by which government formulates agricultural policy, and the socio-economic impact of current government programs.</td>
</tr>
</tbody>
</table>

**Notes:**
- Prerequisites: ABUS 101 or equivalent.
- The role of agricultural business in the economy. Introductory economic and business principles and their application to the solution of agricultural problems. This is an approved General Education course.
- Emphasis on cultural values, physical, economic, and political constraints; hunger and international trade. This is an approved General Education course. This is an approved Non-Western course.
- Special topics offered for 1.0–3.0 units. Typically the topic is offered on a one-time-only basis and may vary from term to term and be different for different sections. See the Class Schedule for the specific topic being offered.
- This course is for special topics offered for 1.0–3.0 units. Typically the topic is offered on a one-time-only basis and may vary from term to term and be different for different sections. See the Class Schedule for the specific topic being offered.
- This course is an independent study of special problems and is offered for 1.0–3.0 units. You may take this course more than once for a maximum of 6.0 units.
- Special topics offered for 1.0–3.0 units. Typically the topic is offered on a one-time-only basis and may vary from term to term and be different for different sections. See the Class Schedule for the specific topic being offered.
### Agricultural Engineering Technology Course Offerings

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGET 110</td>
<td>Directed Work AGET</td>
<td>1.0–2.0</td>
<td>Fa/Spr</td>
</tr>
<tr>
<td>AGET 120</td>
<td>Introduction to Agricultural Mechanics</td>
<td>3.0</td>
<td>Fall</td>
</tr>
<tr>
<td>AGET 150</td>
<td>Agricultural Machine Systems</td>
<td>3.0</td>
<td>Fa/Spr</td>
</tr>
<tr>
<td>AGET 340</td>
<td>GPS &amp; GIS in Agriculture and Natural Resource Management</td>
<td>3.0</td>
<td>Fall</td>
</tr>
<tr>
<td>AGET 350</td>
<td>Energy Alternatives in Agriculture</td>
<td>3.0</td>
<td>Inquire</td>
</tr>
<tr>
<td>AGET 360</td>
<td>Irrigation</td>
<td>3.0</td>
<td>Spring</td>
</tr>
</tbody>
</table>

### Animal Science Course Offerings

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 171</td>
<td>Principles of Livestock—Beef</td>
<td>1.0</td>
<td>Inquire</td>
</tr>
<tr>
<td>ANSC 172</td>
<td>Principles of Livestock—Sheep</td>
<td>1.0</td>
<td>Inquire</td>
</tr>
<tr>
<td>ANSC 173</td>
<td>Principles of Livestock—Swine</td>
<td>1.0</td>
<td>Inquire</td>
</tr>
<tr>
<td>ANSC 174</td>
<td>Principles of Livestock—Dairy</td>
<td>1.0</td>
<td>Inquire</td>
</tr>
<tr>
<td>ANSC 175</td>
<td>Basic Horse Science</td>
<td>3.0</td>
<td>Spring</td>
</tr>
</tbody>
</table>

### Principles of Livestock—Sheep

**1.0–3.0 Fa/Spr**
Prerequisites: BLAW 302, senior standing.
An examination of the rules of contract, tort, property, and other laws of practical concern to agricultural business operations. Emphasis will be on applications relevant to the California farm sector and will focus on business organization, finance, estate planning, and the evolution of California law on land and water use, labor relations, and environmental protection.

### Farm and Ranch Appraisal

**3.0 Fall**
Prerequisites: ABUS 101.
Principles and techniques of farm and ranch appraisal. Valuation of farm and rural resources. 2.0 hours lecture, 3.0 hours laboratory.

### Agricultural Finance

**3.0 Spring**
Prerequisites: ABUS 101 and ABUS 261.
Financing of agricultural enterprises. Principles, methods, and institutions involved in financing farming enterprises and related agricultural industries. Coordinated financial statements. Capital budgeting. 2.0 hours discussion, 2.0 hours activity.

### Risk Management Strategies

**3.0 Spring**
Study of risk management strategies in agriculture, including workplace safety, rules, and regulations. Equipment selection, maintenance, trends, and economics. Determining equipment requirements and costs. Systems for recording parts, services, and maintenance. Formerly AGET 487.

### Special Topics

**1.0–3.0 Inquire**
This course is for special topics offered for 1.0–3.0 units respectively. Typically the topic is offered on a one-time-only basis and may vary from term to term and be different for different sections. See the Class Schedule for the specific topic being offered.

### Honors Independent Study in Agribusiness

**6.0 Fa/Spr**
Prerequisites: Faculty permission.
An intensive 6-unit, one-year investigation of a research topic in agricultural business. See College office for details. Open to students with at least a 3.0 GPA in the major. Course consists of a faculty-supervised research project, a thesis, and a public presentation.

### Internship in Agricultural Engineering Technology

**1.0–3.0 Fa/Spr**
Prerequisites: Prior approval of academic goals by the Internship Coordinator.
This course is an internship offered for 1.0–3.0 units. You must register directly with a supervising faculty member. Work experience with selected farm machinery shop or corporations is to be completed and supervised by faculty and staff of cooperating ranch or industry. You may take this course more than once for a maximum of 15.0 units. Credit/no credit grading only.

### Special Problems

**1.0–3.0 Fa/Spr**
Prerequisites: Upper-division standing, faculty permission.
This course is an independent study of a topic or problem and is offered for 1.0–3.0 units. Students must register with a supervising faculty member. Study/research/problem solving under direct supervision of a faculty member. You may take this course more than once for a maximum of 6.0 units. Credit/no credit grading only.

### Agricultural Control Systems

**3.0 Fall**
Prerequisites: AGET 120.
A study of agricultural equipment (harvesters, irrigation systems, etc.) and the computer, electronic, electrical, and mechanical controls involved. The operation, installation, trouble-shooting, and maintenance of control systems in agricultural applications. 2.0 hours lecture, 2.0 hours activity.
**Agriculture**

**ANSC 198 Special Topics**  1.0–3.0 Fa/Spr  
This course is for special topics offered for 1.0–3.0 units. Typically the topic is offered on a one-time-only basis and may vary from term to term. See the Class Schedule for the specific topic being offered.

**ANSC 230 Animal Feeds and Nutrition**  3.0 Fa/Spr  
An introduction to the nutrition of domestic and wild animals with emphasis on appropriate nutrition for various activities. A survey of the integration of feed production and animal production systems. Computer formulation and analysis of diets to achieve desired performance levels of animals. 2.0 hours lecture, 2.0 hours activity.

**ANSC 250 Live Animal and Carcass Evaluation**  3.0 Spring  
Evaluation of market livestock as related to growth and development, production efficiency, carcass merit, selection of breeding animals based on performance, production records and visual appraisal. Specific reference to factors determining carcass value. 2.0 hours seminar, 2.0 hours activity.

**ANSC 260 Advanced Veterinary Practices**  3.0 Fall  
Prerequisites: ANSC 160.  
Disease control practices and methods as they apply to food animals and horses. Includes theory and use of various disease control practices, such as sanitation, vaccination, and treatments for the various diseases and parasites. Students will learn common veterinary practices as applied in animal agriculture. 3.0 hours laboratory, 2.0 hours lecture.

**ANSC 272 Sheep Production and Management**  3.0 Fall  
Prerequisites: ANSC 101.  
A study of approved practices in commercial and purebred sheep production with emphasis on production costs, disease, nutrition, genetic selection, production records, niche marketing, and contributions of sheep to environmental sustainability. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see the Class Schedule.

**ANSC 273 Swine Production and Management**  3.0 Spring  
Prerequisites: ANSC 101.  
A study of approved practices in commercial and purebred swine production with emphasis on production costs, disease, reproduction, nutrition, genetic selection, production records and niche marketing. 2.0 hours lecture, 3.0 hours laboratory.

**ANSC 301 Intermediate Animal Systems**  3.0 Fa/Spr  
Prerequisites: ANSC 101.  
An overview of world and United States animal production systems, emphasizing the scientific principles and management of large and small ruminants (beef, dairy, sheep, goats), monogastrics (swine, equine), as well as meat, poultry, and aquaculture. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see the Class Schedule.

**ANSC 320 Advanced Livestock Selection and Carcass Evaluation**  3.0 Fall  
Prerequisites: ANSC 101, ANSC 230.  
Develop skills in quality grading and yield grading animals both live and on the farm. Impart skills in selecting animals in pasture conditions and develop ability to explain decisions and be able to accurately describe their reasons. Numerous field trips to fairs and ranches will be required. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see the Class Schedule.

**ANSC 330 Animal Nutrition**  3.0 Spring  
Prerequisites: ANSC 101, ANSC 230.  
A study of the nutritive requirements of animals for maintenance, growth, lactation, reproduction and other bodily functions. Intermediary metabolism of nutrients, chemical and animal analysis of feedstuffs, design and implementation of nutrition studies and writing of a scientific paper. 2.0 hours seminar, 3.0 hours laboratory.

**ANSC 340 Reproductive Physiology of Domestic Animals**  3.0 Fall  
Prerequisites: ANSC 101 or BIOL 108.  
The physiological mechanisms of reproduction in domestic animal species. Principles of reproductive anatomy, gamete formation, endocrinology, cyclicity and parturition. The laboratory experience will emphasize theory learned in lecture and will include uses of reproductive technology to maximize reproductive efficiency and fertility. 2.0 hours seminar, 3.0 hours laboratory.

**ANSC 350 Meat and the Consumer**  3.0 Fa/Spr  
Muscle growth and composition, nutritional and health concerns, meat safety and advances in product development, preparation and storage. 2.0 hours lecture, 1.0 hours laboratory.

**ANSC 360 Animal Health and Disease**  3.0 Spring  
Prerequisites: ANSC 101.  
A study of disease processes in livestock. Principles of disease organisms and the physiology of infection. Mechanisms in which the body combats infections, i.e., immune response. Herd health considerations for disease prevention and treatment. 2.0 hours seminar, 2.0 hours activity.

**ANSC 375 Advanced Horse Science**  3.0 Fall  
Prerequisites: ANSC 175, ANSC 230, faculty permission.  
Advanced topics in the study of horses. Advanced studies will include breeding, genetics, nutrition, disease and parasite control, exercise physiology, and management practices of the modern horse enterprise. Formulation of least-cost feed rations and planning in the horse industry are studied.

**ANSC 389 Internship in Animal Science**  1.0–3.0 Fa/Spr  
Prerequisites: Prior approval of academic goals by the Internship Coordinator. This course is an internship offered for 1.0–3.0 units. You must register directly with a supervising faculty member. Work experience with selected livestock operations is to be completed and supervised by faculty and staff of cooperating livestock ranch. You may take this course more than once for a maximum of 15.0 units. Credit/no credit grading only.

**ANSC 398 Special Topics**  1.0–3.0 Fa/Spr  
This course is for special topics offered for 1.0–3.0 units. Typically the topic is offered on a one-time-only basis and may vary from term to term. See the Class Schedule for the specific topic being offered.

**ANSC 399 Special Problems**  1.0–3.0 Fa/Spr  
Prerequisites: Upper-division standing. This course is an independent study of a topic or problem and is offered for 1.0–3.0 units. Students must register with a supervising faculty member. See the Class Schedule for the specific topic being offered.

**ANSC 440 Anatomy and Physiology of Domestic Animals**  4.0 Fall  
Prerequisites: ANSC 101, CHEM 107 or CHEM 111.  
Comparative study of anatomy and physiology of organ systems, with major emphasis on farm animals. 3.0 hours lecture, 3.0 hours laboratory.

**ANSC 450 Food Sanitation and Quality Control**  3.0 Spring  
Prerequisites: ANSC 101; CHEM 107 or CHEM 111.  
This course is intended for students involved in producing, selling, and handling food products who are interested in a course on principles of food sanitation and quality control from a management standpoint.

**ANSC 470 Livestock Production Problems**  1.0 Fa/Spr  
Prerequisites: Senior standing or faculty permission. Investigation of current and specific problems in the various areas of animal production. You may take this course more than once for a maximum of 6.0 units.

**ANSC 471 Beef Production and Management**  3.0 Spring  
Prerequisites: ANSC 101.  
An overview of world and United States beef production systems. Investigation of the segmentation of the beef industry, including seedstock, commercial cow-calf, stocker, feedlot, packer, retailer and consumer. Integrated beef production systems will be evaluated based on consideration of genetics, nutrition, health, reproduction, and product, forage management and marketing. 2.0 hours seminar, 3.0 hours laboratory. Special fee required; see the Class Schedule.

**ANSC 474 Dairy Production and Management**  3.0 Fall  
Prerequisites: ANSC 101.  
A comprehensive study of large dairy management with emphasis placed on efficient reproduction and nutrition. Additional studies include evaluation of replacement heifer development scenarios, cow comfort, and record keeping systems. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see the Class Schedule.

**Plant and Soil Science Course Offerings**

**PSSC 101 Introduction to Plant Science**  3.0 Fa/Spr  
Plant structure, growth, reproduction, and responses to the environment. How humans modify plants and the environment to grow crops. 2.0 hours lecture, 3.0 hours laboratory. This is an approved General Education course. Special fee required; see the Class Schedule.

**PSSC 160 West Coast Crop Production**  1.0 Fa/Spr  
A study of people, careers, crops, and systems related to crop industries in the area. An opportunity to meet with professionals and learn about the skills required for research, management, and services that support agricultural production. Meets the second half of the semester. Credit/no credit grading only.
PSSC 250 Introduction to Soil Science 3.0 Fa/Spr
Prerequisites: CHEM 107 or CHEM 111.
Soil biology, fertility, chemistry, physical properties, taxonomy and their applications to agricultural management and environmental enhancement. Relationships of soils to the world food supply and population. 2.0 hours lecture, 1.0 hours laboratory. Special fee required; see the Class Schedule.

PSSC 274 Greenhouse Management 3.0 Spring
Greenhouse construction, environment, and management practices, including heating and cooling, irrigation, fertilization, and pest control. 2.0 hours lecture, 1.0 hours laboratory.

PSSC 305 Introduction to Wines 3.0 Fall
Prerequisites: At least 21 years of age. Grape-growing, and winemaking in California wine regions. Wine and food matching. Sensory evaluation. 2.0 hours lecture, 1.0 hours discussion. Special fee required; see the Class Schedule.

PSSC 309A Directed Work in Field and Row Crops 2.0 Fall
Directed work and discussion on all fall aspects of field and row crop production practices applicable to northern California. Students are encouraged to enroll in PSSC 309B after this directed work. 1.0 hours discussion, 2.0 hours activity. You may take this course more than once for a maximum of 4.0 units.

PSSC 309B Directed Work in Field and Row Crops 2.0 Spring
Prerequisites: PSSC 309A or faculty permission.
Directed work and discussion on all spring aspects of field and row crop production practices applicable to northern California. 1.0 hours discussion, 2.0 hours activity. You may take this course more than once for a maximum of 4.0 units.

PSSC 310A Directed Work in Orchard Crops 2.0 Spring
Prerequisites: PSSC 101.
Weekly discussions of orchard projects. Group problems and individual instruction emphasizing fruit set and growth. 1.0 hours discussion, 2.0 hours activity. You may take this course more than once for a maximum of 4.0 units.

PSSC 310B Directed Work in Orchard Crops 2.0 Fall
Prerequisites: PSSC 101.
Weekly discussions of orchard projects. Group problems and individual instruction emphasizing harvesting and transport, marketing, pruning, and training systems. 1.0 hours discussion, 2.0 hours activity. You may take this course more than once for a maximum of 4.0 units.

PSSC 312 Directed Work in Greenhouse Production 2.0 Fa/Spr
Directed work and discussion on all aspects of plant production in the greenhouse environment. Plant species may include ornamentals, crops, and California wildland natives. 1.0 hours discussion, 2.0 hours activity. You may take this course more than once for a maximum of 4.0 units.

PSSC 330 Rangeland Resources and Management 3.0 Fall
A survey of North American rangeland resources and the principles of their use and management, including basic plant-animal-soil relationships and multiple use.

PSSC 331 Grasses and Grasslands of the Western US 3.0 OddSp
Prerequisites: PSSC 101. PSSC 330 is recommended.
Physical and biological environments of North American grasslands. Vegetative communities, dynamics, and principal species. Systematic study and identification of native and some introduced species. 2.0 hours lecture, 3.0 hours laboratory.

PSSC 332 Range Plant Identification 1.0 Inquire
Identification of the 200 most important North American rangeland plants (grasses, forbs, shrubs, trees) in all phenological stages. Participation in statewide and international competition.

PSSC 334 Wetland and Riparian Resources and Management 3.0 OddFa
Prerequisites: Completion of lower-division core. History of alteration and loss of wetland and riparian resources. Classification, description, and functions of meadows, marshes, lakes, rivers, and riparian corridors. Principal uses, impacts, and values. Inventory, monitoring, and management of riparian resources. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see the Class Schedule.

PSSC 340 Economic Entomology 3.0 Fall
A survey of the structure and function of insects, leading to a fundamental understanding of applied insect ecology and taxonomy. Particular emphasis is placed on arthropod species of economic importance to humans. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see the Class Schedule.

PSSC 342 Plant Pathology 3.0 EvnFa
Prerequisites: PSSC 101.
Major diseases of agricultural crops; their symptoms, causal agents, and control methods. Consideration of the roles of environment, cultural practices, and genetics on crop development. 2.0 hours lecture, 3.0 hours laboratory.

PSSC 343 Introduction to Weed Science 3.0 Spring
Prerequisites: AGRI 331.
Identification, modes of spread, and population ecology of weeds and other invasive plant species. Biological, cultural, mechanical, and chemical control of weeds and invasive species. Methods of crop/vegetation management to control and reduce weed populations. 2.0 hours lecture, 3.0 hours laboratory.

PSSC 353 Agrichemicals 3.0 Fall
Prerequisites: CHEM 107 or CHEM 111; PSSC 250.
Laws and regulations, safety, application, properties, mode of action, toxicity, and environmental impacts of pesticides, fertilizers, and other chemicals used in agriculture. Fertilizers are also discussed in relation to plant nutrition and production. 2.0 hours lecture, 3.0 hours laboratory.

PSSC 354 Soil Physical Properties and Production Practices 3.0 Inquire
Prerequisites: PSSC 101, PSSC 250.
The physical properties of texture, structure, density, porosity, and consistency will be examined from a production aspect. Measurement of and changes in these properties will be studied, with interest in the modifications made on the soil by tillage. Recommended for agriculture majors. 2.0 hours lecture, 3.0 hours laboratory.

PSSC 356 Soil Quality and Health 3.0 EvnSp
Prerequisites: PSSC 250 or instructor permission.
Course examines the capacity of the soil to function within natural and managed ecosystems to sustain plant/animal productivity, maintain or enhance water and air quality, and support human health and habitation. Soil quality factors include biological, physical, and chemical soil properties. 2.0 hours lecture, 2.0 hours activity. Special fee required; see the Class Schedule.

PSSC 360 Ecology of Crop Production 3.0 EvnSp
Prerequisites: AGRI 331.
Ecological processes governing the structure and behavior of cultivated ecosystems. Emphasis on mechanistic and systems views of the physical and biological environment, photosynthetic productivity, competition, adaptation, nutrient cycling, and energy relations. 2.0 hours discussion, 3.0 hours laboratory.

PSSC 361 Production of Annual Crops 3.0 Fall
This course covers the requirements and cultural practices needed for maximizing yields of annual field crops. Principles affecting growth development and management will be covered. For field experience, students are advised to enroll in PSSC 309A/PSSC 309B.

PSSC 363 Forage Crops 3.0 Inquire
Prerequisites: PSSC 101 or PSSC 330.
Grasses and legumes; their production and management for irrigated pastures, hay, silage, and seed. Plant characteristics and adaptation. 2.0 hours lecture, 3.0 hours laboratory.

PSSC 364 Seed Production 3.0 EvnFa
Prerequisites: PSSC 101 or faculty permission.
Principles and practices of seed-crop production. Federal, state, and county seed laws. Certified seed program. Seed testing and laboratory analysis; seed-borne diseases and seed treatments. 3.0 hours laboratory, 2.0 hours lecture.

PSSC 366 Fruit and Nut Production 3.0 Spring
Prerequisites: Upper-division standing.
Managing and optimizing the fruit and nut production system. Selection of planting sites and varieties, tree training and pruning, pollination, thinning, irrigation, mineral nutrition, and pest management are included. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see the Class Schedule.

PSSC 389 Internship 1.0–6.0 Fa/Spr
Prerequisites: Junior standing, faculty permission.
This course is an internship offered for 1.0–6.0 units. You must register directly with a supervising faculty member. Internship with private industry, state, federal, international, or non-profit organization. Selected topics may be part of a Plant and Soil Science Option area. You may take this course more than once for a maximum of 15.0 units. Credit/no credit grading only.
**Food Forever: Comparisons of Sustainable Special Topics**

- Food Production Systems
  - How ecological factors, technology, and human values interact to determine available choices of food and its production. Consequences of these choices in terms of community structures, resource allocations, and stability of agro-ecosystems. This course is designed to be a component of the Upper-Division Theme on Cross-Cultural Exploration. Not intended for majors, but open to them. This is an approved General Education course. This is an approved Non-Western course.

- World Food and Fiber Systems
  - A study and analysis of various world agriculture systems that provide food and fiber. Environmental, technological, socio-economic, and political factors. This is an approved General Education course. This is an approved Non-Western course.

- Special Topics
  - This course is for special topics offered for 1.0–3.0 units. Typically the topic is offered on a one-time-only basis and may vary from term to term. See the Class Schedule for the specific topic being offered.

- Special Problems
  - This course is an independent study of a topic or problem and is offered for 1.0–3.0 units. Students must register with a supervising faculty member. Study/research in plant science and soil science under direct supervision of a faculty member. You may take this course more than once for a maximum of 6.0 units. Credit/no credit grading only.

- Wildland Vegetation Ecology
  - Prerequisites: PSSC 330 and completion of lower-division core. Vegetation ecology with special reference to grassland, shrubland, and woodland communities and ecosystems. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see the Class Schedule.

- Vegetation Dynamics and Management
  - Prerequisites: PSSC 330 and completion of lower-division core. Dynamics of selected vegetation types of the arid western U.S. Role and impact of herbivory and fire. Use of grazing and fire in vegetation management.

- Wildland Classification and Inventory
  - Prerequisites: PSSC 330 and completion of lower-division core. Quantitative approaches, methods, and field techniques for the classification, description, and inventory of grasslands, shrublands, woodlands, and forestlands. 3.0 hours laboratory, 2.0 hours lecture. Special fee required; see the Class Schedule.

- Landscape Ecology
  - Prerequisites: PSSC 330 and completion of the lower-division core. Nature and impact of continuity and patchiness, of plant and animal movement and of material flow on the structure and dynamics of wildland and agrarian landscapes. Special fee required; see the Class Schedule.

- Principles of Integrated Pest Management
  - Prerequisites: AGRI 131; PSSC 140 or PSSC 142 or PSSC 143. An introduction to the principles and mechanisms of integrated management of insect pests, plant pathogens, and weeds, dealing with such areas as the agro-ecosystem, population dynamics, and specific approaches to pest management.

- Soil Genesis and Classification
  - Prerequisites: PSSC 250 or faculty permission. An examination of the factors of soil formation, criteria and systems of soil classification. The laboratory consists of five all-day field trips. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see the Class Schedule.

- Computer Application in Irrigation and Soils
  - Prerequisites: AGET 360 or PSSC 250. Computer applications in soils and irrigation, emphasizing hands-on use of various application programs, including irrigation scheduling, soil salinity, systems, and land-leveling.

- Soil Fertility and Plant Nutrition
  - Prerequisites: PSSC 250. Properties of soils, fertilizers, and plant materials. Soil amendments and soil reaction effects on plants. Fertilizer usage. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see the Class Schedule.

- Water Quality, Saline Soils
  - Prerequisites: AGET 360 or faculty permission. Irrigation water quality, soil salinity, and drainage as related to yield reduction in agricultural production. 2.0 hours lecture, 3.0 hours laboratory.

- Irrigation Systems
  - Prerequisites: AGET 360 or faculty permission. Design of sprinkler, drip, furrow, and surface irrigation systems. Includes pump, pipeline, and economics. 2.0 hours seminar, 3.0 hours laboratory.

- Plant Reproduction Systems
  - Prerequisites: PSSC 101; AGRI 305, or faculty permission. Principles and practices of sexual and asexual reproduction. Physiological, environmental, and industry requirements for quality seed production, certification. Asexual propagation through cuttings, grafting, budding, micropropagation, somatic embryogenesis. 2.0 hours lecture, 3.0 hours laboratory.

- Plant Tissue Culture
  - Prerequisites: BIOL 414. Principles of tissue culture and related methods. Use in research, plant breeding, and propagation of ornamental, vegetable, agronomic, and fruit crops. Laboratory organization, media, and current research. 2.0 hours lecture, 3.0 hours laboratory.

- Internship
  - Prerequisites: PSSC 389, senior/graduate standing, faculty permission. Internship with private industry, state, federal, international, or non-profit organization. Selected topic must be in a PSSC option area. You may take this course more than once for a maximum of 15.0 units. Credit/no credit grading only.

- Special Topics
  - This course is for special topics offered for 1.0–3.0 units. Typically the topic is offered on a one-time-only basis and may vary from term to term and be different for different sections. See the Class Schedule for the specific topic being offered.