The Bachelor of Science in Agriculture

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

See Bachelor's Degree Requirements 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. You can view MAPs on the Degree MAPs page in the University Catalog or you can request a plan from your major advisor.

General Education Pathway Requirements: 48 units

See General Education in the University Catalog and the Class Schedule for the most current information on General Education Pathway Requirements and course offerings.

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

- ANSC 101 is an approved major course substitution for Life Sciences (B2).
- AGRI 482 is an approved major course substitution for Upper-Division Social Sciences.
- BIOL 350 is an approved GE Writing Intensive substitution.
- JOUR 260 and JOUR 341 are approved GE Writing Intensive substitutions.
- AGRI 482 is also an approved GE Capstone substitution.

Diversity Course Requirements: 6 units

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

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 higher to receive WP credit. See the Class Schedule for the designated WP courses for each semester. You must complete the GE Written Communication (A2) requirement before you may register for a WP course.
Course Requirements for the Major: 79-83 78-82 units

Completion of the following courses, or their approved transfer equivalents, is required of all candidates for this degree. Additional required courses, depending upon the selected option are outlined following the major core program requirements.

Major Core Program: 34 33 units

Lower-Division Core: 24 units

4 courses required:

AGET 150 Agricultural Machine Systems 3.0 FA

AGRI 180 The University Experience 1.0 FS

MATH 105 Statistics 3.0 FS GE
Prerequisites: Completion of ELM requirement.

PSSC 101 Introduction to Plant Science 3.0 FS GE

1 course selected from:

CHEM 107 General Chemistry for Applied Sciences 4.0 FS GE
Prerequisites: Completion of ELM requirement, Intermediate Algebra.

CHEM 111 General Chemistry 4.0 FS GE
Prerequisites: Completion of ELM requirement; 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 Chemistry for Applied Sciences 4.0 FS GE
Prerequisites: CHEM 107 or CHEM 111 or equivalent.

CHEM 112 General Chemistry 4.0 FS
Prerequisites: CHEM 111 with a grade of C- or better.

6 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). Choose courses in consultation with your advisor.
Upper-Division Core: 40 units

3 courses required:

AGRI 305  Agricultural Genetics and Biotechnology  4.0 3.0  FS
Prerequisites: ANSC 101 or PSSC 101; CHEM 107 or CHEM 111.

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 or JOUR 130 (or equivalent) with a grade of C- or higher, senior standing or instructor permission.

Note: AGRI 305 may be substituted for an approved elective in the Land Resource Management area of study.

Major Option Course Requirements: 45-49 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. Use the links below to jump to your chosen option.

- The Option in Agricultural Science and Education
- The Option in Crops, Horticulture, and Land Resource Management

The Option in Agricultural Science and Education: 45 units

This option prepares students for careers in the broad field of agriculture or for careers in teaching at the secondary level. The option prepares students for diverse careers in agricultural production where the integration of animal, plant, and agri-business knowledge and skills is required.

2 courses required:

ABUS 101  Introduction to Agricultural Business and Economics  3.0  FS  GE

ANSC 101  Introduction to Animal Science  3.0  FS
39 units selected from:

In consultation with your advisor, select courses from the prefixes: ABUS, AGED, AGET, AGRI, ANSC, and PSSC or any of the following: CMST 330, EDTE 302, EDTE 530, EDTE 534, ENGL 471, HCSV 451, JOUR 244, JOUR 255I, JOUR 260, JOUR 341.

A maximum of 12 lower division units are allowed. Students are strongly encouraged to gain practical skills and knowledge through an approved internship or directed work experience. Courses must be selected based on the career goals of the student and should have a recognizable theme such as agricultural education, sustainability, resource management, environmental horticulture*, agricultural communications, or agricultural mechanization*.

*12 units in these areas may be transferred from a community college. Students not seeking a teaching credential are encouraged to take AGRI 490 - Agricultural Experimental Research as an elective to strengthen their analytical skills.

**Teaching Credentials for 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 Agriculture Specialist Instruction Credential. The Single Subject Teaching Credential in Agriculture authorizes the holder to teach in the classroom. Candidates who fulfill the requirements for the Agriculture Specialist Instruction Credential 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 Option in Agricultural Science and Education. 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 California Subject examinations for Teachers (CSET). 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 and a 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 admission 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: EDTE 324, EDTE 530, EDTE 531, EDUC 302, ENGL 471, 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 Agriculture Specialist Instruction Credential include a series of agricultural education courses (listed below), occupational experience, and a student teaching experience. 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 BS in Agriculture and the teaching credential requirements. Students pursuing this career objective should also complete the single subject program pre-requisite courses and pass the California Basic Education Skills Test (CBEST).

**Agricultural Education Courses**

- **AGED 201 Introduction to Agricultural Education** 3.0 FA
- **AGED 210 Directed Field Experience Agricultural Education** 2.0 FA
- **AGED 321 Program Development in Agriculture Education** 2.0 SP
- **AGED 420 Techniques in Vocational Agricultural Instruction** 2.0 SP
  - Prerequisites: AGED 201 or faculty permission.
- **AGED 421 Curriculum and Methods in Teaching Agricultural Mechanics** 3.0 FA
  - Prerequisites: AGET 120, AGET 150 or equivalent.

45 units of required subject matter competency may be obtained by completing courses in the areas of:

- Agricultural Business: 9 units. Recommended: ABUS 101*, ABUS 261, ABUS 321
- Agricultural Mechanics: 8 units. Recommended: AGET 120, AGET 150*
- Animal Science: 8 units. Recommended: ANSC 101*, ANSC 230
- Plant Science: 8 units. Recommended: PSSC 101*, PSSC 250
- Natural Resources: 3 units. Recommended: AGRI 331*

*Required in either the core or in the option.

Plus 9 units of additional courses in one of the above areas (a specialization). This credential requirement may be met using coursework in the major and in the option.

Students are strongly encouraged to gain practical skills and knowledge through an approved internship or directed work experience in areas where additional experience is needed to become
a successful agricultural teacher. With the approval of your advisor, single subject credential program pre-requisite courses may be used as electives in this option.

**Agricultural Communications**

Students wishing to pursue a career in agricultural communications are encouraged to take the following courses as part of their option electives. Agricultural communications prepares students to enter the field by blending agriculture, journalism, and communication studies.

- **CMST 131** Speech Communication Fundamentals 3.0 FS GE
- **CMST 330** Introduction to Communication Studies 3.0 FS
- **JOUR 244** Introduction to Public Relations 3.0 FS
  Prerequisites: Sophomore standing; concurrent enrollment in or prior completion of JOUR 260 for Journalism majors.
  This course is also offered as POLS 244.
- **JOUR 255I** Media Literacy and Civic Engagement - Writing Intensive 3.0 FS GE WI
- **JOUR 260** Writing for Mass Media 3.0 FS
  Prerequisites: ENGL 130I or JOUR 130I.
- **JOUR 341** Writing For Public Relations 3.0 FS WP
  Prerequisites: Completion of GE Written Communication (A2) requirement, JOUR 244, JOUR 260.

**The Option in Crops, Horticulture, and Land Resource Management: 46 45-49 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 the agricultural production industry, in agricultural research, and in agricultural consulting, assistance, and regulation.

**Option Core: 24 - 25 units**

2 courses required:

- **AGRI 490** Agricultural Experimental Research 4.0 FS
- **PSSC 250** Introduction to Soil Science 3.0 SP
Prerequisites: CHEM 107 or CHEM 111.

1 course selected from:

ABUS 101 Introduction to Agricultural Business and Economics  3.0 FS  GE

ABUS 261 Farm Accounting  3.0 FS

1 course selected from:

ANSC 101 Introduction to Animal Science  3.0 FS

ANSC 230 Animal Feeds and Nutrition  3.0 FS

1 course selected from:

PSSC 356 Soil Quality and Health  3.0 SP

Prerequisites: PSSC 250 or instructor permission.

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

PSSC 453 Soil Fertility and Plant Nutrition  3.0 F2
Prerequisites: PSSC 250.

1 course selected from:

BIOL 414 Plant Physiology  4.0 SP
Prerequisites: BIOL 153 or SCED 102; CHEM 108 or CHEM 270; or faculty permission.

BIOL 448 Plant Diversity and Identification  4.0 SP
Prerequisites: BIOL 152 or faculty permission.

PSSC 459 Crop Physiology  3.0 SP
Prerequisites: PSSC 101 and PSSC 250

1 course selected from:

ABUS 231 Computer Applications in Agriculture  3.0 FS

ABUS 321 Agribusiness Management  3.0 FS
Prerequisites: ABUS 101 or equivalent.

**ABUS 464 Farm and Ranch Appraisal**
3.0 FA

Prerequisites: ABUS 101.

**AGRI 432 Holistic Management**
3.0 SP

Prerequisites: AGRI 331 or faculty permission.

1 course selected from:

- **PSSC 309A Directed Work in Field and Row Crops**
  2.0 FS
  Prerequisite: AGET 150 or faculty permission.

- **PSSC 309B Directed Work in Vegetable Crops**
  2.0 FS

- **PSSC 389 Internship in Plant and Soil Science**
  1.0 -6.0 FS
  Prerequisites: Junior standing, faculty permission.

PSSC 389 must be taken for 2 units.

**Area of Study: 21-24 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: 24 units**

1 course required:

- **PSSC 353 Plant Protection Materials and Methods**
  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 or faculty permission.

- **PSSC 274 Greenhouse Management**
  3.0 FA
PSSC 361  Production of Annual Crops  3.0 FA

PSSC 363  Forage Crops  3.0 INQ
Prerequisites: PSSC 101 or PSSC 330

PSSC 365  Sustainable Vegetable Crop Production  3.0 FA
Prerequisite: PSSC 101

PSSC 366  Fruit and Nut Production  3.0 SP
Prerequisites: AGRI 333, PSSC 101.

Agricultural Pests and Control

2 courses selected from:

BIOL 446  Plant Pathology  4.0 FA
Prerequisites: BIOL 153 or PSSC 101 or faculty permission.

PSSC 340  Economic Entomology  3.0 FA

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

PSSC 441  Principles of Integrated Pest Management  3.0 SP
Prerequisites: AGRI 331; BIOL 446, PSSC 340, or PSSC 343.

8-9 units selected from:

To fulfill the requirements of this option, select additional upper division courses from the option core and this area of study in consultation with your advisor.

Land Resource Management Area of Study: 21 units

2 courses required:

BIOL 350  Fundamentals of Ecology  3.0 FS WP
Prerequisites: Completion of GE Written Communication (A2) requirement; BIOL 152 or faculty permission.

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

1 course selected from:
AGET 340 GPS & GIS in Agriculture and Natural Resource Management 3.0 FA

GEOG 211 Introduction to Geographical Information Systems 3.0 FS

GEOG 219 Introduction to Geographic Methods 3.0 FS

1 course selected from:

GEOG 342 Geomorphology 3.0 FA
Prerequisites: GEOG 101, GEOS 102, PSSC 101, or PSSC 250; GEOG 211, GEOG 219, or AGET 340.

GEOS 325 Geology of California 3.0 S2
Prerequisites: GEOS 101 or GEOS 102 or consent of instructor.

9 units selected from:

To fulfill the requirements of this option, select additional upper division courses from the option core and this area of study in consultation with your advisor.

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.

Honors in the Major:

Honors in the Major is a program of independent work in your major. It requires 6 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 academic competition. Such experience is valuable for graduate school and professional life. Your honors work will be recognized at your
graduation, on your permanent transcripts, and on your diploma. It is often accompanied by letters of commendation from your mentor in the department or the department chair.

Some common features of Honors in the Major program are:

1. You must take 6 units of Honors in the Major course work. All 6 units are honors classes (marked by a suffix of H), and at least 3 of these units are independent study (399H, 499H, 599H) 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.
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 advisor to apply.
Hi Nicol,

Yes, we are fine with this change. We are a high unit major and decreasing by one unit will not be a problem.

Thanks,

Rich

---

From: Gray, Nicol
Sent: Tuesday, August 30, 2016 11:41 AM
To: Doyle, Stephen P. <PDoyle@csuchico.edu>
Cc: Rosecrance, Richard <RRosecrance@csuchico.edu>
Subject: RE: BS AGRI program change-one more thing

Since PSSC 459 is a 3 unit course this will adjust the units for the Option down by one if students select that course. I just wanted to be sure you knew and were OK with this. I’ve made the adjustment on the catalog copy, pages 6-7.

If you have any problems with this let me know, otherwise I’ll consider it good to go.

Thank you,

Nicol Gray
Curriculum Coordinator
898-4736

---

From: Doyle, Stephen P.
Sent: Monday, August 29, 2016 5:16 PM
To: Gray, Nicol <NSGray@csuchico.edu>
Cc: Rosecrance, Richard <RRosecrance@csuchico.edu>
Subject: RE: BS AGRI program change-one more thing

Thanks, Nicol, for catching that. I talked with Rich Rosecrance. PSSC 459 will be added in the same section as BIOL 414 and 448 (Page 7 of the catalog copy).

1 course selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 414</td>
<td>Plant Physiology</td>
<td>4.0</td>
<td>SP</td>
</tr>
<tr>
<td></td>
<td>Prerequisites: BIOL 153 or SCED 102; CHEM 108 or CHEM 270; or faculty permission.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 448</td>
<td>Plant Diversity and Identification</td>
<td>4.0</td>
<td>SP</td>
</tr>
</tbody>
</table>
Prerequisites: BIOL 152 or faculty permission.

Best,

Patrick Doyle, Ph.D.

Professor, Animal Science
Program Coordinator, College of Agriculture
College of Agriculture (ZIP 310)
California State University, Chico
400 W. First St
Chico, CA 95929-0310
Office: 530/898-6586
Fax: 530/898-5845
Email: pdoyle@csuchico.edu

From: Gray, Nicol
Sent: Monday, August 29, 2016 11:26 AM
To: Doyle, Stephen P. <PDoyle@csuchico.edu>
Cc: Altier, Lee <LAltier@csuchico.edu>
Subject: BS AGRI program change-one more thing

Hi Patrick,

Thank you for sending the new catalog copy and signature page for the changes to your program. I have one more question! The CPCR for PSSC 459 indicates it will be included in the program as well. Can you tell me exactly where you would like it added and we can get all these changes taken care of at once? Please see the attached catalog copy that includes your additions as well as the unit change for AGRI 305.

Thanks so much,

Nicol Gray
Curriculum Coordinator
Office of Undergraduate Education
Student Services Center 420
California State University, Chico
Chico, CA 95929-0680
(530) 898-4736
www.csuchico.edu/curriculum
Minor Change to an Undergraduate Program

Program Name: Crops, Hort., and Land Resource Mgmt.

Complete only if applicable
Program named above is:

☑ Option within Agriculture

☐ Advising Pattern within ________________

☐ Minor

☐ Certificate

☐ Changes being made affect a subject matter preparation or credential program.

Brief rationale for change:
Updates catalog to reflect existing and new courses available to meet degree requirements.

Does the proposed change enhance or support the Diversity Action Plan (see definition & Task 3.1)? No
If yes, please explain.

n/a

Required Signatures

The Department of Agriculture has reviewed and approves this program change

Chair, Department Curriculum Committee

Department Chair

The College of ______________________ has reviewed and approves this program change

Chair, College Curriculum Committee

College Dean

Send signature page with proposal attached to Curriculum Services at Undergraduate Education, zip 680
Curriculum Technical Review Completed
The Bachelor of Science in Agriculture

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

See Bachelor's Degree Requirements 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. You can view MAPs on the Degree MAPs page in the University Catalog or you can request a plan from your major advisor.

General Education Pathway Requirements: 48 units

See General Education in the University Catalog and the Class Schedule for the most current information on General Education Pathway Requirements and course offerings.

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

- ANSC 101 is an approved major course substitution for Life Sciences (B2).
- AGRI 482 is an approved major course substitution for Upper-Division Social Sciences.
- BIOL 350 is an approved GE Writing Intensive substitution.
- JOUR 260 and JOUR 341 are approved GE Writing Intensive substitutions.
- AGRI 482 is also an approved GE Capstone substitution.

Diversity Course Requirements: 6 units

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

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 higher to receive WP credit. See the Class Schedule for the designated WP courses for each semester. You must complete the GE Written Communication (A2) requirement before you may register for a WP course.

Course Requirements for the Major: 79-83 units

Completion of the following courses, or their approved transfer equivalents, is required of all candidates for this degree. Additional required courses, depending upon the selected option are outlined following the major core program requirements.

Major Core Program: 34 units

Lower-Division Core: 24 units

4 courses required:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
<th>Mode</th>
<th>GE</th>
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<tbody>
<tr>
<td>AGET 150</td>
<td>Agricultural Machine Systems</td>
<td>3.0</td>
<td>FA</td>
<td></td>
</tr>
<tr>
<td>AGRI 180</td>
<td>The University Experience</td>
<td>1.0</td>
<td>FS</td>
<td></td>
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<tr>
<td>MATH 105</td>
<td>Statistics</td>
<td>3.0</td>
<td>FS</td>
<td>GE</td>
</tr>
<tr>
<td>PSSC 101</td>
<td>Introduction to Plant Science</td>
<td>3.0</td>
<td>FS</td>
<td>GE</td>
</tr>
</tbody>
</table>

Prerequisites: Completion of ELM requirement.

1 course selected from:
CHEM 107  General Chemistry for Applied Sciences  4.0  FS  GE
*Prerequisites: Completion of ELM requirement, Intermediate Algebra.*

CHEM 111  General Chemistry  4.0  FS  GE
*Prerequisites: Completion of ELM requirement; 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:

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Units</th>
<th>Type</th>
<th>GE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 108</td>
<td>Organic Chemistry for Applied Sciences</td>
<td>4.0</td>
<td>FS</td>
<td>GE</td>
</tr>
</tbody>
</table>
*Prerequisites: CHEM 107 or CHEM 111 or equivalent.*

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<thead>
<tr>
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<th>Course Title</th>
<th>Units</th>
<th>Type</th>
<th>GE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 112</td>
<td>General Chemistry</td>
<td>4.0</td>
<td>FS</td>
<td></td>
</tr>
</tbody>
</table>
*Prerequisites: CHEM 111 with a grade of C- or better.*

6 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). Choose courses in consultation with your advisor.

**Upper-Division Core: 10 units**

3 courses required:

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>AGRI 305</td>
<td>Agricultural Genetics and Biotechnology</td>
<td>4.0</td>
<td>SMF</td>
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</tbody>
</table>
*Prerequisites: ANSC 101 or PSSC 101; CHEM 107 or CHEM 111.*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<th>Type</th>
<th>GE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 331</td>
<td>Agricultural Ecology</td>
<td>3.0</td>
<td>FS</td>
<td></td>
</tr>
</tbody>
</table>
*Prerequisites: Completion of lower-division core or faculty permission.*

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</tr>
</thead>
<tbody>
<tr>
<td>AGRI 482</td>
<td>Agricultural Issues</td>
<td>3.0</td>
<td>FS</td>
<td>WP</td>
</tr>
</tbody>
</table>
*Prerequisites: ENGL 130 or JOUR 130 (or equivalent) with a grade of C- or higher, senior standing or instructor permission.*

**Note:** AGRI 305 may be substituted for an approved elective in the Land Resource Management area of study.

**Major Option Course Requirements: 45-49 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. Use the links below to jump to your chosen option.

- [The Option in Agricultural Science and Education](#)
- [The Option in Crops, Horticulture, and Land Resource Management](#)

### The Option in Agricultural Science and Education: 45 units

This option prepares students for careers in the broad field of agriculture or for careers in teaching at the secondary level. The option prepares students for diverse careers in agricultural production where the integration of animal, plant, and agri-business knowledge and skills is required.

2 courses required:

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<th>Units</th>
<th>Type</th>
<th>GE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS 101</td>
<td>Introduction to Agricultural Business and Economics</td>
<td>3.0</td>
<td>FS</td>
<td>GE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>Units</th>
<th>Type</th>
<th>GE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 101</td>
<td>Introduction to Animal Science</td>
<td>3.0</td>
<td>FS</td>
<td></td>
</tr>
</tbody>
</table>

39 units selected from:
In consultation with your advisor, select courses from the prefixes: ABUS, AGED, AGET, AGRI, ANSC, and PSSC or any of the following: CMST 330, EDTE 302, EDTE 330, EDTE 534, ENGL 471, HCSV 451, JOUR 244, JOUR 2551, JOUR 260, JOUR 341.

A maximum of 12 lower division units are allowed. Students are strongly encouraged to gain practical skills and knowledge through an approved internship or directed work experience. Courses must be selected based on the career goals of the student and should have a recognizable theme such as agricultural education, sustainability, resource management, environmental horticulture, agricultural communications, or agricultural mechanization.

*12 units in these areas may be transferred from a community college. Students not seeking a teaching credential are encouraged to take AGRI 490 - Agricultural Experimental Research as an elective to strengthen their analytical skills.

Teaching Credentials for 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 Agriculture Specialist Instruction Credential. The Single Subject Teaching Credential in Agriculture authorizes the holder to teach in the classroom. Candidates who fulfill the requirements for the Agriculture Specialist Instruction Credential 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 Option in Agricultural Science and Education. Candidates may also demonstrate subject matter competence by successfully passing the appropriate California Subject Examinations for Teachers (CSET). 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 and a 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 admission 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: EDTE 324, EDTE 530, EDTE 531, EDUC 302, ENGL 471, 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 Agriculture Specialist Instruction Credential include a series of agricultural education courses (listed below), occupational experience, and a student teaching experience. 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 BS in Agriculture and the teaching credential requirements. Students pursuing this career objective should also complete the single subject program prerequisites and pass the California Basic Education Skills Test (CBEST).

Agricultural Education Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGED201</td>
<td>Introduction to Agricultural Education</td>
<td>3.0</td>
<td>FA</td>
</tr>
<tr>
<td>AGED210</td>
<td>Directed Field Experience Agriculture</td>
<td>2.0</td>
<td>FA</td>
</tr>
<tr>
<td>AGED321</td>
<td>Program Development in Agriculture</td>
<td>2.0</td>
<td>SP</td>
</tr>
<tr>
<td>AGED420</td>
<td>Techniques in Vocational Agricultural</td>
<td>2.0</td>
<td>SP</td>
</tr>
</tbody>
</table>

Prerequisites: AGED 201 or faculty permission.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGED421</td>
<td>Curriculum and Methods in Teaching</td>
<td>3.0</td>
<td>FA</td>
</tr>
</tbody>
</table>

Prerequisites: AGED 120, AGED 130 or equivalent.

45 units of required subject matter competency may be obtained by completing courses in the areas of:
• Agricultural Business: 9 units. Recommended: ABUS 101*, ABUS 261, ABUS 321
• Agricultural Mechanics: 8 units. Recommended: AGET 120, AGET 150*
• Animal Science: 8 units. Recommended: ANSC 101*, ANSC 230
• Plant Science: 8 units. Recommended: PSSC 101*, PSSC 250
• Natural Resources: 3 units. Recommended: AGRI 331*

*Required in either the core or in the option.

Plus 9 units of additional courses in one of the above areas (a specialization). This credential requirement may be met using coursework in the major and in the option.

Students are strongly encouraged to gain practical skills and knowledge through an approved internship or directed work experience in areas where additional experience is needed to become a successful agricultural teacher. With the approval of your advisor, single subject credential program pre-requisite courses may be used as electives in this option.

Agricultural Communications

Students wishing to pursue a career in agricultural communications are encouraged to take the following courses as part of their option electives. Agricultural communications prepares students to enter the field by blending agriculture, journalism, and communication studies.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Type</th>
<th>GE/WI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMST 131</td>
<td>Speech Communication Fundamentals</td>
<td>3.0</td>
<td>FS</td>
<td>GE</td>
</tr>
<tr>
<td>CMST 330</td>
<td>Introduction to Communication Studies</td>
<td>3.0</td>
<td>FS</td>
<td></td>
</tr>
<tr>
<td>JOUR 244</td>
<td>Introduction to Public Relations</td>
<td>3.0</td>
<td>FS</td>
<td></td>
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</tbody>
</table>

Prerequisites: Sophomore standing; concurrent enrollment in or prior completion of JOUR 260 for Journalism majors. This course is also offered as POLS 244.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Type</th>
<th>GE/WI</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOUR 256</td>
<td>Media Literacy and Civic Engagement - Writing Intensive</td>
<td>3.0</td>
<td>FS</td>
<td>GE/WI</td>
</tr>
<tr>
<td>JOUR 260</td>
<td>Writing for Mass Media</td>
<td>3.0</td>
<td>FS</td>
<td></td>
</tr>
</tbody>
</table>

Prerequisites: ENGL 130 or JOUR 130.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Type</th>
<th>GE/WI</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOUR 341</td>
<td>Writing For Public Relations</td>
<td>3.0</td>
<td>FS</td>
<td>WP</td>
</tr>
</tbody>
</table>

Prerequisites: Completion of GE Written Communication (A2) requirement, JOUR 244, JOUR 260.

The Option in Crops, Horticulture, and Land Resource Management: 46-49 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 the agricultural production industry, in agricultural research, and in agricultural consulting, assistance, and regulation.

Option Core: 25 units

2 courses required:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Type</th>
<th>GE/WI</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 490</td>
<td>Agricultural Experimental Research</td>
<td>4.0</td>
<td>FS</td>
<td></td>
</tr>
<tr>
<td>PSSC 250</td>
<td>Introduction to Soil Science</td>
<td>3.0</td>
<td>FS</td>
<td></td>
</tr>
</tbody>
</table>

Prerequisites: CHEM 107 or CHEM 111.

1 course selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Type</th>
<th>GE/WI</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS 101</td>
<td>Introduction to Agricultural Business and Economics</td>
<td>3.0</td>
<td>FS</td>
<td>GE</td>
</tr>
<tr>
<td>ABUS 261</td>
<td>Farm Accounting</td>
<td>3.0</td>
<td>FS</td>
<td></td>
</tr>
</tbody>
</table>

1 course selected from:
### ANSC101 Introduction to Animal Science 3.0 FS

### ANSC230 Animal Feeds and Nutrition 3.0 SP

**1 course selected from:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSSC356 Soil Quality and Health</td>
<td>3.0</td>
<td>S2</td>
</tr>
</tbody>
</table>

*Prerequisites: PSSC250 or instructor permission.*

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSSC451 Soil Genesis and Classification</td>
<td>3.0</td>
<td>P2</td>
</tr>
</tbody>
</table>

*Prerequisites: PSSC250 or instructor permission.*

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSSC453 Soil Fertility and Plant Nutrition</td>
<td>3.0</td>
<td>F2</td>
</tr>
</tbody>
</table>

*Prerequisites: PSSC250.*

**1 course selected from:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL414 Plant Physiology</td>
<td>4.0</td>
<td>SP</td>
</tr>
</tbody>
</table>

*Prerequisites: BIOL153 or SCED 102; CHEM 108 or CHEM 270; or faculty permission.*

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL448 Plant Diversity and Identification</td>
<td>4.0</td>
<td>SP</td>
</tr>
</tbody>
</table>

*Prerequisites: BIOL152 or faculty permission.*

**1 course selected from:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS231 Computer Applications in Agriculture</td>
<td>3.0</td>
<td>FS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS321 Agribusiness Management</td>
<td>3.0</td>
<td>FS</td>
</tr>
</tbody>
</table>

*Prerequisites: ABUS231 or equivalent.*

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUS464 Farm and Ranch Appraisal</td>
<td>3.0</td>
<td>FA</td>
</tr>
</tbody>
</table>

*Prerequisites: ABUS231.*

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI432 Holistic Management</td>
<td>3.0</td>
<td>SP</td>
</tr>
</tbody>
</table>

*Prerequisites: AGRI331 or faculty permission.*

**1 course selected from:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSSC309A Directed Work in Field and Row Crops</td>
<td>2.0</td>
<td>FS</td>
</tr>
</tbody>
</table>

*Prerequisite: AGET 150 or faculty permission.*

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSSC309B Directed Work in Vegetable Crops</td>
<td>2.0</td>
<td>FS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSSC389 Internship in Plant and Soil Science</td>
<td>1.0-6.0</td>
<td>FS</td>
</tr>
</tbody>
</table>

*Prerequisites: Junior standing, faculty permission.*

PSSC 389 must be taken for 2 units.

### Area of Study: 21-24 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: 24 units

**1 course required:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSSC353 Plant Protection Materials and Methods</td>
<td>3.0</td>
<td>FA</td>
</tr>
</tbody>
</table>

*Prerequisites: CHEM 107 or CHEM 111; PSSC250.*

Crop Production
2 courses selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGET 360</td>
<td>Irrigation</td>
<td>3.0</td>
<td>SP</td>
</tr>
<tr>
<td></td>
<td>Prerequisites: PSSC 101 or PSSC 250 or faculty permission.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSSC 274</td>
<td>Greenhouse Management</td>
<td>3.0</td>
<td>FA</td>
</tr>
<tr>
<td>PSSC 361</td>
<td>Production of Annual Crops</td>
<td>3.0</td>
<td>FA</td>
</tr>
<tr>
<td>PSSC 363</td>
<td>Forage Crops</td>
<td>3.0</td>
<td>SP</td>
</tr>
<tr>
<td>PSSC 365</td>
<td>Sustainable Vegetable Crop Production</td>
<td>3.0</td>
<td>FA</td>
</tr>
<tr>
<td>PSSC 366</td>
<td>Fruit and Nut Production</td>
<td>3.0</td>
<td>SP</td>
</tr>
</tbody>
</table>

Prerequisites: AGRI 333, PSSC 101.

Agricultural Pests and Control

2 courses selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 446</td>
<td>Plant Pathology</td>
<td>4.0</td>
<td>FA</td>
</tr>
<tr>
<td></td>
<td>Prerequisites: BIOL 153 or PSSC 101 or faculty permission.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSSC 340</td>
<td>Economic Entomology</td>
<td>3.0</td>
<td>FA</td>
</tr>
<tr>
<td>PSSC 343</td>
<td>Introduction to Weed Science</td>
<td>3.0</td>
<td>SP</td>
</tr>
</tbody>
</table>

Prerequisites: AGRI 331.

PSSC 441 Principles of Integrated Pest Management 3.0 SP

Prerequisites: AGRI 331; BIOL 446, PSSC 340, or PSSC 343.

8-9 units selected from:

To fulfill the requirements of this option, select additional upper division courses from the option core and this area of study, in consultation with your advisor.

Land Resource Management Area of Study: 21 units

2 courses required:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Term</th>
<th>Text</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 350</td>
<td>Fundamentals of Ecology</td>
<td>3.0</td>
<td>FB</td>
<td>WP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prerequisites: Completion of GE Written Communication (A2) requirement; BIOL 102 or faculty permission.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSSC 451</td>
<td>Soil Genesis and Classification</td>
<td>3.0</td>
<td>P1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Prerequisites: PSSC 250 or faculty permission.

1 course selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGET 340</td>
<td>GPS &amp; GIS in Agriculture and Natural Resource Management</td>
<td>3.0</td>
<td>FA</td>
</tr>
<tr>
<td>GEOG 211</td>
<td>Introduction to Geographical Information Systems</td>
<td>3.0</td>
<td>FS</td>
</tr>
</tbody>
</table>

Commented [AL2]: EXPLANATION: Catalog needs to reflect that these two classes are available to meet the production requirement.

Commented [AL3]: Insertion reflects requirement of the program.
1 course selected from:

- **GEOG 342 Geomorphology 3.0 FA**
  
  Prerequisites: GEOG 101, GEOS 102, PSSC 101, or PSSC 250; GEOG 211, GEOG 219, or AGET 340.

- **GEOS 325 Geology of California 3.0**
  
  Prerequisites: GEOS 101 or GEOS 102 or consent of instructor.

9 units selected from:

To fulfill the requirements of this option, select additional upper-division courses from the option core and this area of study in consultation with your advisor.

**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.

**Honors in the Major:**

Honors in the Major is a program of independent work in your major. It requires 6 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. Such experience is valuable for graduate school and professional life. Your honors work will be recognized at your graduation, on your permanent transcripts, and on your diploma. It is often accompanied by letters of commendation from your mentor in the department or the department chair.

Some common features of Honors in the Major program are:

1. You must take 6 units of Honors in the Major course work. All 6 units are honors classes (marked by a suffix of H), and at least 3 of these units are independent study (399H, 499H, 599H) as specified by your department. You must complete each class with a minimum grade of B.
2. You must have completed 9 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.
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 advisor to apply.