California State University, Chico

STANDARDS OF QUALITY AND EFFECTIVENESS FOR THE SUBJECT MATTER PROGRAM IN AGRICULTURE

Accreditation Review, 2001-2003
STANDARDS OF QUALITY AND EFFECTIVENESS FOR THE SUBJECT MATTER PROGRAM IN AGRICULTURE

PREPARED FOR CALIFORNIA COMMISSION ON TEACHER CREDENTIALING

SUBMITTED BY BRADLEY W. DODSON PROGRAM COORDINATOR CALIFORNIA STATE UNIVERSITY, CHICO
Preconditions for the Approval of Subject Matter Preparation Programs in Agriculture

Vocational agriculture instructors in California must obtain two credentials, the Single Subject in Agriculture and the Specialist in Agriculture. The Single Subject in Agriculture credential prepares candidates for the in-class responsibilities while the Specialist in Agriculture credential provides each prospective teacher with the skills and knowledges to fulfill the out-of-class duties including Future Farmers of America advisement, Supervised Occupational Experience Program supervision, and student supervision.

To fulfill the subject matter preparation requirement for the single subject credential, students must complete 10 semester units in Animal Science, 10 units in Plant/Soil Science, 8 units in Agricultural Mechanics, and 6 units in Agricultural Business. Students can fulfill these requirements by completing the Bachelor of Science in Agriculture degree program.

1. Programs of academic preparation in agriculture must comprise at least 45 semester hours or the quarter unit equivalent.

   The course requirements for the Bachelor of Science in Agriculture degree consist of eighty-three (83) semester units, forty-nine (49) units of which are degree core program units and thirty-four (34) are within the option in Agriscience and Education. Fourteen of the option core units are specified while the remaining twenty units are elective.

2. Programs of academic preparation must include a basic set of courses which develop a foundation across the domains of agriculture (animal science, plant/soil science, ornamental horticulture, agriculture business management, natural resources and forestry, and agricultural mechanics) and which will fulfill Standards 2 through 7. These courses should comprise 70 to 80 percent of the program.

Each program submission shall include a listing and description of the courses that constitute this set of courses. Institutions shall have flexibility to determine whether their programs offer a specific course or courses for each subject commonly taught or courses offering multiple coverage of these subjects (California Administrative Code Section 80085.1).

Within the degree core, coursework is taken in Agricultural Business, Animal Science, Plant Science, Agricultural Engineering Technology, and Agriculture. The degree requirements are listed on the College of Agriculture Major Clearance form found in Appendix A.
(3) Programs of academic preparation must include courses that provide specialization to supplement the basic set. These courses will compromise 20 to 30 percent of the program. Institutions shall have flexibility to define their program in terms of specifically required coursework or in terms of electives within each area (California Administrative Code Section 80085.1).

There are four areas of specialization available, Animal Science, Plant and Soil Science, Agriculture Engineering and Technology, and Agricultural Business. A suggested course sequence for each specialization area is listed in Appendix A.
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Program Philosophy and Purpose

The subject matter preparation program in agriculture is based on an explicit statement of program philosophy that expresses its purpose, design, and desired outcomes, and defines the institution's concept of a well-prepared teacher of agriculture. The program philosophy, design, and desired outcomes are appropriate for preparing students to teach agriculture in California schools.

CALIFORNIA STATE UNIVERSITY, CHICO VISION STATEMENT FOR EDUCATOR PREPARATION PROGRAMS

California State University, Chico faculty and staff are dedicated to the professional preparation of educators committed to the improvement of society. As a result of our programs, educators develop the knowledge, skills and confidence to assume educational and community leadership roles. As educators, we examine current research related to teaching and learning so we can effectively prepare teacher candidates to meet the academic, social, cultural, and developmental needs of all students in our dynamic, diverse, and democratic society. At CSU, Chico educators learn to make the informed and ethical decisions necessary for providing the compassionate support, individual guidance, and purposeful direction our citizens need and deserve to lead productive and healthy lives.

MISSION STATEMENT

CSU, Chico professional education programs prepare educators to be informed decision-makers who provide high quality learning opportunities for all students.

BACKGROUND OF AGRICULTURAL EDUCATION PROGRAMS

Departments or programs of agricultural education have been an important part of universities throughout the United States since the turn of the century. Most were established after 1917 in response to the need for high school teachers of agriculture for the newly founded federal vocational agriculture programs throughout the country. The National Education Act of 1917, commonly called Smith-Hughes, provided for programs of vocational agriculture in rural high schools for the purpose of developing student interest and competency in farming.

In 1977, Bender indicated that, for the most part, agricultural education in universities has meant the preparation of teachers of vocational agriculture, and perhaps has been limited too much to that single function. Bender also indicated that teacher educators needed to design programs for preparing personnel in addition to vocational agriculture teachers. Those personnel included post-high
school teachers, extension personnel, agricultural educators entering international education, agriculture educators for business including sales, promotion and public relations, elementary and secondary teachers of general agriculture, adult education instructors, and teachers to work with disadvantaged students.

Crawford (1987) defined the mission of agricultural education in a university to be “Teaching others to teach in agriculture.” Crawford was quick to point out that teaching can be interpreted in many ways and include formal and informal settings.

*The Agricultural Education Implementation Guide* distinguishes between agricultural education in and about agriculture. The career-vocational education in agriculture program serves to prepare students enrolled in high school agriculture courses for employment in the agriculture industry. Career awareness, career exploration, preparation for employment, and/or advanced study is all components of education in agriculture. Education about agriculture develops an agriculturally literate citizenry. The purpose of education about agriculture is to create an informed and supportive public.

The Agriculture Subject Matter and Teacher Specialist Preparation Programs at CSU, Chico embrace the multiple roles and functions of agriculture education in today’s schools.

**PHILOSOPHY**

The program philosophy, design, and desired outcomes are developed and periodically reviewed by the Agricultural Education Advisory Committee. Several resources are utilized including:


The Professional Education Program at CSU, Chico prepares effective agricultural educators, those individuals who understand and can apply the teaching/learning process in agriculture that will meet the needs of high school students.

The faculty of the Single Subject Agriculture and Agricultural Specialist Credential Program at CSU, Chico believe that effective teachers know their

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1 Refer the minutes of the Agricultural Education Advisory Committee found in Appendix B.
subject matter, know how to teach that subject matter using various strategies, present material confidently and enthusiastically, care about the welfare of individual students, and model and promote critical thinking skills. Agriculture specialist teachers must be able to demonstrate these abilities in both the school and community environment, which reflects rapidly changing demographics and technological advances. Agriculture teachers must be able to provide the leadership and social skills necessary to reach students of diverse values, social skills, education expectations, and language abilities. We believe that teaching is a humanistic endeavor, which requires a constant infusion of dedicated people who are committed to the concept of lifelong learning.

We are committed to preparing reflective agricultural teachers who understand the developmental needs of learners in a pluralistic society and who recognize the importance of the profession of teaching. We believe the best-trained teachers think all students can learn, are willing and eager to learn about their students, and are knowledgeable and flexible about peoples of the world.

DESIRED OUTCOMES

The subject matter preparation program in agriculture at CSU, Chico provides a knowledge base that serves as the foundation of the professional education specialist program.

A. To prepare effective teachers.

The standards established by the California Department of Education for Professional teaching practice in California serve as our definition of an effective teacher. These California Standards for the Teaching Profession were developed to facilitate the induction of beginning teachers into their professional roles and responsibilities. The standards were organized around six interrelated categories of teaching practice:

a. Engaging and supporting all students in learning.
b. Creating and maintaining effective environments for students learning.
c. Understanding and organizing subject matter for student learning.
d. Planning instruction and designing learning experiences for all students.
e. Assessing student learning.
f. Developing as a professional educator.

B. To prepare successful agricultural educators for careers in secondary and postsecondary education programs.

Teachers of agriculture need the skills, knowledge, and confidence to teach in a variety of settings and manage a multifaceted program. The program faculty and advisory board establish fifteen Operational Program
Standards for Vocational Education in Agriculture to identify a quality program. These standards are the basis for our definition of a well-prepared agriculture teacher:

1. Individual Student Career Plan – Each student shall develop a tentative career plan.
2. Supervised Occupational Experience – Each student shall engage in supervised occupational experience as part of the instructional program.
3. Future Farmers of America – Each student shall participate in activities of the Future Farmers of America (FFA).
4. Graduate Follow-up – Each program shall maintain a system of planned regular graduate follow-up.
5. Relevant Instruction – Programs of instruction shall be based upon skills, knowledge, and attitudes required for successful employment in the occupations served by the program.
6. Qualified Teachers – Teachers shall be qualified to teach the subjects assigned.
7. Student-Teacher Ratio – A student-teacher ratio, which provides for safe, effective teaching shall be maintained.
8. Full Year Employment – The school district shall provide adequate teacher time to conduct the year-round activities of the agricultural programs.
9. Providing for Unique Program Expenses – Each Local Education Agency shall provide for transporting and other expenses which teachers incur in the conduct of the program.
10. Professional Development – Each teacher shall participate in professional development activities.
11. Facilities, Equipment, and Supplies – Each school shall provide adequate facilities, equipment, and supplies for effective operation of the program.
12. Advisory Committee – a committee representative of the agricultural interests of the community shall advise programs of instruction.
13. Budget – A complete budget for conducting the program shall be developed annually and incorporated with the school site budget.
14. Program Management – a vocational agriculture teacher appointed to the task by the program site administration shall manage the program.
15. Meeting Proficiency Standards – Students completing the program will have developed and attained the required skills, knowledge, and attitudes for successful employment in occupations associated with the program or for enrollment in advanced training in agriculture.
C. To prepare successful educators for careers in the agricultural industry.

    Educators about agriculture need the same pedagogical skills and knowledge to apply teaching/learning methods and strategies to other venues outside of the public school program.

D. To enhance communication and leadership skills of agricultural educators.

E. To provide continuing professional development opportunities for agricultural educators.

F. To provide leadership for the improvement of teaching and learning in the College of Agriculture.

DESIGN

The Professional Education Program in agriculture is truly a partnership between the School of Education in the College of Communications & Education, the Educational Services Center, and the College of Agriculture.

The faculty and staff in the Education Services Center provide prospective teachers with information regarding teacher preparation program on campus. Interested students can obtain advice and materials regarding the professional education programs on campus.

The faculty of the School of Education provides advice and supervision for candidates during Phase I of the professional education program. Following application and admission into the teacher preparation program, students enter Phase I, which includes 17 semester units of profession education coursework and related field experience. The specific course requirements are listed in the table below. The Focus on Teaching brochure (Appendix B) provides detailed information and a flow chart for the single subject credential program.

The faculty of the College of Agriculture conducts the technical agriculture and agricultural education courses. Students are assigned an undergraduate faculty advisor from the College of Agriculture who assists them in developing and implementing a curriculum plan. (The degree plan can be found in Appendix B) The coordinator of the teacher preparation program in agriculture, a faculty member in the College of Agriculture, provides advise, information and supervision for the agriculture student teachers during their Phase II student teaching experience.
The recommended subject matter preparation program in agriculture is outlined in Table 1 and Table 2.

**Table 1 – Undergraduate Program Guidelines**

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Sophomore</th>
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</thead>
<tbody>
<tr>
<td>Technical agriculture coursework to fulfill the degree requirements</td>
<td>Technical agriculture courses continued</td>
</tr>
<tr>
<td>Introduction to Agricultural Education (AGRI 100)</td>
<td>Directed Field Experience Agricultural Education (AGRI 101)</td>
</tr>
<tr>
<td>Agricultural Work Experience</td>
<td>Agricultural Work Experience</td>
</tr>
<tr>
<td>Collegiate FFA Involvement</td>
<td>Collegiate FFA Involvement</td>
</tr>
<tr>
<td>College of Agriculture Activity Involvement</td>
<td>College of Agriculture Activity Involvement</td>
</tr>
<tr>
<td>Public Speaking Course</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior/Transfer</th>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical agriculture courses continued</td>
<td>Technical agriculture courses continued</td>
</tr>
<tr>
<td>AGRI 100 – Introduction to Agricultural Education (AGRI 100)</td>
<td>Techniques in Vocational Agricultural Instruction (AGRI 129)</td>
</tr>
<tr>
<td>AGRI 101 Directed Field Experience</td>
<td>Seminar in Agricultural Education (AGRI 209)</td>
</tr>
<tr>
<td>Agricultural Education AGRI (101)</td>
<td>Curriculum and Methods in Teaching</td>
</tr>
<tr>
<td>Health Education for Secondary School Teachers (Health Science 251)</td>
<td>Agricultural Mechanics (AGRI 296)</td>
</tr>
<tr>
<td>Ag Computers Course (ABUS 181)</td>
<td>Agricultural Work Experience</td>
</tr>
<tr>
<td>Agricultural Work Experience</td>
<td>Collegiate FFA Involvement</td>
</tr>
<tr>
<td>Collegiate FFA Involvement</td>
<td>College of Agriculture Activity Involvement</td>
</tr>
<tr>
<td>College of Agriculture Activity Involvement</td>
<td>AGED Interviews</td>
</tr>
<tr>
<td>Complete the CBEST Exam</td>
<td>California Agriculture Teachers' Association Involvement</td>
</tr>
</tbody>
</table>

Apply to graduate school and teacher preparation program
<table>
<thead>
<tr>
<th>First semester - Phase I</th>
<th>Second semester - Phase II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multicultural Issues in Education (EDTE 201A)</td>
<td>Supervised Teaching: Agriculture (AGRI 210)</td>
</tr>
<tr>
<td>Issues in Literacy Development (EDTE 201B)</td>
<td>Curriculum and Methods of Teaching Vocational Agriculture (AGRI 211)</td>
</tr>
<tr>
<td>Classroom Organization &amp; Instruction (EDTE 201D)</td>
<td>California Agriculture Teachers' Association Involvement</td>
</tr>
<tr>
<td>Educational Psychology (EDTE 246A)</td>
<td></td>
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<tr>
<td>Mainstreaming (EDTE 246C)</td>
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<tr>
<td>Curriculum &amp; Instruction (EDTE 246G)</td>
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<tr>
<td>Field Experience (EDTE 245F)</td>
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<tr>
<td>California Agriculture Teachers' Association Involvement</td>
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</tbody>
</table>
Standard 2

Animal Science

The program requires basic preparation in animal science that develops knowledge, skill, and the ability to integrate and apply practical applications in the area of animal science and production.

Basic preparation in animal science is provided in two courses in the lower division core, one course in the upper division core, and one upper division course in the Agriscience and Education core. Students who do not specialize in Animal Science and need additional knowledge are advised to select Intermediate Animal Systems (ANSC 100) or another upper division course as an elective within the option. Course descriptions of Introduction to Animal Science (ANSC 002), Animal Feeds and Nutrition (ANSC 011), Agricultural Systems and Issues (AGRI 292), and Agricultural Genetics (AGRI 145) from the 2001-2003 University Catalog outline a basic knowledge of anatomy and physiology of domestic animals and the knowledge of animal nutrition, reproduction, and health.

ANSC 002 – Introduction to Animal Science. This course is 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. Included in the course is human opportunity to influence trait inheritance, population densities, and productivity. The format of the course includes 2.0 hours of lecture and 3.0 hours of laboratory. This is an approved General Education course.

ANSC 011 – Animal Feeds and Nutrition. A summary of this course includes an introduction to the nutrition of domestic and wild animals with an emphasis on appropriate nutrients for various activities. The course includes 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 of lecture and 2.0 hours of laboratory.

AGRI 145 – Agricultural Genetics. Mendelian inheritance, gene structure and action, sex-related inheritance, linkage and mapping, aneuploidy, polyploidy, population and quantitative inheritance, inbreeding and heterosis. 3.0 hours discussion and 2.0 hours activity. Prerequisites of ANSC 002 or BIOL 008 or PSSC 002; CHEM 037 or CHEM 027.
ANSC 100 – Intermediate Animal Systems. An overview of world and United States animals production systems, emphasizing the scientific principles and management of large and small ruminants (beef, dairy, sheep, goats), monogastrics (swine, equine), and as well as meat, poultry, and aquaculture. 3.0 hours seminar and 3.0 hours laboratory. Prerequisite of ANSC 002.

AGRI 292 – Agricultural Systems and Issues. A critical examination of the systems approach in agriculture. The principles and practices employed with the systems approach are reinforced through case studies and projects. Prerequisites are the successful completion of ENGL 001 (or its equivalent).

The above catalog descriptions are further detailed in the course syllabi found alphabetically by prefix in Appendix C.
## Standards or Quality and Effectiveness for Subject Matter Programs

### Content: Animal Science

<table>
<thead>
<tr>
<th></th>
<th>ANSC 002</th>
<th>ANSC 011</th>
<th>ANSC 100</th>
<th>AGRI 145</th>
<th>AGRI 292</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Study of the different breeds of domestic animals and their uses.</td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>2. Study of the anatomy of major body systems and their interrelationships.</td>
<td>X</td>
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<tr>
<td>3. Study of the basic theory of inheritance.</td>
<td>X</td>
<td></td>
<td>X</td>
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<tr>
<td>4. Study of the basic physiology of digestive and reproductive systems in domestic animals.</td>
<td>X</td>
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<tr>
<td>5. Study of the factors that influence nutrition and feeding.</td>
<td></td>
<td>X</td>
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<tr>
<td>6. Study of the symptoms of unhealthy animals.</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>7. Study of the basic causes of common infectious and noninfectious diseases in domestic animals.</td>
<td>X</td>
<td></td>
<td>X</td>
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<tr>
<td>8. Study of the issues related to the ethical treatment of animals.</td>
<td>X</td>
<td></td>
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<td>X</td>
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<tr>
<td>9. Study of the environment requirements, facilities, tools, and equipment appropriate for domestic animals.</td>
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<tr>
<td>10. Study of the careers in animal science.</td>
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</tbody>
</table>
Standard 3

Plant Science and Soil Science

The program requires basic preparation that develops knowledge, skill, and the ability to integrate and apply applications in the areas of plant science and soil science.

Students acquire knowledge of the scientific basics of plant and soil science through two courses in the lower division core and one course in the upper division core. Course descriptions of Introduction to Plant Science (PSSC 002), Introduction to Soils (PSSC 050), and Agricultural Genetics (AGRI 145) outline a basic knowledge of plant genetics, reproduction and growth requirements, including soil/water relationships.

Portions of other required courses add specific competencies such as the use of equipment required in crop production and processing, food safety and other issues, environmental and conservation factors related to plant and soil science, and careers in plant and soil science. Students who do not select a specialization in Plant and Soil Science and need to further strengthen their preparation in plant and soil science are advised to select PSSC 160 as an elective in the Agriscience and Education option.

PSSC 002 – Introduction to Plant Science. Plant structure, growth, reproduction, and responses to the environment. How humans modify plants and the environment to grow crops. 2.0 hours lecture and 3.0 hours laboratory. This is an approved General Education course.

PSSC 050 – Introduction to Soils. Soil biology, fertility, chemistry, physical properties, taxonomy and their applications to agricultural management and environmental enhancement. Relationships of soils to the world food supply and population. 2.0 hours seminar and 3.0 hours laboratory. Prerequisites are CHEM 027 or CHEM 037.

PSSC 160 – Ecology of Crop Production. Explore the interactions of crops with their environments and the manipulation of cropping systems to achieve desired results. A major emphasis will be on the impact of weeds and the effects of management on weed competition. 3.0 hours discussion and 3.0 hours laboratory. Prerequisite is AGRI 111.

AGRI 145 – Agricultural Genetics. Mendelian inheritance, gene structure and action, sex-related inheritance, linkage and mapping, aneuploidy, polyploidy, population and quantitative inheritance, inbreeding and heterosis. 3.0 hours discussion and 2.0 hours activity. Prerequisites are ANSC 002 or BIOL 008 or PSSC 002; CHEM 037 or CHEM 027. Course outline found in Appendix C.
AGET 085 – **Agricultural Machine Systems.** 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 and 3.0 hours laboratory.

AGRI 010 – **The University Experience.** 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.

AGRI 231 – **Holistic Resource Management.** 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. Prerequisite is AGRI 111.

AGRI 292 – **Agricultural Systems and Issues.** A critical examination of the systems approach in agriculture. The principles and practices employed with the systems approach are reinforced through case studies and projects. Prerequisite is successful completion of ENGL 001 (or its equivalent). Course outline found in Appendix C.

The above catalog descriptions are further detailed in the course syllabi found alphabetically by prefix in Appendix D.
## Standards or Quality and Effectiveness for Subject Matter Programs

<table>
<thead>
<tr>
<th>Content: Plant Science and Soil Science</th>
<th>PSSC 002</th>
<th>PSSC 050</th>
<th>PSSC 160</th>
<th>AGRI 10</th>
<th>AGRI 145</th>
<th>AGRI 231</th>
<th>AGRI 262</th>
<th>AGET 085</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Study of the role of soil and land classification in plant production.</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>2. Study of the requirements for plant growth, reproduction, and development.</td>
<td>X</td>
<td>X</td>
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<tr>
<td>3. Study of the genetics and habitability traits of plants.</td>
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<tr>
<td>4. Study of the role and usage of fertilizers in plant production.</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>5. Study of the role of water in plant production and the various methods of irrigation.</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>6. Study of the major principles and usage methods of crop protection.</td>
<td>X</td>
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<tr>
<td>7. Study of cultural practices and equipment required in crop production and processing (planting through post-harvest activities).</td>
<td>X</td>
<td>X</td>
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<tr>
<td>8. Study of food safety and related issues.</td>
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<td>X</td>
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<tr>
<td>9. Study of environmental and conservation factors related to plant and soil science.</td>
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<td>X</td>
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<td>X</td>
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<tr>
<td>10. Study of the careers in plant and soil science.</td>
<td>X</td>
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<td>X</td>
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</tbody>
</table>
Standard 4
Ornamental Horticulture

The program requires basic preparation that develops knowledge, skill, and the ability to integrate and apply application in the area of ornamental horticulture.

Basic knowledge and skills in ornamental horticulture are taught in one course offered in the Plant Science program at CSU, Chico and two courses at Butte College. Refer to Appendix E for the course outlines/syllabi for Greenhouse Management (PSSC 174), Introduction to Ornamental Horticulture (OH 20), and Landscape Construction (OH 22).

PSSC 174 – Greenhouse Management. Greenhouse construction, environment, and management practices, including heating and cooling, irrigation, fertilization, and pest control. 2.0 hours lecture, 3.0 hours laboratory.

OH 20 – Introduction to Ornamental Horticulture. A study of the practices utilized in propagating, training and managing horticultural crops, including the tools, equipment, and facilities involved therein. 1 hour lecture, 3 hours laboratory.

OH 22 – Landscape Construction. This course is designed to teach individuals how to use various plant and nonplant materials for aesthetic purposes in the field of ornamental horticulture. 1 hour lecture, 6 hours laboratory.

Because there are limited offerings in this area at the current time, prospective students are encouraged to enroll in the courses at Butte College.
## Standards of Quality and Effectiveness for Subject Matter Programs

<table>
<thead>
<tr>
<th>Content: Ornamental Horticulture</th>
<th>PSSC 174</th>
<th>OH 20</th>
<th>OH 22</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Study of landscape design principles</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>2. Study of greenhouse management practices, including marketing of ornamentals.</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>3. Study of turf grass management practices.</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>4. Study of plants and products as they relate to ornamental horticulture.</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>5. Study of floristry and floriculture principles and practices.</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>6. Study of equipment and tools commonly used in the ornamental horticulture industry.</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7. Study of careers in the Ornamental Horticulture Industry.</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Standard 5
Agricultural Business Management

The program requires preparation that develops knowledge, skill, and the ability to integrate and apply economics principles, record keeping practices, planning systems, management concepts, and marketing tools as they relate to the agriculture industry.

Four courses provide students with the basic knowledge of Agricultural Business Management, two in the lower division core one in the option and the agriculture competency course required for the teaching credential. The course descriptions for Introduction to Agriculture Business/Economics (ABUS 080) and Farm Management (ABUS 183) outline financial management, record keeping, basic economic principles and agricultural business management principles, and the agricultural business industry and its role in our global economy.

While Farm Accounting (ABUS 83) is an optional course, all Agricultural Education students are advised to select this course in the lower division core. This course includes an in-depth study of record keeping. Agricultural Education students are advised to fulfill the computer literacy requirement for the single subject teaching credential with Agricultural Management Information Systems (ABUS 181), which is a survey of microcomputer applications for agriculture business management.

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

ABUS 081 – Microcomputer Applications in Agriculture. Familiarization with microcomputer applications in agriculture and agribusiness. Use of spreadsheet, data base management, word processor, and related software.

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

ABUS 181 – Agricultural Management Information Systems. Survey of microcomputer applications for agribusiness management, emphasizing hands-on use of personal productivity software, including data base manager, an electronic spreadsheet, and various application programs.
ABUS 183 – Agribusiness Management. 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. Prerequisites are ABUS 080; ABUS 083; faculty permission.

AGRI 010 – The University Experience. 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. Course outline found in Appendix D.

The above catalog descriptions are further detailed in the course syllabi found alphabetically by prefix in Appendix F.
### Standards of Quality and Effectiveness for Subject Matter Programs

<table>
<thead>
<tr>
<th>Content: Agricultural Business Management</th>
<th>ABUS 80</th>
<th>ABUS 81</th>
<th>ABUS 83</th>
<th>ABUS 181</th>
<th>ABUS 183</th>
<th>AGRI 010</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Study of record keeping, financial management, and decision making as it applies to agricultural business.</td>
<td>X</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Study of computer applications as they apply to agricultural business</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Study of purchasing, marketing, and merchandising functions as they apply to agricultural business.</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Study of basic economic principles and agricultural business management practices.</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Study of California's agricultural business industry and its role in our global economy.</td>
<td></td>
<td></td>
<td></td>
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<td>x</td>
<td></td>
</tr>
<tr>
<td>6. Study of the careers in the agricultural business industry.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Standard 6

Natural Resources and Forestry

The program provides a broad range of experiences designed to enhance each candidate's awareness of the environment, recognizing the renewable and non-renewable resources, energy and mineral resources and the responsibilities that agriculture has in managing these resources.

Students gain a basic knowledge of how society and the environment co-exist and resource management in the three upper division courses in the degree core program. Course description of Agricultural Ecology (AGRI 111), Holistic Resource Management (AGRI 231), and Agricultural Systems and Issues (AGRI 292) are found in the 2001-2003 University Catalog. The outline of these courses identifies topics including a study of physical and biological environments, the design of sustainable, ecologically sound agriculture production systems, and a systems approach to agriculture.

AGRI 010 – The University Experience. 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. Course outline found in Appendix D.

AGRI 111 – Agricultural Ecology. An interdisciplinary treatment of physical and biological environments used for agriculture. Historical and ecological nature of agriculture and its impact on the landscape and society. Comparison of sustainable and non-sustainable agricultural practices. 2.0 hours lecture and 3.0 hours laboratory. Prerequisite is completion of lower division core.

AGRI 231 – Holistic Resource Management. 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 agro ecosystems. Prerequisite is AGRI 111. Course outline found in appendix D.

AGRI 292 – Agricultural Systems and Issues. A critical examination of the systems approach in agriculture. The principles and practices employed with the systems approach are reinforced through case studies and projects. Prerequisite is successful completion of ENGL 001 (or its equivalent). Course outline found in Appendix C.

The above catalog descriptions are further detailed in the course syllabi found alphabetically by prefix in Appendix G.
## Standards or Quality and Effectiveness for Subject Matter Programs

<table>
<thead>
<tr>
<th>Content: Natural Resources and Forestry</th>
<th>AGRI 10</th>
<th>AGRI 111</th>
<th>AGRI 231</th>
<th>AGRI 292</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Study of the importance of soil, water, weather, forestry, and wildlife as natural resources.</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2. Study of the interdependence of plant and animal communities in the ecosystem.</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3. Study of the advantages and disadvantages of various methods of producing energy.</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4. Study of the problems confronting human, plant, and animal life as natural resources are depleted and production of nonrenewable resources becomes limited.</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5. Study of the importance of energy and mineral resources, including sources, conservation, and future needs.</td>
<td></td>
<td>X</td>
<td></td>
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</tr>
<tr>
<td>6. Study of how forests, range, lands, wetlands, and coastlands can support multiple uses, including timber, mining, grazing, and recreational uses.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>7. Study of the careers related to natural resources and forestry.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
Standard 7

Agricultural Mechanics

The program requires basic preparation that develops knowledge, skill, and the ability to integrate and apply practical applications in the area of agricultural construction, equipment maintenance, and safe operations of agricultural equipment.

Students are required to complete eight minimum semester units in the Agricultural Mechanics area. One course, Agricultural Machine Systems (AGET 085) is an option in the lower-division core. This course is a study of the principles of operation of equipment commonly used in California Agriculture.

The General Farm Mechanics course (AGET 090) provides our students with the opportunity to learn shop skills essential to mechanized agriculture. The following describes the details of each course. To fulfill the unit requirement, students are advised to select another course as part of their upper division elective and enroll in a course at a community college. Currently, students are strongly encouraged to take welding courses offered at Butte College. However, other courses may be used with the approval of the program coordinator.

AGET 085 – Agricultural Machine Systems. Principals 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 and 3.0 hours laboratory. Course syllabus found in Appendix D.

AGET 090 – General Farm Mechanics. 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 and 3.0 hours laboratory.

The above catalog descriptions are further detailed in the course syllabi found alphabetically by prefix in Appendix H.
Standard 8

Specialization in Agriculture

The program in agriculture includes specialized study in either animal science, plant science/soil science, ornamental horticulture, agricultural business management, natural resources and forestry, or agricultural mechanics.

Students are prepared to demonstrate the depth of study beyond the core subject and apply the scientific, mathematical, business, communications and interpersonal knowledge and skills appropriate to the specific discipline.

Students have an opportunity to specialize in one of four areas of agriculture: Animal Science, Plant and Soil Science, Agriculture Engineering and Technology, and Agricultural Business. Up to twenty units can be selected in one of these four areas as part of the option in Agricultural Science and Education. A list of suggested courses within each of the three areas as created and/or approved by the Agricultural Education Advisory Committee can be found in Appendix I.

Animal Science

ANSC 017 – Live Animal and Carcass Evaluation. 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 – Fitting and Showing Livestock. The study and practice of basic fundamentals and skills involved in fitting and showing beef and dairy cattle, sheep, and swine. Selection, feeding, and care of show animals, feeders, and purebred breeding stock. Livestock Show and Fair requirements and classifications. One all-day showmanship contest at the Silver Dollar Fair. Exhibit at the Great Western Livestock Show during spring holidays. 2.0 hours lecture, 3.0 hours laboratory.

ANSC 112 – Advanced Livestock Selection 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 of lecture and 3.0 hours laboratory.
ANSC 116 – **Advanced Horse Selection.** 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. Prerequisites are ANSC 011; ANSC 016; faculty permission.

ANSC 215 – **Advanced Beef Science.** An overview of world and United States beef production systems. Investigation of the segmentation of the beef industry, including seed stock, commercial cow-calf, stocker, feedlot, packer, retailer and consumer. Integrated beef production systems will be evaluated based on consideration of genetics, nutrition, health, reproduction, and product, forage management and marketing. 3.0 hours seminar and 3.0 hours laboratory. Prerequisites are ANSC 121, ANSC 122, and ANSC 123.

ANSC 217 – **Sheep Science.** 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 and 3.0 hours laboratory. Prerequisites are ANSC 121, ANSC 122, and ANSC 123.

ANSC 218 – **Dairy/Swine Science.** 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 and 3.0 hours laboratory. Prerequisites are ANSC 002 or ANSC 011.

**Plant Science**

PSSC 130 – **Rangeland Resources and Management.** 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/ 152 – **Irrigation.** Field practices of irrigation. Evapotranspiration, soil/moisture relationships, water measurement, pumps, wells, drainage, and sprinkler drip and surface systems. 2.0 hours lecture and 3.0 hours laboratory. Prerequisites are PSSC 002 or PSSC 050.

PSSC 161 – **Production of Annual Crops.** This course covers the requirements and cultural practices needed for maximizing yields of annual field crops. Principles affecting growth development and management will be covered. For field experience, students are advised to enroll in PSSC 109.
PSSC 174 – Greenhouse Management. Greenhouse construction, environment, and management practices, including heating and cooling, irrigation, fertilization, and pest control. 2.0 hours lecture and 3.0 hours laboratory. Prerequisite is PSSC 073.

PSSC 176 – Fruit Production. Managing and optimizing the fruit and nut production systems. Selection of planting sites and varieties, tree training and pruning. Pollination, thinning, irrigation, mineral nutrition, and pest management are included. Prerequisite is upper-division standing.

Agricultural Business

ABUS 183 – Agribusiness Management. The application of economic systems management principles to the planning, control, and organization of the farm or ranch business. Prerequisites are ABUS 080; ABUS 083; and faculty permission.

ABUS 185 – Agricultural Policy. 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 social-economic impact of current government programs. Prerequisites are ABUS 180 and ECON 002.

ABUS 187 – Agricultural Finance. 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 and 2.0 hours activity. Prerequisite is ABUS 180.

ABUS 283 – Advanced Farm Business Management. Farm organization and management. Budgeting, input-output relationships and enterprise analysis in decision-making. Application of economic and management principles. Prerequisites are ABUS 180 and ABUS 188.
ABUS 290F – Agricultural Marketing Planning. 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. Prerequisites are ABUS 182 and faculty permission.

The above catalog descriptions are further detailed in the course syllabi found alphabetically by prefix in Appendix I.
Standard 9

Agriculture Education as a Profession

The program includes instruction in the philosophy and history of agriculture education, the status of agriculture in contemporary society, and the role of the educator in the school, community, and industry.

Students acquire a thorough knowledge of current educational and industry issues and initiatives as part of the preparation program. A study of the role of agricultural education in society as well as its philosophical and historical development is included in all Agricultural Education courses offered.

The Introduction to Agricultural Education (AGRI 100) provides an overview of the Agricultural Education profession with a strong emphasis on the Agricultural Education philosophy as specified in the Agricultural Education Program Components and Strategies For Implementation document. The Agricultural Systems and Issues course (AGRI 202) provides the students with an in-depth perspective of the current issues affecting agriculture such as legislation, regulations, policies, and practices.

AGRI 100 – Introduction to Agricultural Education. Objectives, nature, and scope of teaching vocational agriculture. Types of programs and career opportunities in vocational education.

AGRI 101 – Direct Field Experience Agricultural Education. An individualized class designed to provide the student direct experience in assisting high school students in the classroom, Future Farmers of America (FFA), and projects. Student must have faculty permission in order to enroll in this class.

AGRI 129 – Techniques in Vocational Agricultural Instruction. Courses designed to afford students the opportunity to develop expertise in methods of presenting instruction in areas unique to vocational agriculture, such as Supervised Occupational Experience Programs (SOEP), Future Farmers of America programs, and laboratory exercises. Prerequisites are AGRI 100 and faculty permission.

AGRI 209 – Seminar in Agricultural Education. Individual study relating to specific problem(s) or topic(s) in agricultural and vocational education. Student must complete supervised teaching and have faculty permission in order to take this class.

AGRI 211 – Curriculum and Methods of Teaching Vocational Agriculture. Principles of curriculum development in agriculture; methods of teaching and organization of teaching materials. All students must be accepted into the fifth-
year program in agricultural education on approval of AGRI teacher educator and have faculty permission in order to enroll in this class.

AGRI 296 – Curriculum and Methods in Teaching Agricultural Mechanics. Curriculum development and methods of teaching and motivating students in agricultural mechanics. 2.0 hours seminar and 3.0 hours laboratory.

The above catalog descriptions are further detailed in the course syllabi found alphabetically by prefix in Appendix J.
Standards of Quality and Effectiveness for Subject Matter Programs

Standard 9

Agricultural Education as a Profession

<table>
<thead>
<tr>
<th>Content: Agricultural Education as a Profession</th>
<th>AGRI 100</th>
<th>AGRI 206</th>
<th>AGRI 292</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The application of current philosophies to the agriculture curriculum.</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2. Study of current programs and practices within a historical perspective.</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3. Examination of ethics, values, and scope of responsibilities of the professional agriculture educator.</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4. Study of current issues affecting agriculture such as legislation, regulations, policies, and practices.</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5. Emphasis on the benefits and responsibilities of being an active member in professional activities and organizations.</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>6. Emphasis on the importance of staying abreast of the current knowledge base of the discipline.</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>7. Study of relationships between commodities and major industry organizations of agriculture</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Standard 10

Integration of Concepts

The program provides opportunities for integrative study of the major themes and concepts of the program areas within agriculture, and the interrelationships that exist between agriculture areas and with other subject areas.

A Bachelor of Science in Agriculture degree provides students with an integrated approach (theoretical knowledge and practical experience) to education providing students with a theoretical knowledge base in all aspects of the agriculture industry. Through a systems approach, students learn about the many interrelationships between agriculture, the environment, political and social forces, and other sectors of the economy. Two required upper division courses examine the industry holistically integrating all aspects of agricultural production, Holistic Resource Management (AGRI 231, Appendix D) and the Agricultural Systems and Issues course (AGRI 292, Appendix C). AGRI 292 fulfills the writing proficiency requirement for university graduation and is described as a culminating and integrative experience for all College of Agriculture majors. These courses are intended to prepare graduating seniors for the complex issues in contemporary agriculture.

As students approach their professional education studies, they complete two transition courses that strengthen their pedagogical knowledge and skill base. In the Seminar in Agriculture Education courses (AGRI 209, Appendix J), students learn about the interrelationship between agricultural education and other disciplines commonly taught in the public schools.

In the Techniques in Vocational Agriculture Education courses (AGRI 129, Appendix J) and the Curriculum and Methods of Teaching Vocational Agriculture course (AGRI 211, Appendix J), techniques and methods to teach applied mathematics, science, and English within the California Core Curriculum.

Prospective agriculture teachers enroll in professional education courses along with their peers in other subject matter areas. This provides our students with countless opportunities to work with and learn from candidates from other disciplines. They work cooperatively on group projects and activities to integrate their respective content areas. Additionally, the professional education program consistently integrates knowledge and theory about teaching with field experience.
Standard 11

Field Experience

Each program involves students in field experiences in school agriculture classes.

Field Experiences are an integral component of the preparation program in agricultural education. Each course includes a field trip to high school program sites followed by analytical discussion of the student observation. Furthermore, a field experience of a minimum of 45 hours is a required prerequisite for admission into the School of Education’s Professional Education Program. The Directed Field Experience Agricultural Education course (AGRI 101, Appendix J) provides the student with a directed experience at local high schools. This course is a 2-semester unit course. Periodically, the students meet to participate in discussions that compare their field experiences with those of other students. Included in Appendix K is the form used to assist students to develop an observation plan to ensure that they observe all aspects of the program.

The Field Experience course (4 semester units) is a required Phase I course. Students are “placed” in a nearby high school to observe and begin to teach in an actual high school classroom. Students are expected to teach a two-day and a two-week unit during their field experience. They plan, conduct, and evaluate these two units. A faculty member from the College of Education supervises this experience. The following University Catalog course description provides a brief course summary:

EDTE 246 F - Field Experience: This course provided an informed, gradual experience based on transition from one who is receiving a public education (college student) to one who is prepared to provide a public education for others (public school teacher). The emphasis is on informal instructional activities, supervised teaching experiences, and knowledge of school organization to meet the needs of all learners. Observation and aiding in classrooms will meld into limited teaching experiences. The student teacher will identify and examine professional attitudes in regard to the role of the teacher, the nature of learners, the purpose of public education, and the appropriateness of curricular content and instructional strategies, including academic instruction in English.

The Department of Education Professional Education Program Handbook includes the course objectives as well as the purpose, definition, timelines, assignments, and evaluation of Phase I Field Experience (Appendix K, pages 65 – 67).
Standard 12

Occupational Experience

The program requires a minimum of 1500 hours of occupational experiences (with at least 500 of those hours post high school) in the technical agricultural career cluster areas, which develop the ability to integrate and apply attitudes, skills, and practical knowledge associated with an agricultural entrepreneurial of workplace setting to the high school agricultural education program.

Two years (3,000 hours) of appropriate occupational experience in the agricultural industry is required for the Agricultural Specialist Credential.

“Actual” experience provides candidates with life experiences that they can “bring into the classroom” and teach their students. Also, occupational experience helps to establish credibility for the teachers in both the classroom and within the industry and community. The Agricultural Education Advisory Committee must approve the occupational experience. The guidelines for the Occupational Experience requirements are outlined on page 3 of the Planning Guide located in Appendix L.
Standard 13

Agriculture Technology

The program provides opportunities for the student to examine and use all forms of technology that are appropriate in agriculture.

An examination of course outlines including classroom laboratory indicates that students have ample opportunities to learn about and use appropriate technological tools as they study agriculture.

The following table identifies examples of courses in which technological knowledge and uses are taught and practiced. This list is not exclusive however it illustrates the breadth of technological knowledge students gain.

<table>
<thead>
<tr>
<th>Course no.</th>
<th>Course title</th>
<th>Technology learned</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 002</td>
<td>Principles of Animal Science</td>
<td>DNA extraction/ Gel Electrophoresis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bacteriology techniques on milk samples</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Antibiotic sensitivity test</td>
</tr>
<tr>
<td>ANSC 111</td>
<td>Animals Feeds and Nutrition</td>
<td>Computer assisted ration development</td>
</tr>
<tr>
<td>AGET 85</td>
<td>Agricultural Machine Systems</td>
<td>Drill and spray calibration</td>
</tr>
<tr>
<td>PSSC 002/050</td>
<td>Introduction to Plant Science/Soils</td>
<td>Soil analysis</td>
</tr>
<tr>
<td>ABUS 83</td>
<td>Farm Accounting</td>
<td>Excel Spreadsheet</td>
</tr>
</tbody>
</table>

Course outlines for these courses can be found in:

ANSC 002 - Appendix C
ANSC 011 - Appendix C
AGET 85  - Appendix D
PSSC 002 - Appendix D
PSSC 050 - Appendix D
ABUS 83  - Appendix F
Standard 14

Diversity and Equity in the Program

Each student in the agriculture preparation program acquires knowledge, understanding and appreciation of the perspectives and contributions of both men and women and diverse cultural and ethnic groups to agriculture. The program promotes educational equity by utilizing instructional, advisement, and curricular practices that offer equal access to program content and career options for all students.

Students who attend California public schools truly are diverse. Now more than ever, teachers have the opportunity to teach students from every corner of the world, each with a unique cultural perspective and academic contribution (See preconditions).

It is vital for each candidate to have the skills, knowledge, and understanding to create a learning environment where all students can be successful. Teachers must not only understand and appreciate the different cultural backgrounds but also need to know what potential barriers exist to academic success.

The cornerstone course for this standards is part of the Professional Education Program, Multi-Cultural Issues in Education: Democracy and Diversity (EDTE 201A). The focus of the course is to enhance the personal and professional awareness of prospective teachers regarding the development of youth and the complexities and importance of living and teaching in a pluralistic, multicultural society. The course also addresses social and legal issues of education relative to current demographics of California schools and requires candidates to be able to demonstrate understanding of how to implement multicultural education.

The Instruction and Management course (EDTE 201D) and the Curriculum and Instruction course (EDTE 246G) provide students with the skills and knowledge to develop instructional and management strategies to meet the educational needs of a diverse student population. Prospective teachers are taught to identify, adapt, and implement theories and strategies that motivate students, create a positive classroom environment, and address students’ learning styles.

Issues in Literacy for First and Second Language Learners (EDTE 201B) is a core course in the program. Prospective students examine issues of language and culture for first and second language learners. Reading and writing strategies to support learning and enhance self-esteem of student populations are explored. Candidates are required to apply these strategies and to reflect on their own practice in their field experiences.

Each technical agriculture course in the program strives to include a global perspective of the course content. Courses such as Plant and Soil Science 002,
Animal Science 002, and Animal Science 100 provide an historical overview of as well as a global perspective of the agricultural industry. Specific topics addressed include international trade and relations and the contributions made to the industry from diverse cultural, ethnic, and gender groups.

Course outlines are located alphabetically in Appendix M.
Standard 15

Agriculture Teaching and Assessment

The program employs multiple strategies, activities, and materials that are appropriate for effective teaching and assessing development and learning in agriculture; and provides a foundation for subsequent studies of teaching and assessment models.

Research and anecdotal evidence validate the notion that students have different learning styles. While the visual learner prefers to see someone else do it and write down what the teacher tells him or her, the auditory learner relies on his or her ability to hear and remember what the teacher says. The kinesthetic learner, on the other hand, learns primarily by direct involvement in an activity or event.

Most of us are a blend of these three learning modalities. Therefore, an effective teacher must implement a variety of teaching strategies to meet the needs of all learners. Prospective teachers must have the skills and knowledge to design and plan engaging instructional lessons and units based on sound learning objectives.

Students in the Professional Education Program gain these competencies from two (in two venues) perspectives: First, as students they observe and participate in a variety of strategies that are conducive to learning.

The first priority of CSU, Chico is a commitment to excellence in teaching with a primary focus on student learning, we will continue to develop high quality learning environments both in and outside of the classroom. Instructors strive to utilize a variety of teaching techniques that are student-centered, engaging and practical.

Of the twenty-three specified courses in the major core, seventeen courses have laboratories or activities totaling fifty-one hours and forty-one hours of lecture. Students participate in hands-on individualized projects, collaborative learning groups, demonstrations, and research projects. Strategies such as case studies, problem solving, simulations, (AGRI 231, Appendix D) experimental research (see course description for Agricultural Experimentation, AGRI 230A-B in Appendix N), and technology-based instruction (ANSC 011, Appendix C) are utilized.

In the Agricultural Education courses such as Introduction to Agricultural Education (AGRI 100, Appendix J), Techniques in Vocational Agricultural Instruction (AGRI 129, Appendix J) and Seminar in Agricultural Education (AGRI 209, Appendix J) students are engaged in group projects, discussion, role plays, oral reports, guest speakers, field trips and peer teaching and activities.

Students are assessed in a variety of ways including examinations, research exercises, work-samples, laboratory participation and exercises, write-ups, essays, reports, papers, lesson plans, and presentations.
The second venue by which students learn a variety of pedagogical methods is by direct instruction in both Agriculture Education and Professional Education Program courses. The Introduction to Agricultural Education (AGRI 100) curriculum includes topics such as qualities of an effective teacher, lesson planning, and teaching techniques in an agriculture class. Students apply the skills and knowledge by designing and presenting a short demonstration lesson to their peers. The lessons are evaluated and both peers and the instructor provide feedback.

In the AGRI 129 course (Techniques in Vocational Agricultural Instruction) the students gain a more in-depth knowledge and skill base in lesson planning and teaching techniques including effective questioning, giving directions, and group management. Students also learn how to create and utilize effective visual aids. Each student presents a 45-minute lesson as a requirement of the course.

In the Seminar in Agricultural Education course (AGRI 209) students learn how to assess student learning using a variety of different tools. Students are expected to create an alternative assessment (other than a quiz or exam) as a project.

Two education courses Curriculum and Instruction (EDTE 246G, Appendix M) and Instruction and Management (EDTE 201D, Appendix M) address instruction and assessment. The EDTE 201D, an introductory course, assists prospective teachers to identify and design phases of effective planning and instruction, become aware of state wide content curriculum and standards, and identify, adapt and implement teaching/learning theories and strategies. Students also learn how to successfully present a lesson through effective communication practices as well as utilize appropriate technology-based teaching strategies.

In EDTE 246G, the candidates continue their learning in curriculum planning, management, and instruction. They will have the opportunity to utilize these concepts as they practice, critique, observe, and discuss.

The culmination of the pedagogical education program occurs in the student teaching component of Phase I and II. During Phase I, candidates observe practicing teachers. The observation is followed by two-day and two-week teaching experiences at a designated school site. A faculty member from the School of Education supervises the experience. The university supervisor conducts three visits, one during the two-day teach and two other visits during each week of the two-week teach. The student, supervisor and cooperating teacher conference regarding the lessons and provide commendations and recommendations for improvement to the student teacher.

During Phase II of student teaching experience, each candidate is responsible for teaching in all aspects of the program, both in and outside the classroom. The cooperating teacher supervises student teachers. The agriculture program coordinator serves as the supervising teacher for this experience.
Standard 16

Safety Procedures

The program instructs students in proper safety procedures prior to laboratory and field experiences and includes instruction in emergency procedures and the proper use, storage, handling, and disposal of hazardous materials and equipment.

As identified in Standard 15, most of the technical agriculture courses include laboratory and activity sessions. Instructors properly prepare students for each lab exercise with instruction in safe laboratory procedures, proper and safe use of equipment, and handling of materials. Many of the labs occur at the University Teaching and Research Facility. Students are instructed as to the use of equipment and facilities including livestock handling equipment, farm machinery, implements, shops, and an operational dairy, beef, sheep and swine unit. The General Farm Mechanics (AGET 90, Appendix H) and the Curriculum and Methods in Teaching Agricultural Mechanics (AGRI 296, Appendix J) courses specifically address safety issues appropriate to a prospective agriculture teacher. The curriculum included units of instruction in the safe and proper use of agricultural equipment, hand and power tools and facilities.

The course syllabus for AGET 90 identifies instruction in the safe operational procedures for all machines, tools and equipment. In Agricultural Machines Systems (AGET 85, Appendix D), worker safety issues are discussed.

The AGRI 296 course includes instruction in “Safety Instruction in Agricultural Mechanics” and “Supplies and Materials for Agricultural Mechanics.” Prospective teachers learn the skills and knowledge to provide safety instructions at the high school level. Specifically students learn how to teach safety, supervise students in a shop setting, design and administer safety exercises and other forms of assessment and maintain a safe shop environment.

Each student enrolled in AGRI 296, must present a lesson on an Agricultural Mechanics topic. Included in this lesson is any safety instruction appropriate for the lesson topic. The instructor and students provide feedback regarding the lesson.

Also, in the supplies and materials unit, instruction is given on the safe storage, handling, and disposal of hazardous materials and equipment.
Standard 17

Coordination of the Program

Each agriculture subject matter preparation program is coordinated effectively by one of more persons who are responsible for program planning, implementation, and review.

A thorough description of the Professional Education Program leadership at CSU, Chico can be found in Common Standard 1. In summary, the Dean of the College of Communication and Education is responsible for the four programs leading to basic credentials and eight programs leading to Specialist and Service Credential Programs, including the Agriculture Specialist Program. In 1992, the School of Education was formed within the College of Communication and Education. The School consists of two departments: the Department of Education and the Department of Professional Studies.

The College of Agriculture and Agriculture Subject Matter and Specialist Program faculty work closely with the Single Subject Credential Program faculty of the Department of Education to ensure consistency and cohesiveness within the programs. All Single Subject Advisors serve on the Single Subject Advisors Committee and work very closely with the Single Subject Coordinators.

A faculty member of College of Agriculture coordinates the day-to-day operation of the teacher preparation program in Agriculture under the direction of the Dean of the College of Agriculture, Dr. Charles Crabb. While other faculty members advise prospective candidates, the coordinator initiates frequent communication with the faculty of the College to assure consistency in advisement. A representative of each discipline area, plant science, animal science, agricultural engineering and technology, and agricultural business serve on the Agricultural Education Advisory Committee.

The Agricultural Education Advisory Committee assists in the development of program philosophy, desired outcomes, and program design. The committee also serves to assess the program and its components. The committee consists of representatives from the agricultural industry, education administration, high school and community agricultural education, and faculty of the College of Agriculture.

The coordinator advises undergraduate and graduate level students, teaches Agricultural Education courses, and coordinates Phase II student teacher placement and supervision and other duties association with program coordination.
Standard 18

Student Advisement and Support

A comprehensive and effective system advisement and support provides appropriate and timely program information and academic assistance to students and potential students, and gives attention to transfer students and members of groups that traditionally have been underrepresented among teachers of agriculture.

The university has a (long lasting) reputation for being student-centered and supportive of the student in all facets of their university experience. Qualified professionals are available to offer advise and support in areas such as academic planning and success strategies, financial assistance, personal counseling, and career planning and placement.

Each incoming student into the College of Agriculture, be it freshman or transfer student is required to enroll in The University Experience (AGRI 010), a course designed to initiate and facilitate student success. As indicated in The 2001-2003 University Catalog description, the students in the course will explore the academic and social opportunities, and the resources available to promote successful completion of the student’s educational goal.

Students are familiarized with a variety of services that are available to them as listed below (outlined in Appendix O):

Educational Support Programs

- **Student Employment**: dedicated to helping students find employment.
- **Disability Support Services**: committed to assisting students in achieving equal access to all academic programs and facilities.
- **Educational Opportunity Program (EOP)**: offered support for all EOP students designed to assist them in overcoming the many obstacles that a new educational and social environment may present.
- **Student Learning Center (SLC)**: a multifaceted program offering comprehensive academic enhancement activities outside of the traditional classroom. Many majors offer tutoring through the center. Also, study skills workshops and tutors are available.
- **Career Planning and Placement**: The career planning and placement office is prepared to guide undergraduates or graduates through all phases of the career planning process and facilitate the transition into the world of work. Specifically, counselors can help students assess their interests, skills, and values, set goals and objectives, research possible careers and labor market trends, explore the skills and experiences
sought by employees, and offer training in topics such as resume writing and interviewing. The Career Placement Office has maintained a productive, positive relationship with school districts.

- **Psychological Counseling and Wellness Center**: The psychological counseling and wellness center offers assistance through psychological skill development and personal growth. The office staff provides counseling in areas such as exam anxiety, stress management, interpersonal relationships, self-confidence, and personal challenges. Self-development skills can be developed with the help of the staff at the Wellness Center. Training and information is available in areas such as communication, relaxation, time management, and wellness.

- **The Student Judicial Affairs Office**: provides student advise and information to students on university rules, restrictions, policies and procedures, advocating student rights, mediating conflict situations, and providing information on particular problems, e.g., sexual harassment.

Advisement for the professional education component of the program occurs by the faculty of the Department of Education. Advising assures that the students enroll in the education courses required for the Single Subject Credential.

The Planning Guide was created to assist students with all aspects of the program (Appendix L). The guide includes an occupational experience verification form, a planning sheet for subject matter competency, a checklist of requirements for the Professional Education Program, and a description of the Professional Education courses – Phase I.

Each student completes a planning guide that is maintained in his/her individualized file. Copies of the planning guide are distributed to members of the Agricultural Education Advising Committee interview panel.

Prospective students receive information regarding the program. (Appendix O) The brochure/pamphlet outlines admissions requirements, course requirements, basic credential information, and other helpful information.

All faculty of the College of Agriculture are a crucial part of the subject matter preparation program. They not only teach the technical agriculture courses but also advise potential teacher candidates, and encourage potential students into the program.

The Introduction to Agriculture Education course (AGRI 100, Appendix J) serves as a survey course for prospective students and is designed to provide a basic overview of the profession, in a positive, encouraging approach. Other faculty members advise students into that course. Prospective students are also advised
based on high school preparation and activities to enroll in the AGRI 101 (Appendix J) course which is an individualized class designed to provide the student with direct experience in assisting high school students in the classroom, FFA, and projects.

The College of Agriculture faculty and the program coordinator are highly involved in outreach and service activities. The coordinator hosts a regional leadership conference and meetings, conducts leadership workshops, and provides judges for leadership contests.

The Agriculture Ambassador Program serves to provide information regarding university life and specific major programs to prospective students. Visits by the student ambassadors are made to high schools and community colleges classes and assemblies to “recruit” students.
Standard 19

Assessment of Subject Matter Competence

The program uses multiple measures to assess the subject matter competence of each student formatively and summatively in relation to Standards 1 through 10. The scope and content of each student's assessment is congruent with the studies the student has completed in the program.

The program utilizes several means of assessing the subject matter competence as well as the total development of the student as a teacher candidate.

Students are observed in the technical agriculture courses including Agricultural Education. The Agricultural Education Advisory Committee includes a faculty member of all program areas, Animal Science, Plant Science, Agribusiness, and Agricultural Mechanics. In addition to formal meetings held at least once a year, committee members meet informally on a regular basis to discuss student progress. Observations are also made of the student/candidate in other environments including student organizations, college functions, and outreach efforts.

Candidates formally declare their intent to enroll to pursue the teaching credential by signing up for the Agricultural Education interview. Each candidate has to be approved for admission into the teacher preparation program. Selected members of the advisory committee serve as the interview panel. Following a questioning period, committee members offer advice on subject matter preparation, leadership development, occupational experiences, and other aspects of their preparation program.

The Subject Matter Competence Form (Appendix P) serves as the formal verification document for subject competence. It is completed by the program coordinator and submitted to the College of Agriculture. The application packet for admission to candidacy includes an application statement of professional goals, and an autobiographical statement. Students are also to include a resume, transcripts, and at least two letters of recommendation. The letters are another measure of the candidate's potential and qualifications. The letters address subject matter competency as well as the qualities requested for prospective teachers. Candidates may not student teach until they have completed at least 80% of their subject matter competency program.
Standard 20

Program Review and Development

Each subject matter program has a comprehensive, ongoing system of review and development that involves faculty, students, and appropriate public school personnel, including agriculture teachers and agriculture industry representatives, which leads to continuing improvements in the program.

PROGRAM EVALUATION

The Subject Matter Preparation Program in Agriculture is evaluated through a comprehensive, on-going system of review. The review system is designed to determine the appropriateness and effectiveness of the overall program, including philosophy, purpose, design, curriculum, and intended student outcomes. Input is also sought regarding student teacher supervision and site selection.

Feedback and data is collected from a variety of sources including the Agricultural Education Advisory Committee, program graduates, current students, representatives of the California Department of Education, and agriculture teachers.

Agricultural Education Advisory Committee

The Agricultural Education Advisory Committee was created to provide a formal review of all aspects of the program. The committee meets annually to provide the coordinator specific input and feedback regarding the effectiveness of the program. The committee consists of representatives of all aspects of agricultural education including high school, community college, and university agriculture instructors, administrators, industry, and the California Department of Education. Refer to Appendix Q for the current advisory committee roster.

Graduate Follow-up

Graduate follow-up are conducted as a regular and integral part of program review system. Data is collected from program graduates and other persons having knowledge of the graduates' performance, including employers and immediate supervisors of graduates. The primary focus of the graduate follow-up component of the system is to gain feedback regarding the relevance of the skills and knowledge being taught in the preparation experiences, rather than the specific performance of individual graduates.
These data shall be collected at least once every three years. The three years of data should include three years of graduates.

Four methods are utilized to collect feedback and data from graduates of the program:
- Graduate survey (Refer to Appendix Q for a copy of the survey);
- On-site personal visit;
- Program Coordinator’s contact with Consultant of California Department of Education;
- Contacts with graduates through professional meetings and in-service activities.

**GRADUATE FOLLOW-UP**

A) **Graduate Survey**
A summative evaluation of the program is conducted with program completers. The instrument focuses on relevance of skills and knowledge being developed by the program.

A modified version of this questionnaire is also sent to cooperating teachers. Through surveying cooperating teachers, it is determined how well the Professional Education Program has prepared graduates to assume teaching positions in agriculture.
The result of the follow-up studies are summarized by the Program Coordinator and reviewed by the Agricultural Education Advisory Committee. Trends and discrepancies observed are used to update objectives, modify courses required, and to provide a measure of program success. The same procedure is utilized for the on-site visit, consultant, CDE contacts, and In-Service contacts.

B) On-Site Visit
The Program Coordinator conducts annual on-site visits to recent graduates. The on-site visit provides additional program information (technical, professional preparation, and program breadth) to update objectives and modify courses when appropriate. The results of the on-site visits are reviewed by the Agricultural Education Advisory Committee and generate appropriate program changes when necessary.

C) Consultant, Agricultural Education, California Department of Education
A continuing dialogue with the appropriate consultant (whose geographic area the graduate is located in) occurs regarding program effectiveness. The Consultant apprises the Program Coordinator of the Agricultural Education Program as to his/her perception of the graduate’s effectiveness (skills and knowledge of Agriculture) as an Agriculture teacher. The Program Coordinator apprises the Agriculture Education Advisory Committee of the graduate’s status.

D) Conference Contacts
The program Coordinator conducts frequent and on-going dialogue with program graduate through California Agriculture Teachers’ Association (C.A.T.A.) Sectional, Regional, and State Conferences and meetings. The graduates are encouraged to provide advise on program objectives and management to insure the highest quality program possible. The verbal graduate feedback is relayed to the Agricultural Education Advisory Committee for consideration.
CANDIDATE EVALUATION

All candidates completing the program are evaluated during the program and immediately preceding recommendation for the credential to ensure that candidates have acquired the minimum academic and professional skills for entry into the credential area in accordance with Commission requirements and the program goals and objectives.

The system flow chart below addressed the evaluation and recommendation procedure used with credential candidates.
A) **Evaluation Process**

1) In the candidate's initial meeting with the Program Coordinator, the following criteria are discussed.

**Candidates:**
- a) Major (B.S. in Agriculture recommended);
- b) Cumulative G.P.A. (minimum 2.67 overall or 2.75 for the last 60 units required);
- c) Career plans;
- d) Experience in Agriculture (requires a minimum of 3,000 hours);
- e) Courses completed to meet subject matter competencies and Professional Preparation Program requirements.

2) **Agricultural Education Advisory Committee Interviews.**

Every prospective candidate participates in an interview (15-30 minutes) conducted by a subcommittee of the Agricultural Education Advisory Committee. The purpose of the interviews is to assess the readiness of each candidate for admission into the Professional Education Program.

The interview consists of questions and discussion focused in the following areas:

- a) Academic preparation including G.P.A.;
- b) Commitment to teaching profession;
- c) Practical experience in Agriculture;
- d) Youth program involvement;
- e) Current knowledge of Agricultural Education;
- f) Personality traits in respect to teaching.

The interview panel is provided with transcripts, the Student Planning Guide, and letters of recommendation in assisting to reach their decisions. A sample of transcripts, letters of recommendation, and minutes of the meeting are available in the Agricultural Education Office upon request.

If the candidate is not approved, he/she is advised of the specific reason(s) and appropriate strategies to strengthen their preparation. The candidate is permitted to interview again with the Committee once the deficiencies have been alleviated (as ascertained by the Program Coordinator).
If the candidate wishes to appeal a decision on the basis of being denied due process or of the adequacy of the information used in making the decision, an appeal may be made to the Program Coordinator of Agricultural Education through the Director of the School of Agriculture.

3) Teacher Education Program

Minutes of the Agricultural Advisory Committee are forwarded to the Department of Education. The candidate applies for admission (Professional Education Program) and must meet minimum requirements (as described above).

4) Agricultural Specialist Program

Each semester candidate's progress is assessed based upon grades in coursework and the candidate's Program of Study. The student teaching portion of the program provides a number of opportunities for candidate's evaluation. The Coordinator of the Agricultural Education Program provides a letter of recommendation for each candidate who has successfully completed all program requirements. Samples of letters of recommendation can be found in Appendix Q.

The Agricultural Specialist Coordinator will also attest to the candidate's successful completion of the competencies required for a Specialist Credential in Agriculture.