Program
BS in Agriculture
Options in:
- Agriscience and Education
- Animal Science
- Plant Science
- Land Stewardship
BS in Agricultural Business
Minor in Agriculture
Minor in Agricultural Business
Pre-professional Advising:
- Veterinary Medicine

Teaching Credentials:
- Single Subject in Agriculture
- Specialist in Agriculture

Agriculture will remain a major industry in the nation as well as in California. There is a steady, continuing supply of professional managerial jobs for well-educated people in agriculture and natural resource management. In response to the quality of our programs and the career opportunities, the number of majors in the College of Agriculture continues to rise.

Individuals enrolled in the College of Agriculture receive both theoretical knowledge and practical experience — both very necessary to become the future leaders of this important economic sector. Students learn through a systems approach about the complex set of interrelationships between agriculture, the environment, political and social forces, and other sectors of the economy.

The BS in Agriculture covers agriscience and technology. Options are offered in agriscience and education, animal and plant science, and land stewardship. State-of-the-art procedures reflect the science-based nature of agriculture and natural resource management in the 21st century. A student can choose either to concentrate in a single option or emphasize a broad overview. The program is designed for "hands-on" learning. A rigorous industry-based internship program, undergraduate research experiences and a variety of learning activities at the Agricultural Teaching and Research Center give this program its reputation for student-centered learning.

The BS in Agricultural Business provides students with an excellent and comprehensive background in business theory combined with a working knowledge of production agriculture. The Agricultural Teaching and Research Center, microcomputer lab, and off-campus internships are available to gain valuable practical experience. The emphasis of this degree program is to prepare students for entry-level 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.

Faculty
Excellent agricultural facilities include 800 acres of irrigated farmland and approximately 240 acres of rangeland. A wide variety of crops are grown at the Agricultural Teaching and Research Center. It has excellent orchards and croplands and is stocked with many head of registered animals.

Career Outlook
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. Career opportunities appear excellent.

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. The department has prepared a suggested Four Year Advising Plan to help students meet all graduation requirements within four years. Please request a plan from your major adviser 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 this major, effective Fall 2004, ABUS 080 may be applied to General Education Breadth Area D1.

Cultural Diversity Course Requirements: 6 units

See “Cultural Diversity” in The University Catalog. Most courses used 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” 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 001 (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. Additional required courses, dependent upon a selected option or advising pattern, are outlined following the degree core program requirements.

DEGREE CORE PROGRAM: 46 units

Lower-Division Core: 33 units

6 courses required:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS 080</td>
<td>3.0</td>
<td>Intro to Ag Business/Economics</td>
</tr>
<tr>
<td>AGRI 010</td>
<td>1.0</td>
<td>The University Experience</td>
</tr>
<tr>
<td>ANSC 002</td>
<td>3.0</td>
<td>Introduction to Animal Science</td>
</tr>
<tr>
<td>MATH 005</td>
<td>3.0</td>
<td>Statistics</td>
</tr>
<tr>
<td>Prerequisites: Completion of ELM requirement.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSSC 022</td>
<td>3.0</td>
<td>Introduction to Plant Science</td>
</tr>
<tr>
<td>PSSC 050</td>
<td>3.0</td>
<td>Introduction to Soil Science</td>
</tr>
<tr>
<td>Prerequisites: CHEM 027 or CHEM 037.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 course selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 027</td>
<td>4.0</td>
<td>Gen Chem for Applied Sciences</td>
</tr>
<tr>
<td>Prerequisites: Intermediate Algebra.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 037</td>
<td>4.0</td>
<td>General Chemistry</td>
</tr>
<tr>
<td>Prerequisites: Second-year high school algebra; one year high school chemistry or CHEM 016. (One year of high school physics and one year of high school mathematics past Algebra II are recommended.)</td>
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</table>

1 course selected from:

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<tr>
<th>Course</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 028</td>
<td>4.0</td>
<td>Organic Chem for Applied Science</td>
</tr>
<tr>
<td>Prerequisites: CHEM 027 or CHEM 037.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 038</td>
<td>4.0</td>
<td>General Chemistry</td>
</tr>
<tr>
<td>Prerequisites: CHEM 037.</td>
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<td></td>
</tr>
</tbody>
</table>

2 courses selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS 083</td>
<td>3.0</td>
<td>Farm Accounting</td>
</tr>
<tr>
<td>AGET 085</td>
<td>3.0</td>
<td>Agricultural Machine Systems</td>
</tr>
<tr>
<td>ANSC 011</td>
<td>3.0</td>
<td>Animal Feeds and Nutrition</td>
</tr>
</tbody>
</table>

3 units selected from:

Any ABUS, AGET, AGRI, ANSC, or PSSC courses selected in consultation with an adviser.

Upper-Division Core: 13 units

4 courses required:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 111</td>
<td>3.0</td>
<td>Agricultural Ecology</td>
</tr>
<tr>
<td>Prerequisites: ANSC 002 or BIOL 008 or PSSC 002; CHEM 003 or CHEM 027.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGRI 230A</td>
<td>4.0</td>
<td>Agricultural Experimental Res</td>
</tr>
<tr>
<td>Prerequisites: AGRI 111.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGRI 230B</td>
<td>3.0</td>
<td>Agricultural Experimental Res</td>
</tr>
<tr>
<td>Prerequisites: AGRI 230A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGRI 292</td>
<td>3.0</td>
<td>Agricultural Issues</td>
</tr>
<tr>
<td>Prerequisites: ENGL 001 (or its equivalent) with a grade of C- or higher.</td>
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</tr>
</tbody>
</table>

Major Option Course Requirements: 37 units

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

THE OPTION IN AGRICULTURE AND EDUCATION: 37 units

3 courses required:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 145</td>
<td>4.0</td>
<td>Agri Genetics &amp; Biotechnology</td>
</tr>
<tr>
<td>Prerequisites: ANSC 002 or BIOL 008 or PSSC 002; CHEM 003 or CHEM 027.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGET 090</td>
<td>3.0</td>
<td>General Farm Mechanics</td>
</tr>
<tr>
<td>Prerequisites: ANSC 002.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGET 133N</td>
<td>3.0</td>
<td>Agribusiness Mgmt for Non-Majors</td>
</tr>
<tr>
<td>Prerequisites: ABUS 080.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 course selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 100</td>
<td>3.0</td>
<td>Intermediate Animal Systems</td>
</tr>
<tr>
<td>Prerequisites: ANSC 002.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSSC 160</td>
<td>3.0</td>
<td>Ecology of Crop Production</td>
</tr>
<tr>
<td>Prerequisites: AGRI 111.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

24 units selected from:

Any upper-division Agriculture (AGRI), Animal Science (ANSC), Agricultural Engineering Technology (AGET), Plant and Soil Sciences (PSSC), or Agricultural Business (ABUS) courses. All courses must be approved by your adviser.

THE OPTION IN ANIMAL SCIENCE: 37 units

5 courses required:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 145</td>
<td>4.0</td>
<td>Agri Genetics &amp; Biotechnology</td>
</tr>
<tr>
<td>Prerequisites: ANSC 002 or BIOL 008 or PSSC 002; CHEM 003 or CHEM 027.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANSC 100</td>
<td>3.0</td>
<td>Intermediate Animal Systems</td>
</tr>
<tr>
<td>Prerequisites: ANSC 002.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANSC 121</td>
<td>3.0</td>
<td>Animal Nutrition</td>
</tr>
<tr>
<td>Prerequisites: ANSC 002 or BIOL 010, ANSC 011.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANSC 122</td>
<td>3.0</td>
<td>Animal Health and Disease</td>
</tr>
<tr>
<td>Prerequisites: ANSC 002 or BIOL 010.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANSC 123</td>
<td>3.0</td>
<td>Repro Physiology Domestic Animal</td>
</tr>
<tr>
<td>Prerequisites: ANSC 002 or BIOL 008.</td>
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</tbody>
</table>

21 units selected from:

Any upper-division Agriculture (AGRI), Animal Science (ANSC), Agricultural Engineering (AGET), Plant and Soil Sciences (PSSC), or Agricultural Business (ABUS) courses. All courses must be approved by your adviser.

THE OPTION IN PLANT SCIENCE: 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 protection practices and contains three parallel advising patterns: crop production, crop protection (which also prepares students for careers as Pest Control Advisors), and soil management. Career opportunities may be found in the agricultural production industry, in agricultural research, and in agricultural advising and regulation.

Option Core Requirements: 22 units

Soil and Water Resources

1 course selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGET 152</td>
<td>3.0</td>
<td>Irrigation</td>
</tr>
<tr>
<td>Prerequisites: PSSC 002 or PSSC 050.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSSC 153</td>
<td>3.0</td>
<td>Agrichemicals</td>
</tr>
<tr>
<td>Prerequisites: CHEM 027 or CHEM 037; PSSC 050.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSSC 156</td>
<td>3.0</td>
<td>Soil Quality and Health</td>
</tr>
<tr>
<td>Prerequisites: PSSC 050 or instructor permission.</td>
<td></td>
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</tr>
</tbody>
</table>
Agriculture

Genetics

1 course required:
AGRI 145 Agri Genetics & Biotechnology 4.0 SP
Prerequisites: ANSC 002 or BIOL 008 or PSSC 002; CHEM 037 or CHEM 027.

Crop Production

1 course selected from:
PSSC 144 Seed Production 3.0 F2
Prerequisites: BIOL 009 or PSSC 002 or faculty permission.
PSSC 161 Production of Annual Crops 3.0 FA
PSSC 163 Forage Crops 3.0 Inq
Prerequisites: BIOL 009 or PSSC 002 or PSSC 130.
PSSC 174 Greenhouse Management 3.0 S1
PSSC 176 Fruit and Nut Production 3.0 SP
Prerequisites: Upper-division standing.

Agronomic Pests and Control

1 course selected from:
PSSC 140 Economic Entomology 3.0 F1
PSSC 142 Plant Pathology 3.0 F2
Prerequisites: PSSC 002.
PSSC 143 Introduction to Weed Science 3.0 S1
Prerequisites: AGRI 111

Crop Function

1 course required:
BIO L 215 Plant Physiology 4.0 FS
Prerequisites: BIOL 009 or BIOL 008; BIO L 009; CHEM 028 or CHEM 070; or faculty permission.

Production Experience

1 course selected from:
PSSC 109A Directed Work in Field/Row Crops 2.0 FA
PSSC 109B Directed Work in Field/Row Crops 2.0 SP
PSSC 110A Directed Work in Orchard Crops 2.0 SP
Prerequisites: PSSC 002.
PSSC 110B Directed Work in Orchard Crops 2.0 FA
Prerequisites: PSSC 002.
PSSC 112 Directed Work in Greenhouse Prod 2.0 FS
PSSC 189 Internship 1.0-6.0 FS
Prerequisites: Junior standing, faculty permission.
PSSC 189 must be taken for 2 units.

Production Management

1 course selected from:
ABUS 183N Agribusiness Mgmt for Non-Majors 3.0 FA
Prerequisites: ABUS 080.
AGRI 231 Holistic Resource Management 3.0 F2
Prerequisites: AGRI 111.

Option Electives: 15 units

15 units selected from:
Courses must be selected and approved in advance by the adviser. In selecting courses to meet this elective requirement, students must create a concentration of courses that will best meet career goals, such as crop production, crop protection, or soil management. A maximum of 6 units that substantively contribute to the Bachelor of Science in Agriculture may be lower division.

THE OPTION IN LAND STEWARDSHIP: 37 units

This option prepares students to manage either the mostly public wildlands and rangelands for the production of goods and services (wildlife, livestock, recreation), or the private/public lands at the urban-rural interface for the protection or restoration of agricultural and natural resources. The option consists, therefore, of two parallel advising patterns, referred to as the Wildland-Range Science Concentration and the Land Stewardship Concentration. Career opportunities may be found in urban, agricultural, parkland, rangeland, and wildland environments with private landowners, city/state/federal agencies, and land conservancies and consultants.

Option Core Requirements: 22 units

Plant/vegetation Management

1 course selected from:
PSSC 130 Rangeland Resources/Management 3.0 FA
PSSC 174 Greenhouse Management 3.0 S1

Soil Resources

1 course selected from:
PSSC 156 Soil Quality and Health 3.0 S2
Prerequisites: PSSC 050 or instructor permission.
PSSC 251 Soil Genesis & Classification 3.0 F1
Prerequisites: PSSC 050 or faculty permission.

Plant Foundation

1 course selected from:
BIO L 215 Plant Physiology 4.0 FS
Prerequisites: BIOL 009 or BIOL 008; BIOL 009; CHEM 028 or CHEM 070; or faculty permission.
BIO L 240 Plant Systematics 4.0 SP
Prerequisites: BIOL 009 and BIOL 008, or faculty permission.

Ecology

1 course selected from:
PSSC 233 Wildland Vegetation Ecology 3.0 F2
Prerequisites: PSSC 130 and completion of lower-division core.
PSSC 238 Landscape Ecology 3.0 F1
Prerequisites: PSSC 130 and completion of the lower-division core.

Wildland or Cropland Management

2 courses selected from:
PSSC 143 Introduction to Weed Science 3.0 S1
Prerequisites: AGRI 111
PSSC 236 Grasses & Grasslands Western US 3.0 S1
Prerequisites: BIOL 009 or PSSC 002. PSSC 130 is recommended.
PSSC 237 Wildland Classification & Inventory 3.0 S2
Prerequisites: PSSC 130 and completion of lower-division core.
PSSC 241 Principles Integrated Pest Mgmt 3.0 S2
Prerequisites: AGRI 111; PSSC 140 or PSSC 142 or PSSC 143.

Resource Management

1 course selected from:
AGRI 231 Holistic Resource Management 3.0 F2
Prerequisites: AGRI 111.
PSSC 134 WetLand/Riparian Res and Mgmt -3.0 F1
Prerequisites: Completion of lower-division core.
RECR 246 Natural Resources Management 3.0 FA
Prerequisites: RECR 010; RECR 040; RECR 200; RECR 240; successful completion of computer literacy requirement; or faculty permission.

Concentration

15 units selected from:
Courses must be selected and approved in advance by the adviser. In selecting courses to meet this requirement, students must create a concentration of courses that will best meet career goals, such as Wildland-Range Science or Land Stewardship. A maximum of 6 units that substantially contribute to the Bachelor of Science in Agriculture may be lower division. The following courses are recommended for the indicated concentrations.

Wildland-Range Science Concentration

Additional course work in wildland-range science and related subject matter selected from the option core and from:
AGET 196 GPS/Geographic Information in Natural Resources Mgmt 3.0 SP
GEOG 108 Map and Air Photo Interpretation 3.0 FS
RECR 244 Environmental Interpretation 4.0 SP
Prerequisites: Upper-division standing; a basic oral communication course such as CMST 011; or faculty permission.

Land Stewardship Concentration

Additional course work in plant science and related subject matter selected from the option core and from:
AGET 152 Irrigation 3.0 SP
AGRI 145 Agri Genetics & Biotechnology 4.0 SP
Prerequisites: ANSC 002 or BIOL 008 or PSSC 002; CHEM 037 or CHEM 027.
PSSC 244 Plant Reproduction Systems 3.0 S1
Prerequisites: PSSC 002 or BIOL 009; AGRI 143; or faculty permission.
PSSC 253 Soil Fertility & Plant Nutrition 3.0 F2
Prerequisites: PSSC 050.

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 adviser regarding the selection of courses which will provide breadth to your university experience and apply to a supportive second major or minor.
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.

The department has prepared a suggested Four Year Advising Plan to help students meet all graduation requirements within four years. Please request a plan from your major adviser 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 001 (or its equivalent) with a C- or better before you may register for a WP course.

Course Requirements for the Major: 86 units

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

Lower-Division Requirements: 35 units

10 courses required:

- ABUS 080 Intro to Ag Business/Economics 3.0 FS
- ABUS 083 Farm Accounting 3.0 FS
- ACCT 016 Intro to Managerial Accounting 3.0 FS
- AGET 085 Agricultural Machine Systems 3.0 FS
- AGRI 010 The University Experience 1.0 FS
- BLAW 100 Managing the Legal Environment 3.0 FS
- CHEM 027 Gen Chem for Applied Sciences 4.0 FS
- ECON 002 Principles of Macro Analysis 3.0 FS
- MATH 005 Statistics 3.0 FS
- PSSC 050 Introduction to Soil Science 3.0 FS

1 course selected from:

- ANSC 002 Introduction to Animal Science 3.0 FS
- PSSC 002 Introduction to Plant Science 3.0 FS

3 units selected from:

- Any lower-division Agricultural Business (ABUS), Agricultural Engineering Technology (AGET), Animal Science (ANSC), Plant and Soil Science (PSSC), or Agriculture (AGRI) course.

Upper-Division Requirements: 51 units

10 courses required:

- ABUS 130 ABUS Sys Quantitative Methods 3.0 FS
- ABUS 180 Ag Production Economic Analysis 3.0 FS
- ABUS 181 Agricultural Mgmt Info Systems 3.0 FS
- ABUS 182 Agricultural Markets and Pricing 3.0 SP
- ABUS 183M Agribusiness Mgt for ABUS Majors 3.0 SP
- ABUS 185 Agricultural Policy 3.0 SP
- ABUS 187 Agricultural Finance 3.0 FA
- ACCT 115 Intermediate Accounting I 3.0 FS
- ACCT 106 and concurrent enrollment in, or prior completion of, ACCT 111.
- AGRI 111 Agricultural Ecology 3.0 FS

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 adviser 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 6 units of honors course work completed over two semesters.

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. Most importantly, however, 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.

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 6 units are independent study (299H) 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 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 percent of majors in your department.
4. Your GPA in your major should be at least 3.5 or within the top 5 percent 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.
6. 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 adviser for further information.
### 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>4 courses selected from:</th>
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</tr>
</thead>
<tbody>
<tr>
<td>AGET 085 Agricultural Machine Systems</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>ANSC 011 Animal Feeds and Nutrition</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>PSSC 050 Introduction to Soil Science</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>Prerequisites: CHEM 027 or CHEM 037.</td>
<td></td>
</tr>
<tr>
<td>ABUS 080 Intro to Ag Business/Economics</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>ECON 003 Principles of Micro Analysis</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>NOTE: You may count ABUS 080 or ECON 003, but not both.</td>
<td></td>
</tr>
<tr>
<td>ABUS 083 Farm Accounting</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>ACCT 015 Intro to Financial Accounting</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>NOTE: You may count ABUS 083 or ACCT 015, but not both.</td>
<td></td>
</tr>
<tr>
<td>ANSC 002 Introduction to Animal Science</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>Prerequisites: BIOL 006B or faculty permission.</td>
<td></td>
</tr>
<tr>
<td>NOTE: You may count ANSC 002 or BIOL 010, but not both.</td>
<td></td>
</tr>
<tr>
<td>BIOL 010 General Zoology</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>Prerequisites: BIOL 006B or faculty permission.</td>
<td></td>
</tr>
<tr>
<td>NOTE: You may count PSSC 002 or BIOL 009, but not both.</td>
<td></td>
</tr>
<tr>
<td>12 units selected from:</td>
<td></td>
</tr>
<tr>
<td>Any upper-division courses in AGR, AGET, ANSC, or PSSC.</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.

### 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>1 course selected from:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 002 Introduction to Animal Science</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>AGET 085 Agricultural Machine Systems</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>PSSC 002 Introduction to Plant Science</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>PSSC 050 Introduction to Soil Science</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>Prerequisites: CHEM 027 or CHEM 037.</td>
<td></td>
</tr>
<tr>
<td>ABUS 080 Intro to Ag Business/Economics</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>ECON 003 Principles of Micro Analysis</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>1 course selected from:</td>
<td></td>
</tr>
<tr>
<td>AGET 083 Farm Accounting</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>ACCT 015 Intro to Financial Accounting</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>2 courses required:</td>
<td></td>
</tr>
<tr>
<td>ABUS 180 Ag Production Economic Analysis</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>Prerequisites: ABUS 080 or ECON 003.</td>
<td></td>
</tr>
<tr>
<td>MATH 005 Statistics</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>Prerequisites: Completion of ELM requirement.</td>
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</tr>
<tr>
<td>12 units selected from:</td>
<td></td>
</tr>
<tr>
<td>Any upper-division agricultural business courses.</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.
THE SINGLE SUBJECT TEACHING CREDENTIAL IN AGRICULTURE

Course Requirements for the Single Subject Teaching Credential: 46 units

In most majors, candidates for this credential will normally fulfill the single subject matter preparation program by completing the appropriate education option in the major. Any exceptions to this procedure are noted at the end of this section. In addition to the single subject matter preparation program, completion of an additional professional education program is required to qualify for a California teaching credential. Professional education (credential) programs are available through the School of Education. For prerequisites and other admission requirements to professional education programs, students are encouraged to consult the "Education" chapter of the catalog. All credential candidates recommended by CSU, Chico (under the SF 2042 standards) are authorized to teach all students including English learners in the regular classroom. You may also want to consider qualifying for BCLAD (Bilingual, Cross-cultural, Linguage, and Academic Development) emphasis and supplementary authorizations in additional subject matter areas as you plan your program.

Your departmental credential adviser is responsible for verifying that the subject matter preparation program has been completed. If you are interested in obtaining a teaching credential, confer with the appropriate credential adviser early in your university career. Department credential advisers can assist you in planning an educational program that meets both major and credential requirements.

Subject matter preparation requirements are governed by legislative action and approval of the California Commission on Teacher Credentialing. Requirements may change between catalogs. Please consult with your departmental credential adviser for current information.

Completion of the Agriscience and Education Option will fulfill the technical agriculture course work requirement for the Single Subject Teaching Credential in Agriculture. Students completing another agriculture option or major should consult the agriculture credential adviser to identify additional courses required.

The Single Subject Matter Preparation Program described below can be used to fulfill most of the degree requirements for the major in Agriculture. Students are encouraged to confer with the agriculture credential adviser early in their university career to plan a program that meets both major and credential requirements.

**BASIC CORE:** 31 units

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS 080</td>
<td>Intro to Ag Business/Economics</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>ABUS 083</td>
<td>Farm Accounting</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>AGET 085</td>
<td>Agricultural Machine Systems</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>AGET 090</td>
<td>General Farm Mechanics</td>
<td>3.0 FA</td>
</tr>
<tr>
<td>AGET 152</td>
<td>Irrigation</td>
<td>3.0 SP</td>
</tr>
<tr>
<td>ANSC 002</td>
<td>Introduction to Animal Science</td>
<td>3.0 FS *</td>
</tr>
<tr>
<td>ANSC 011</td>
<td>Animal Feeds and Nutrition</td>
<td>3.0 FS</td>
</tr>
<tr>
<td>PSSC 002</td>
<td>Introduction to Plant Science</td>
<td>3.0 FS *</td>
</tr>
<tr>
<td>PSSC 050</td>
<td>Introduction to Soil Science</td>
<td>3.0 FS</td>
</tr>
</tbody>
</table>

**Prerequisites:** CHEM 027 or CHEM 037.

1 course selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 027</td>
<td>Gen Chem for Applied Sciences</td>
<td>4.0 FS</td>
</tr>
<tr>
<td>Prerequisites:** Intermediate Algebra.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 037</td>
<td>General Chemistry</td>
<td>4.0 FS *</td>
</tr>
<tr>
<td>Prerequisites:** Second-year high school algebra; one year high school chemistry or CHEM 016. (One year of high school physics and one year of high school mathematics past Algebra II are recommended.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS 183N</td>
<td>Agribusiness Mgmt for Non-Majors</td>
<td>3.0 FA</td>
</tr>
<tr>
<td>ANSC 017</td>
<td>Live Animal &amp; Carcass Evaluation</td>
<td>3.0 SP</td>
</tr>
</tbody>
</table>

3 courses selected from:

- Any upper-division AGET, ABUS, ANSC, or PSSC courses.

**REREQUISITES:**

- Agricultural Education (AGET), Animal Science (ANSC), and Plant Science (PSSC) courses.

**BREADTH AND PERSPECTIVE COURSES:** 15 units

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS 183N</td>
<td>Agribusiness Mgmt for Non-Majors</td>
<td>3.0 FA</td>
</tr>
</tbody>
</table>

3 courses selected from:

- Any upper-division AGET, ABUS, ANSC, or PSSC courses.

**The Faculty**

Lee S. Altier, 1995, Assoc Professor, PhD., Cornell U.

Marwan W. Baldy, 1971, Professor, PhD., UC Davis.

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

LeRoy N. Barker, 1965, Professor Emeritus, PhD., U WI.

Ronald C. Borge, 1974, Pr. Vocational Instr, MS, OHio St U.

Manuel S. Borges, 1965, Professor Emeritus, PhD., OK State U.

James R. Burleigh, 1971, Professor Emeritus, PhD., WA State U.

Lucas Calpouzos, 1980, Professor Emeritus, PhD., Harvard U.

A. Charles Crabb, 1999, Dean, Administrator, PhD., UC Davis.

Cindy A. Daley, 1998, Assist Professor, PhD., UC Davis.

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

Patricia A Delwiche, 2002, Assoc Professor, PhD., U WI.

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

Lynn Gallagher, 1992, Adjunct Professor, PhD., UC Davis.

Dennis L. Hampton, 1972, Professor Emeritus, Med., UC Davis.

Henricus C. Jansen, 1976, Professor, PhD., UC Berkeley.

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

Annette E. Levi, 1991, Assoc Professor, PhD., WA State U.

Gary Lindner, 1992, Adjunct Professor, PhD., Clemson Univ.

Michael L. Maynard, 1969, Professor Emeritus, PhD., U Arizona.


Randall G. Mutters, 1996, Adjunct Professor, PhD., UCR.

Jack T. Nolan, 1958, Pr Voc Instr Emeritus, MS, UC Davis.

Westley R. Patton, 1969, Professor, PhD., Oregon State Univ.

Herbert A. Paul, 1976, Professor Emeritus, PhD., Utah St U.

Lorenzo Pope, 1985, Adjunct Professor, PhD., BYU.

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

Lal Singh, 1969, Professor, EdD., OK State U.

Everett R. Southam, 1970, Professor Emeritus, PhD., U Wyoming.

Hank Wallace, 1982, Coordinator, Professor, 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.

AGRI 009 Coordinating Group

1.0-2.0 Fa/Spr

This course is offered as AGRI 009A or AGRI 009B for 1.0 to 2.0 units respectively. An individualized class designed to develop and refine the student’s ability to organize and coordinate Agriculture field days and other related group activities. Maximum of four semesters and/or 4 units toward BS degree. Credit/no credit grading only. You may take this course more than once for a maximum of 6.0 units.

AGRI 010 The University Experience

1.0 Fa/Spr

A college success course for agricultural majors new to California State University, Chico. The course will explore the academic and social opportunities and resources available to promote successful completion of the student’s educational goals. Meets the first half of the semester. Credit/no credit grading only.

AGRI 098 Special Topics

1.0-2.0 Fa/Spr

This course is for special topics offered as 098A-C for 1.0 to 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. 1.0 hour seminar, 3.0 hours laboratory.

AGRI 100 Introduction to Agricultural Education

3.0 Fall

Objectives, nature, and scope of teaching vocational agriculture. Types of programs and career opportunities in vocational education. Special fee required; see The Class Schedule.

AGRI 101 Directed Field Experience

2.0 Fall

Agricultural Education

Prerequisites: faculty permission.

An individualized class in gaining teaching experience through observation and critique of high school students and teachers in the classroom, at FFA events, and in supervised occupational experiences.

AGRI 111 Agricultural Ecology

3.0 Fa/Spr

Prerequisites: completion of lower division core.

An interdisciplinary treatment of physiological and biological environments used for agriculture. Historical and ecological nature of agriculture it’s 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 129 Techniques in Vocational Instruction 2.0 Spring
Prerequisites: AGRI 100 or faculty permission. Preparation for student teaching in agriculture. Orientation to classroom situation. 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 145 Agricultural Genetics and Biotechnology 4.0 Spring
Prerequisites: ANSC 002 or BIOG 008 or PSSC 002; CHEM 037 or CHEM 037. Mendelian inheritance, gene structure and action, sex-related inheritance, linkage and mapping, aneuploidy, polyploidy, population and quantitative inheritance, inbreeding and heterosis. Activities feature techniques in biotechnology with agricultural applications. 3.0 hours lecture, 2.0 hours activity.

AGRI 190A Fair Management and Ag Leadership 3.0 Fall
A study of the California fair system, including budgets, interim events, sponsorships, entertainment, exhibits, and purpose. Development of interpersonal skills needed to develop and coordinate agricultural events. Special fee required; see The Class Schedule. Formerly ANSC 190A.

AGRI 190B Agricultural Leadership and Fair Management 3.0 Spring
Prerequisites: AGRI 190A or permission of the instructor. Development of communication and organizational skills needed to plan and conduct agricultural educational events, particularly those associated with fairs. Students will update their resumes, be interviewed and selected for leadership roles associated with the College of Agriculture's spring events calendar. Special fee required; see The Class Schedule. Formerly ANSC 190B.

AGRI 198 Special Topics 1.0-3.0 Spring
This course is for special topics offered as 198A-C for 1.0 to 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.

AGRI 199 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 as 199A-C for 1.0 to 3.0 units respectively. Students must register with a supervising faculty member. Study/research in agriculture under direct supervision of a faculty member. Credit/no credit grading only.

AGRI 209 Program Development in Agriculture Education 2.0 Spring
Prerequisites: faculty permission. Up-to-date approaches in integrated program development based on occupational opportunities and community needs. Philosophy, organization, and administration of agricultural education programs. Development of curriculum, utilization of occupational experiences, future farmers of America (FFA), and summer programs. Special fee required; see The Class Schedule. Formerly ANSC 190B.

AGRI 299H Honors Research in Agriculture 6.0 Fa/Spr
Prerequisites: faculty permission, acceptance into the fifth-year program in agricultural education, and a public presentation. A critical examination of major issues confronting agriculture. Students research current issues relevant to the role of agriculture in society. This is a writing proficiency, WP, course; a grade of C- or better certifies writing proficiency for majors. Special fee required; see The Class Schedule.

AGRI 298 Special Topics 1.0-3.0 Fa/Spr
This course is for special topics offered as 298A-C for 1.0 to 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.

AGRI 299H Honors Research in Agriculture 6.0 Fa/Spr
Prerequisites: faculty permission. An intensive 6-unit, one-year course in agricultural research. See School 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.

Agricultural Business Course Offerings

ABUS 080 Introduction to Agricultural Business and Economics 3.0 Fa/Spr
The role of agricultural business in the economy. Introductory economic and business principles and their application to the solution of agricultural problems.

ABUS 081A Word Processing Applications in Agriculture 1.0 Fa/Spr
Lecture focuses on use and application of word processing software. Three hours of lecture, five weeks per semester. ABC/no credit grading only.

ABUS 081B Spreadsheet Applications in Agriculture 1.0 Fa/Spr
Lecture focuses on use and application of spreadsheets. Three hours of lecture, five weeks per semester. ABC/no credit grading only.

ABUS 081C Presentation Software Applications in Agriculture 1.0 Fa/Spr
Lecture focuses on use and application of presentation software. Three hours of lecture, five weeks per semester. ABC/no credit grading only.

ABUS 083 Farm Accounting 3.0 Fa/Spr
Introduction to the principles of farm accounting, farm business record keeping, agribusiness management, financial analysis, and enterprise budgeting. 2.0 hours lecture, 2.0 hours activity.

ABUS 098 Special Topics 1.0-3.0 Fa/Spr
This course is for special topics offered as 098A-C for 1.0 to 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.

ABUS 130 Agribusiness Systems Quantitative Methods 3.0 Fa/Spr
Prerequisites: ABUS 080, ABUS 083, MATH 005A, and demonstration of microcomputer competency. ABUS 181 highly recommended. Data drawn from applied agricultural business systems research and technologically based agricultural systems will be analyzed and interpreted. Programming (mathematics) and regression (statistics) will be introduced as the primary tools to perform these analyses. Students will perform their own analyses and evaluate results of analyses done by others. The evaluation will be done in order to suggest methodological changes and revised data requirements. Journal articles will be reviewed. This course is a prerequisite for other upper-division courses in the ABUS major. 2.0 hours lecture, 2.0 hours activity.

AGRI 230A Agricultural Experimental Research 4.0 Fa/Spr
Prerequisites: AGRI 111. 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 230B Agricultural Experimental Research 3.0 Fa/Spr
Prerequisites: AGRI 230A. This course is a continuation of AGRI 230A. 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 231 Holistic Resource Management 3.0 EvnFall
Prerequisites: AGRI 111. 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. Formerly PSSC 231.
ABUS 182 Agricultural Markets and Pricing 3.0 Spring
Prerequisites: ABUS 180.
Economic principles applied to the marketing of agricultural products. Function, structure, and operation of agricultural markets. Introduction to the futures market. Trends in marketing of California agricultural crops and livestock. Special fee required; see The Class Schedule.

ABUS 183M Agribusiness Management (ABUS Majors) 3.0 Spring
Prerequisites: ABUS 080, ABUS 083, faculty permission.
The application of economic and management principles to the planning, control, and organization of agribusiness firms. Linear programming applications, decision trees, inventory control, and equipment replacement.

ABUS 183N Agribusiness Management (Non-ABUS Majors) 3.0 Fall
Prerequisites: ABUS 080.
A survey course for non-agribusiness majors. Introduction to production economics and farm business management, financial statements analysis, management principles, animal and crop enterprise budgeting, farm business planning, tax management, and ag finance and investment analysis.

ABUS 184 Natural Resource Economics 3.0 Inquire
Prerequisites: ABUS 080 or faculty permission.
The economics of renewable natural resource use, management, development, and allocation. Conflicts in use, markets for resources, cases of market failure, and economic conservation will be discussed.

ABUS 185 Agricultural Policy 3.0 Spring
Prerequisites: ABUS 180, ECON 002.
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. Special fee required; see The Class Schedule.

ABUS 187 Agricultural Finance 3.0 Fall
Prerequisites: ABUS 080, ABUS 083.
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.

ABUS 188 Farm and Ranch Appraisal 3.0 Fall
Prerequisites: ABUS 083.
Principles and techniques of farm and ranch appraisal. Valuation of farm and rural resources. 2.0 hours lecture, 3.0 hours laboratory.

ABUS 189 Internship in Agribusiness 1.0-3.0 Fall
Prerequisites: Permission of Internship Coordinator.
This course is an internship offered as 198A-C for 1.0 to 3.0 units respectively. You must register directly with a supervising faculty member. Work experience with selected 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 cooperators. Special fee required; see The Class Schedule.

ABUS 192 World Food and Hunger Issues 3.0 Fa/Spr
A study of agricultural problems and policies of developing nations. 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. This course is the same as INST 192 which may be substituted.

ABUS 198 Special Topics 1.0-3.0 Inquire
This course is for special topics offered as 198A-C for 1.0 to 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.

ABUS 199 Special Problems 1.0-3.0 Fa/Spr
This course is an independent study of special problems and is offered as 199A-C for 1.0 to 3.0 units respectively. Credit/no credit grading only.

ABUS 200 Agricultural Business Seminar 1.0-2.0 Inquire
Prerequisites: ABUS 216 or equivalent.
This course is a seminar offered as 280A-B for 1.0 to 2.0 units respectively. You must register directly with a supervising faculty member. Current topics in agribusiness and industry. Application of business management concepts to agriculture, exploring careers in agribusiness and industry.

ABUS 201 Land Economics 3.0 Inquire
Prerequisites: ABUS 080.
Physical, economic, and institutional factors affecting land use, population, and resource requirements; principles of land use. Social control of landed property, land tenure, property and water rights.

ABUS 282 Agricultural Price Analysis 3.0 Fall
Prerequisites: ABUS 130, ABUS 183 or equivalent.

ABUS 283 Advanced Agribusiness Management 3.0 Spring
Prerequisites: ABUS 180, ABUS 183M.

ABUS 284 Natural Resource Policy Evaluation 3.0 Inquire
Prerequisites: ABUS 184 or equivalent.
Examination of systematic approaches for the formulation and implementation of natural resources policy. Discussion of externalities, irreversibilities, depletion, benefit-cost analysis, and multi-objective planning.

ABUS 290F Agricultural Marketing Planning 3.0 Spring
Prerequisites: ABUS 182 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.

ABUS 290I Commodity Futures 3.0 Inquire
Prerequisites: ABUS 182.
See description below.

ABUS 290N Agribusiness Management Seminar 3.0 Inquire
Prerequisites: ABUS 183M.
Advanced seminar on current topics in management decision-making, personnel supervision, budgeting, PERT, and resource control.

ABUS 290P Farm Labor 3.0 Inquire
Prerequisites: Senior standing; completion of 6 units of upper-division ABUS courses.
An examination of the critical role played by labor in the development and viability of California's agricultural industry. Emphasis on policy issues related to functioning of labor markets, employment practices, unionization and collective bargaining, and immigration and mechanization.

ABUS 290U Agricultural Production Economics Seminar 3.0 Inquire
Prerequisites: ABUS 187, ABUS 283.
Advanced seminar on current topics in production management, inventory control, machinery management, linear programming, and control of strategic assets.

ABUS 290V Computers in Agriculture Seminar 3.0 Inquire
Prerequisites: ABUS 181 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.

ABUS 290W Agricultural Law 3.0 Spring
Prerequisites: BLAW 100, 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 application 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.

ABUS 290X Cooperatives Seminar 3.0 Fall
Prerequisites: ABUS 083, ABUS 182, 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.

ABUS 298 Special Topics 1.0-3.0 Inquire
This course is for special topics offered as 298A-C for 1.0 to 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.

ABUS 299H 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 School 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.
Agricultural Engineering Technology Course Offerings

AGET 009L Directed Work AGET 1.0 Fa/Spr
Prerequisites: faculty permission.
Weekly conferences for students with projects; directed work on the University Farm and elsewhere. Individual and group problems. Maximum of four semesters and/or 4 units toward BS degree. You may take this course more than once for a maximum of 6.0 units.

AGET 084 Small Power Units 2.0 Inquire
The study of small power units and equipment, including engine theory, operation, maintenance, service, safety, and repair. Equipment selection and cost analysis will also be considered. 1.0 hour lecture, 2.0 hours activity.

AGET 085 Agricultural Machine Systems 3.0 Fa/Spr
Principles of operation, adjustments, calibration, and safety of wheel and track-type tractors including implements and equipment commonly used in California agriculture. 2.0 hours lecture, 3.0 hours laboratory.

AGET 090 General Farm Mechanics 3.0 Fall
Shop skills essential to mechanized agriculture, including welding, metal and wood fabrication tools, tool sharpening, and threading. Proper selection, use, repair, and safety of the tools and machines will be emphasized. 2.0 hours lecture, 3.0 hours laboratory.

AGET 091 Agricultural Welding and Fabrication 3.0 Inquire
A study of welding processes used in the agricultural industry, including arc, oxy, TIG, MIG, submerged arc, and intershiled. Techniques used in hard-facing, cast iron, aluminum, cutting, fabrication, project design, and weld quality control will be included. 2.0 hours lecture, 3.0 hours laboratory.

AGET 152 Irrigation 3.0 Spring
Prerequisites: PSSC 002 or PSSC 050.
Field practices of irrigation. Evapotranspiration, soil/moisture relationships, water measurement, pumps, wells, drainage, and sprinkler, drip, and surface systems. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see The Class Schedule. Formerly PSSC 152.

AGET 175 Energy Alternatives in Agriculture 3.0 Inquire
A study of energy alternatives currently used in agriculture, including solar, biomass, wind, and water. Emphasis on biomass conversions, including anaerobic digestion, fermentation, gasification, and direct combustion. Special fee required; see The Class Schedule.

AGET 189 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 as 189A-C for 1.0 to 3.0 units respectively. 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. Credit/no credit grading only. You may take this course more than once for a maximum of 6.0 units.

AGET 196 GPS & GIS in Agriculture 3.0 Spring
Application of Global Positioning Systems (GPS) and Geographic Information Systems (GIS) in agriculture and natural resource management. Identification and delineation of locations and areas; collection, analysis, storage, and retrieval of site and time specific data for agriculture and natural resource management and monitoring. 2.0 hours lecture, 3.0 hours laboratory. Formerly AGET 096.

AGET 199 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 as 199A-C for 1.0 to 3.0 units respectively. Students must register with a supervising faculty member. Study/research/problem solving under direct supervision of a faculty member. Credit/no credit grading only.

AGET 287 Personnel Safety and Equipment Management 3.0 Spring
Prerequisites: faculty permission.
Workplace safety, rules and regulations. Equipment selection, maintenance, trends, and economics. Determining equipment requirements and costs. Systems for recording parts, services, and maintenance. 2.0 hours lecture, 2.0 hours activity.

AGET 290 Farm Structures 3.0 Inquire
Prerequisites: AGET 096 or equivalent.
Methods of construction, use of materials, and animal requirements. Cost estimating. 2.0 hours lecture, 3.0 hours laboratory.

AGET 295 Agricultural Control Systems 3.0 Fall
Prerequisites: AGET 096.
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.

Animal Science Course Offerings

ANSC 002 Introduction to Animal Science 3.0 Fa/Spr
An overview, using a scientific perspective, of farm animals. Highlights anatomy and physiology of farm animals, reproduction, nutrition, animal health, animal products, animal behavior, and pertinent social issues, such as animal rights. Includes human opportunity to influence trait inheritance, population densities, and productivity. 2.0 hours lecture, 3.0 hours laboratory. This is an approved General Education course.

ANSC 009 Directed Work Experience 1.0-2.0 Fa/Spr
In Animal Sciences
This course is work experience offered as 009A-B for 1.0 to 2.0 units respectively. ANSC 009L is a lab course. You must register directly with a supervising faculty member. Weekly conferences for students with projects; directed work on the University Farm and elsewhere. Individual and group problems. Maximum of four semesters and/or 4 units toward BS degree. You may take this course more than once for a maximum of 6.0 units.

ANSC 011 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 013 Veterinary Practices 2.0 Fa/Spr
Designed to allow the student to become familiar with various vaccines, equipment, and restraint techniques used in routine treatment of farm animals. Selection of proper materials, veterinary nomenclature, actual handling and treatment of farm animals involved. 1.0 hour lecture, 3.0 hours laboratory.

ANSC 015A Principles of Livestock — Beef 1.0 Inquire
Principles and practices used in the production of commercial herds of beef cattle. General husbandry, breeding, feeding, selection, housing, marketing, and records keeping. Eight weeks only.

ANSC 015B Principles of Livestock — Sheep 1.0 Inquire
Principles and practices used in the production of commercial flocks of sheep. General husbandry, breeding, feeding, selection, housing, marketing, and records keeping. Eight weeks only.

ANSC 015C Principles of Livestock — Swine 1.0 Inquire
Principles and practices used in the production of commercial herds of swine. General husbandry, breeding, feeding, selection, housing, marketing, and records keeping. Eight weeks only.

ANSC 016 Basic Horse Science 3.0 Spring
Principles and practices used in the horse industry. An introduction to feeding, breeding, selection, housing, health, use, handling, training, tack, and basic equitation.

ANSC 017 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 018 Livestock Skills 3.0 Fall
An introduction to selection, nutrition, health, and management of beef, sheep, swine, and dairy for livestock youth programs, including ethical practices associated with livestock exhibiton. This class is designed primarily for students pursuing a career in agricultural education. 2.0 hours lecture, 3.0 hours laboratory.

ANSC 019 Meat and the Consumer 3.0 Fa/Spr
Muscle growth and composition, nutritional and health concerns, meat safety and advances in produce development, preparation and storage. 2.0 hours lecture, 3.0 hours laboratory.

ANSC 098 Special Topics 1.0-3.0 Fa/Spr
This course is for special topics offered as 098A-C for 1.0 to 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.
ANSC 100 Intermediate Animal Systems 3.0 Fa/Spr
Prerequisites: ANSC 002.
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), and well as meat, poultry, and aquaculture. 2.0 hour lecture, 3.0 hours laboratory. Special fee required; see The Class Schedule.

ANSC 110 Anatomy and Physiology of Domestic Animals 4.0 Spring
Prerequisites: ANSC 002 or BIOL 001; CHEM 027. CHEM 028 is recommended. Comparative study of anatomy and physiology of organ systems, with major emphasis on farm animals. 3.0 hours lecture, 3.0 hours laboratory.

ANSC 112 Advanced Livestock Selection 3.0 Fall and Carcass Evaluation
Develop skills in quality grading and yield grading animals both live and on the rail. Improve 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 113 Advanced Veterinary Practices 3.0 Fall
Prerequisites: ANSC 013.
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. 2.0 hours lecture, 3.0 hours laboratory.

ANSC 116 Advanced Horse Science 3.0 Fall
Prerequisites: ANSC 011, ANSC 016, 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 rations and planning in the horse industry are studied.

ANSC 121 Animal Nutrition 3.0 Spring
Prerequisites: ANSC 002 or BIOL 010, ANSC 011.
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 122 Animal Health and Disease 3.0 Spring
Prerequisites: ANSC 002 or BIOL 010.
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 prevention and treatment. 2.0 hours seminar, 2.0 hours activity.

ANSC 123 Reproductive Physiology of Domestic Animals 3.0 Fall
Prerequisites: ANSC 002 or BIOL 001; ANSC 011.
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 class and will include uses of reproductive technology to maximize reproductive efficiency and fertility. 2.0 hours seminar, 3.0 hours laboratory. Special fee required; see The Class Schedule.

ANSC 124 Food Sanitation and Quality Control 3.0 Inquire
Prerequisites: ANSC 002; CHEM 037 or CHEM 027.
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 189 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 as 189A-C for 1.0 to 3.0 units respectively. You must register directly with a supervising faculty member. Work experience with selected livestock operations is to be completed and supervised by faculty member and staff of cooperating livestock ranch. Credit/no credit grading only.

ANSC 198 Special Topics 1.0-3.0 Fa/Spr
Prerequisites: Upper-division standing.
This course is for special topics offered as 198A-C for 1.0 to 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.

ANSC 199 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 as 199A-C for 1.0 to 3.0 units respectively. Students must register with a supervising faculty member. Study/research in animal science under direct supervision of a faculty member. Credit/no credit grading only.

ANSC 214 Livestock Production Problems 1.0 Fa/Spr
Prerequisites: Senior standing.
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 215 Advanced Beef Science and Management 4.0 Spring
Prerequisites: ANSC 002, ANSC 100.
An overview of world and United States beef production systems. Investigation of the segmentation of the beef industry, including feedstock, commercial cow-calf, stocker, feedlot, packer, retailer and consumer. Integrated beef production systems will be evaluated based on consideration of genetics, nutrition, reproductive, and production, forage management and marketing. 3.0 hours seminar, 3.0 hours laboratory. Special fee required; see The Class Schedule.

ANSC 217 Sheep Science 4.0 Fall
Prerequisites: ANSC 002, ANSC 100.
A study of advanced practices in commercial and purebred sheep production with emphasis on the relationship between the biological aspects of the species and production costs, disease, nutrition, genetic selection, production records and the contributions of sheep to environmental sustainability. Wool growth, grading, and processing will be covered. 3.0 hours lecture, 3.0 hours laboratory. Special fee required; see The Class Schedule.

ANSC 218 Dairy/Swine Science 4.0 Fall
Prerequisites: ANSC 002, ANSC 100.
A comprehensive study of the dairy and swine industries with emphasis on efficient management through application of principles of science while maintaining sensitivity to current issues. 3.0 hours lecture, 3.0 hours laboratory. Special fee required; see The Class Schedule.

ANSC 314 Graduate Seminar in Animal Science 3.0 Inquire
Prerequisites: Completion of 6 units of ANSC courses.
Current advances in production techniques, production records, efficiency of production, economic trends, innovations in equipment, health management, and various aspects of meat science. Course specific for Vocational Agriculture teachers. (45 hours per semester to be arranged.) You may take this course more than once for a maximum of 6.0 units.

Plant and Soil Science Course Offerings

PSSC 002 Introduction to Plant Science 3.0 Fa/Spr
Prerequisites: ANSC 002.
Plant structure, growth, reproduction, and responses to the environment. How humans modify plants and 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 050 Introduction to Soil Science 3.0 Fa/Spr
Prerequisites: CHEM 027 or CHEM 037.
Soil biology, fertility, chemistry, physical properties, taxonomy and their applications to agricultural management and environmental enhancement. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see The Class Schedule.

PSSC 060 West Coast Crop Production 1.0 Fa/Spr
Prerequisites: ANSC 002.
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 agriculture production. Meets the second half of the semester. Credit/no credit grading only.

PSSC 100 Food Forever: Comparisons of Sustainable Food Production Systems 3.0 Fa/Spr
Prerequisites: ANSC 002.
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 course is the same as INST 105 which may be substituted.

PSSC 109A Directed Work in Field and Row Crops 2.0 Fall
Prerequisites: PSSC 109A or faculty permission.
Directed work and discussion on all aspects of field and row crop production practices applicable to Northern California. Students are encouraged to enroll in PSSC 109B after this course. 1.0 hour discussion, 2.0 hours activity. You may take this course more than once for a maximum of 4.0 units.

PSSC 109B Directed Work in Field and Row Crops 2.0 Spring
Prerequisites: PSSC 109A or faculty permission.
Directed work and discussion on all spring aspects of field and row crop production practices applicable to Northern California. 1.0 hour discussion, 2.0 hours activity. You may take this course more than once for a maximum of 4.0 units.
Agriculture

PSSC 110A Directed Work in Orchard Crops 2.0 Spring
Prerequisites: PSSC 002. Weekly discussions of orchard projects. Group problems and individual instruction emphasizing fruit set and growth. 1.0 hour discussion, 2.0 hours activity. You may take this course more than once for a maximum of 4.0 units.

PSSC 110B Directed Work in Orchard Crops 2.0 Fall
Prerequisites: PSSC 002. Weekly discussions of orchard projects. Group problems and individual instruction emphasizing harvesting and transport, marketing, pruning, and training systems. 1.0 hour discussion, 2.0 hours activity. You may take this course more than once for a maximum of 4.0 units.

PSSC 112 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 hour discussion, 2.0 hours activity. You may take this course more than once for a maximum of 4.0 units.

PSSC 130 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 134 Wetland and Riparian Resources and Management 3.0 OddFall
Prerequisites: Completion of lower-division core. History of alteration and loss of wetland and riparian resources. Classification, description, and functions of marshes, 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.

PSSC 135 Economic Entomology 3.0 OddFall
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 142 Plant Pathology 3.0 EvnFall
Prerequisites: PSSC 002. Major diseases of agricultural crops; their symptoms, causal agents, and control methods. Consideration of the roles of environment, cultural practices, and genetics on their development. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see The Class Schedule.

PSSC 143 Introduction to Weed Science 3.0 OddSprg
Prerequisites: AGRI 111. 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 144 Seed Production 3.0 EvnFall
Prerequisites: BIOL 009 or PSSC 002 or faculty permission. Principles and practices of seed-crop production. Federal, state, and county seed laws. Certification program. Seed testing and laboratory analysis; seed-borne diseases and seed treatments. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see The Class Schedule.

PSSC 153 Agrochemicals 3.0 OddFall
Prerequisites: CHEM 027 or CHEM 037; PSSC 050. 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 154 Soil Physical Properties and Production Practices 3.0 Inquire
Prerequisites: PSSC 002, PSSC 050. The physical properties of texture, structure, density, porosity, and consistence 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 156 Soil Quality and Health 3.0 EvnSprg
Prerequisites: PSSC 050 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 140 Ecology of Crop Production 3.0 EvnSprg
Prerequisites: AGRI 111. 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. Special fee required; see The Class Schedule.

PSSC 161 Production of Annual Crops 3.0 Fall
This course covers the requirements and cultural practice 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 109.

PSSC 163 Forage Crops 3.0 Inquire
Prerequisites: BIOL 009 or PSSC 002 or PSSC 130. 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 174 Greenhouse Management 3.0 OddSprg
Greenhouse construction, environment, and management practices, including heating and cooling, irrigation, fertilization, and pest control. 2.0 hours lecture, 3.0 hours laboratory.

PSSC 176 Fruit and Nut Production 3.0 Spring
Prerequisites: Upper-division standing. Managing and optimizing the fruit and nut production system. Selection of plant species 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 189 Internship 1.0-6.0 Fa/Spr
Prerequisites: Junior standing, faculty permission. This course is an internship offered as 189A-F for 1.0 to 6.0 units respectively. You must register directly with a supervising faculty member. Internship with private industry, state, federal, international, or non-profit organization. One unit of credit will be given for every 100 hours of work. Selected topic must be in a Plant and Soil Science Option area. Credible credit grading only.

PSSC 192 World Food and Fiber Systems 3.0 Fa/Spr
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.

PSSC 195 Introduction to Wines 3.0 Fall
Prerequisites: At least junior standing. Grape-growing, and winemaking in California wine types. Wine and food matching. Sensory evaluation. 2.0 hours lecture, 1.0 hour discussion. Special fee required; see The Class Schedule.

PSSC 198 Special Topics 1.0-3.0 Fa/Spr
This course is for special topics offered as 198A-C for 1.0 to 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.

PSSC 199 Special Problems 1.0-3.0 Fa/Spr
Prerequisites: Upper-division standing. This course is for independent study of a topic or problem is offered as 199A-C for 1.0 to 3.0 units respectively. Students must register with a supervising faculty member. Credit/no credit grading only.

PSSC 233 Wildland Vegetation Ecology 3.0 EvnFall
Prerequisites: PSSC 130 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.

PSSC 234 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 235 Grasses and Grasslands of the Western US 3.0 OddSprg
Prerequisites: BIOL 009 or PSSC 002. PSSC 130 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. Special fee required; see The Class Schedule.

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PSSC 236 Vegetation Dynamics and Management 3.0 OddSprg
Prerequisites: PSSC 130 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.

PSSC 237 Wildland Classification and Inventory 3.0 EvnSprg
Prerequisites: PSSC 130 and completion of lower-division core.
Quantitative approaches, methods, and field techniques for the classification, description, and inventory of grasslands, shrublands, woodlands, and forests. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see The Class Schedule.

PSSC 238 Landscape Ecology 3.0 OddFall
Prerequisites: PSSC 130 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.

PSSC 241 Principles of Integrated Pest Management 3.0 EvnSprg
Prerequisites: AGRI 111; 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. Special fee required; see The Class Schedule.

PSSC 244 Plant Reproduction Systems 3.0 OddSprg
Prerequisites: PSSC 002 or BIOL 009; AGRI 145, 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. Special fee required; see The Class Schedule.

PSSC 251 Soils Genesis and Classification 3.0 OddFall
Prerequisites: PSSC 050 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.

PSSC 252 Computer Application in Irrigation and Soils 2.0 Inquire
Prerequisites: AGET 152 or PSSC 050.
Computer applications in soils and irrigation, emphasizing hands-on use of various application programs, including irrigation scheduling, soil salinity, systems, and land-leveling. 2.0 hours discussion, 0 hour laboratory.

PSSC 253 Soil Fertility and Plant Nutrition 3.0 EvnFall
Prerequisites: PSSC 050.
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.

PSSC 256 Water Quality, Saline Soils 3.0 Inquire
Prerequisites: AGET 152 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. Special fee required; see The Class Schedule.

PSSC 258 Irrigation Systems 3.0 Inquire
Prerequisites: AGET 152 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.

PSSC 265 Plant Breeding and Field Plot Technique 3.0 Inquire
Prerequisites: AGRI 143; faculty permission.
Principles, methods, and techniques involved in breeding economic plants. Introduction to the designing and conducting of experiments. 2.0 hours lecture, 3.0 hours laboratory. Special fee required; see The Class Schedule.

PSSC 278 Plant Tissue Culture 3.0 Inquire
Prerequisites: BIOL 215.
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. Special fee required; see The Class Schedule.

PSSC 289 Internship 3.0 Fa/Spr
Prerequisites: PSSC 189, senior/graduate standing, faculty permission.
Eight-week or equivalent internship with private industry, state, federal, international, or non-profit organization. Selected topic must be in a PSSC option area. Credit/no credit grading only.

PSSC 298 Special Topics 1.0-3.0 Fa/Spr
This course is for special topics offered as 298A-C for 1.0 to 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. 3.0 hours supervision, 6.0 hours laboratory.