

# AXED-AGRICULTURAL EXTN EDUC

## AXED 1110. Introduction to Agricultural, Extension, and Technology Education

### 3 Credits (3)

Orientation to programs, philosophies, competencies and leadership skills needed by professionals in agricultural and technology education, extension education, agricultural communications, and related career opportunities in industry, governmental agencies, and international organizations.

#### Learning Outcomes

1. Orient student to the AXED Department and their role as students.
2. Explore career opportunities (and the related skill sets needed for success) in public schools, career and technical institutions, the cooperative extension service, community, and international development, agricultural communications, agricultural industry associations and public service (e.g., NMDA and USDA).
3. Develop an understanding of the self-leadership skills needed to be effective in a variety of professional and personal environments.
4. Familiarize students with the aspects included within a total program in agricultural or technology education.
5. Strengthen skills in oral and written communications.

## AXED 1130. Techniques in Agricultural Mechanization

### 3 Credits (2+2P)

Development of competencies in agricultural mechanics including safety, tool identification, operation and maintenance of hand and power tools, cold metal, drafting, and plumbing procedures. Designed for any major wishing to improve mechanical skills needed in agriculturally related occupations in education and industry.

#### Learning Outcomes

1. To understand basic drafting language used in orthographic and isometric drawings.
2. To develop an understanding of the proper use and safety of basic hand and power tools.
3. To develop skills needed to operate basic hand and power tools correctly.
4. To develop an understanding of surveying methods and building layout for construction.
5. To develop an adequate level of competence in workshop techniques.
6. To prepare students to properly teach and demonstrate these techniques to others who may use them as a means of earning a living.

## AXED 2110. Metal Fabrication

### 3 Credits (2+4P)

Instruction and skill development in process and procedures of metal fusion, including gas and electric welding techniques, safety, and oxy-acetylene cutting and welding. Designed to improve mechanical skills needed in agriculturally related occupations in education and industry.

#### Learning Outcomes

1. To develop students understanding and appreciation for metal fabrication, design and teaching.
2. To develop in the student an adequate level of competence in shop work techniques, so that the student may be able to properly teach and demonstrate multiple metal fabrication techniques to others who may use them as a mean of earning a living.
3. To develop the student's fundamental techniques in shielded metal arc welding, oxy-acetylene welding and cutting operations, metal inert gas welding (MIG), and gas tungsten-arc welding as needed in repair and construction of agricultural equipment.
4. Student will understand appropriate shop management techniques and have an appreciation for mechanized agriculture.
5. To assist the student in developing an understanding and comprehension of the fundamental principles that apply to the area of basic shop work included in this course; such as proper selection of electrodes, oxy-acetylene filler rods, welding processes best suited for given welding conditions, the proper tool for the job, etc.
6. To develop in the student comprehension of safety practices that apply to the areas of basic shop work, tools, and equipment required in the course.

## AXED 2130. Early Field-Based Experience

### 2 Credits (2)

First Hand view of the roles of professional educators through field experiences with Cooperative Extension or other government agencies. Includes 4 weeks of classroom instruction and 30 hours of observation in a work setting. Consent of Instructor required. Restricted to Las Cruces campus only.

#### Learning Outcomes

1. Identify successful characteristics, tips and strategies that an agricultural education professional may use as part of their program.
2. Identify key components of an agricultural education program
3. Actively observe a local agricultural education program.
4. Identify ways that your agency program networks and interacts with clientele and community

## AXED 2996. Special Topics

### 1-4 Credits (1-4)

Specific subjects and credits to be announced in the Schedule of Classes. Student can only take up to 6 credits per semester, and will not be able to have more than 12 credits count towards their degree. May be repeated up to 12 credits.

#### Learning Outcomes

1. Varies

## AXED 3115. Small Engine Technology

### 3 Credits (2+2P)

Development of competencies in small gasoline engines; theory, operation, design, maintenance and safety. Designed for any major wishing to improve mechanical skills needed in agriculturally related occupations in education and industry. May be repeated up to 3 credits.

**AXED 3120. Agricultural Structures****3 Credits (2+3P)**

Selection and use of agricultural building materials. Design, construction, and maintenance of agricultural structures. Development of competencies in carpentry, concrete, electricity, masonry, and safety. Designed for any major wishing to improve mechanical skills needed in agriculturally related occupations in education and industry. May be repeated up to 3 credits.

**AXED 3130. Advanced Technology in the Agricultural Mechanization****3 Credits (2+3P)**

Students will construct a project in the area of agricultural mechanization under the direction of instructor. Project must be completed within a semester and of sufficient complexity for 3 credits.

**Prerequisite:** AXED 1130 and AXED 2110 or consent of instructor.

**AXED 3150. Philosophy and Methods of Contests****3 Credits (3)**

Covers the roles that career development events (contests) play in agricultural and technology education and in extension programs. Topics include competition and cooperation, winning and losing, ethics, use of community resources, and academic and employability skills taught through contests. Coaching as a teaching method is introduced and expanded. Students will assist with the coordination of various career development events. May be repeated up to 3 credits.

**AXED 3210V. John Muir: Lessons in Sustainability****3 Credits (3)**

This course examines the life of John Muir in the context of sustainability. Muir was a farmer, inventor, explorer, botanist, glaciologist, conservationist, and noted nature author. He was influential in the National Parks movement and in starting the Sierra Club. Living in the natural world influenced his faith and philosophy. By examining his life and the themes that shaped it, students will develop an understanding of what it means to live sustainably and to contribute beyond their personal lives to a sustainable future. May be repeated up to 3 credits.

**AXED 3996. Special Topics****1-4 Credits (1-4)**

Course addresses specific subjects and issues as identified by department. Topics and credits to be announced in the Schedule of Classes. Students can only take up to 4 credits per semester and no more than 6 credits of the course may be applied to a degree. May be repeated up to 12 credits.

**Learning Outcomes**

1. Various

**AXED 4110. Management of Change, Diffusion, and Adoption of Innovations****3 Credits (3)**

Factors that influence the rates of diffusion and adoption of innovations. Consequences of adopting or rejecting innovations. Processes by which change agents influence introduction and adoption of innovations. Taught with AXED 5110. May be repeated up to 3 credits.

**Learning Outcomes**

1. Critically examine the adoption-diffusion model. Included are issues such as social class differentials in the dissemination of ideas and technology, non-adoption as a form of behavior, social and economic constraints on adoption behavior, and the consequences of adoption at both the individual and social levels.
2. Demonstrate understanding of how the rapid pace of change in technology and applied science may have good and bad outcomes.
3. Discuss the dissemination of new ideas and technology within various social units.
4. Discuss the applications of the adoption-diffusion model from the perspective of the change agent.
5. Enhance the development of leadership skills required to work with people in times of change.

**AXED 4210. Curriculum Development and Assessment in Agricultural Education****3 Credits (3)**

This course prepares students to develop curriculum, design lessons, and prepare appropriate assessments in an agricultural education setting. An emphasis will be placed on the developing curriculum using the currently established resources that are available to agriculture teachers.

**Prerequisite:** 2.5 GPA.

**AXED 4215. Developing Excellent Programs in Career and Technical Education****3 Credits (3)**

Students learn to develop excellence in the three components of a successful secondary school program in career and technical education: classroom and laboratory instruction, career and technical student organizations, and career development activities. Community-based program planning, utilizing partners, program marketing, and professional development are addressed as strategies for achieving excellence. Methods of obtaining financing and maintaining accountability for the program are discussed. May be repeated up to 3 credits.

**AXED 4220. Methods for Teaching Agricultural and Technology Education****3 Credits (3)**

Methods of instruction and presentation, selection of teaching aids and support materials, classroom management, development of a complete educational program, and microteaching experiences. May be repeated up to 3 credits.

**Prerequisite:** GPA of 2.5 or above.

**AXED 4230. Directed Teaching in Agricultural or Technology Education****15 Credits (15)**

Semester-long off-campus professional experience in directed teaching and observation provided in selected centers under secondary agricultural or technology education supervising teachers. Consent of Instructor required.

**Prerequisite:** AXED 4215, AXED 4220 and consent of instructor.

**AXED 4235. Directed Teaching in Extension Education****3-12 Credits (3-12)**

Four-to-fourteen-week, professional experiences in directed teaching and observation provided in cooperative extension at the county, regional, or state level. Consent of instructor required. May be repeated up to 12 credits.

**AXED 4510. Introduction to Research Methods****3 Credits (3)**

Introduction to research design and methodology in education and behavioral sciences. Overview of common research designs and data collection strategies. Prepares students to critique published research and understand basic skills including hypothesis development and conducting a literature search. Students must be in junior standing to enroll. May be repeated up to 3 credits.

**AXED 4520. Methods in Career and Technical Laboratory Instruction****2 Credits (2)**

For students planning to teach agricultural or technology education at a secondary or postsecondary level. Focus on planning, delivering, and evaluating instruction in laboratories; and on CPR, first aid, and NCCER certifications. Laboratory safety and tool, equipment, and laboratory management systems are also emphasized. Restricted to AXED Majors. May be repeated up to 2 credits.

**AXED 4610. Leadership On Agricultural and Natural Resource Issues****3 Credits (3)**

Investigates leadership concepts and group dynamics as they relate to a changing world and complex agricultural and natural resource issues. Topics include emotional intelligence, leading change, political leadership, facilitating agreement, team building, and managing conflict in agricultural and natural resource settings. May be repeated up to 3 credits.

**AXED 4620. Methods of Teaching Biological, Earth and Physical Sciences in Agriculture****3 Credits (3)**

Students learn to set up and teach in a modular agriscience laboratory, utilizing a variety of technologies. Modules covered focus on incorporating biological, earth and physical sciences into agricultural instruction and may include: Tissue culture, animal anatomy, hydroponics microscopy, electrophoresis, microbiology, soils and plant nutrients, water quality, water systems, entomology, integrated pest management, and renewable energy applications. Students develop their own modules and/or experiments.

**AXED 4710. 4-H Youth Development****1 Credit (1)**

On-line course explores 4-H Youth Development as an integral part of the Cooperative Extension Service. Topics to be addressed include mission, philosophy, delivery modes, audiences and partnerships. Course is relevant for anyone interested in pursuing a career in Cooperative Extension. May be repeated up to 1 credit.

**AXED 4715. The FFA Organization: An Overview****1 Credit (1)**

Online course addressing the history, mission, philosophy and structure of the New Mexico and National FFA Organizations and their relationship to supervised agriculture experiences and the agricultural education curriculum. Course is relevant for anyone interested in pursuing a career in agricultural education. May be repeated up to 1 credit.

**AXED 4991. Undergraduate Research****1-4 Credits (1-4)**

Research experience in agricultural, extension, and technology education with applications to selected issues and problems. May be repeated up to 4 credits.

**AXED 4997. Independent Study in Agricultural, Extension, or Technology Education****1-3 Credits (1-3)**

Specific subjects are agreed upon by the student and instructor. Students must be juniors or seniors to enroll. May be repeated up to 6 credits.

**AXED 5110. Management of Change, Diffusion, and Adoption of Innovations****3 Credits (3)**

Factors that influence rates of diffusion and adoption of innovations. Consequences of adopting or rejecting innovations. Processes by which change agents influence introduction and adoption of innovations. Taught with AXED 4110 with differential assignments for graduate students. May be repeated up to 3 credits.

**Learning Outcomes**

1. Critically examine the adoption-diffusion model. Included are issues such as social class differentials in the dissemination of ideas and technology, non-adoption as a form of behavior, social and economic constraints on adoption behavior, and the consequences of adoption at both the individual and social levels.
2. Demonstrate understanding of how the rapid pace of change in technology and applied science may have good and bad outcomes.
3. Discuss the dissemination of new ideas and technology within various social units.
4. Discuss the applications of the adoption-diffusion model from the perspective of the change agent.
5. Enhance the development of leadership skills required to work with people in times of change.

**AXED 5130. Advanced Agricultural Mechanization****3 Credits (3)**

This course provides an overview of advanced agriculture mechanization techniques and concepts. Precision farming tools and applications will be introduced, and hands-on activities will be utilized. A discussion about applications and benefits will frame the course lectures.

**Learning Outcomes**

1. Describe and classify various precision agriculture software/hardware technologies
2. Demonstrate usage of various precision agriculture technologies
3. Understand decision making processes associated with implementation of precision agriculture technologies
4. Analyze the costs, time, and application of precision agriculture technologies

**AXED 5150. Strategic Communications Campaigns and Evaluation  
3 Credits (3)**

Client-based marketing and communication needs for stakeholders in agricultural and life sciences. Students will learn brand awareness for agricultural stakeholders by developing a campaign of communications and marketing materials using multiple channels (e.g., written, visual, social). Students will also evaluate the materials for their audience reach, visibility, and effectiveness. Strategic communications involve planning, prioritizing, and evaluating. Students will gain experience implementing these needs with a real-world client to keep materials relevant to industry demands. May be repeated up to 3 credits.

**Learning Outcomes**

1. Identify communications-related needs with a client or stakeholder in the food, agricultural, natural resources, and human (FANH) sciences.
2. Define priority communications areas to address client or stakeholder needs.
3. Direct a communications plan with channels, tactics, steps, and timelines.
4. Develop a campaign of communications materials (e.g., written, visual, social) around a client's needs.
5. Evaluate the reach, visibility, and effectiveness of the communications materials.
6. Manage a client's brand with desired audiences through establishing, promoting, and reinforcing messages.
7. Publish portfolio materials showcasing the client's brand.

**AXED 5155. Youth Program Development and Management  
3 Credits (3)**

Designed for professionals involved in youth group activities. Basic concepts in planning, conducting, and managing educational youth programs in a variety of organizations. Taught with AXED 415 with differentiated assignments for graduate students. May be repeated up to 3 credits.

**AXED 5160. Teaching Adults in Nonformal Settings  
3 Credits (3)**

The adult and postsecondary learner; adult learning styles and principles; use of community resources and problem-solving techniques; and learning strategies for adults in formal and nonformal education. Taught with AXED 430 with differentiated assignments for graduate students. May be repeated up to 3 credits.

**AXED 5165. History and Philosophy of Agricultural and Extension Education  
3 Credits (3)**

History and Philosophy of Agricultural and Extension Education serves as a foundational core of graduate studies in Agricultural and Extension Education. The design of the course is to acquaint the student with a broad perspective of cultural and historical conditions that have shaped both education and agricultural education as we know it today. The primary purpose of this course is to explore the nature of selected philosophical concepts and philosophers and to evaluate their influence upon education and agricultural/extension education in the United States. In addition to philosophical influences, students will examine the historical events and governmental laws and policies that have evolved and developed our educational system of today.

**Learning Outcomes**

1. Understand the principles of philosophy in education and agricultural and extension education.
2. Recognize the influence of philosophers and philosophical documents upon education and agricultural and extension education.
3. Analyze the historical foundations that have established our modern educational system.
4. Develop a personal philosophy regarding education and agricultural education.

**AXED 5170. Keys for Agricultural and Rural Development  
3 Credits (3)**

Introduction to concepts of development, the process of change, key factors that contribute to agricultural and rural development in a community, and strategies employed to effect change with implications for international students or domestic students planning to work internationally. May be repeated up to 3 credits.

**AXED 5210. Curriculum Development and Assessment in Agricultural Education  
3 Credits (3)**

This course prepares students to develop curriculum, design lessons, and prepare appropriate assessments in an agricultural education setting. An emphasis will be placed on the developing curriculum using the currently established resources that are available to agriculture teachers.

**Prerequisite:** 2.5 GPA.

**AXED 5215. Developing Excellent Programs in Career and Technical Education  
3 Credits (3)**

Students learn to develop excellence in the three components of a successful secondary school program in career and technical education: classroom and laboratory instruction, career and technical student organizations, and career development activities. Community-based program planning, utilizing partners, program marketing, and professional development are addressed as strategies for achieving excellence. Methods of obtaining financing and maintaining accountability of the program are discussed. Taught with AXED 445 with differentiated assignments for graduate students. May be repeated up to 3 credits.

**AXED 5220. Methods for Teaching Agricultural and Technology Education  
3 Credits (3)**

Methods of instruction and presentation, selection of teaching aids and support materials, classroom management, development of a complete educational program, and microteaching experiences. Taught with AXED 446. May be repeated up to 3 credits.

**Prerequisite:** GPA of 3.0 or above.

**AXED 5230. Directed Teaching in Agricultural or Technology Education  
4-9 Credits (4-9)**

Semester-long off-campus professional experience in directed teaching and observation provided in selected centers under secondary agricultural and technology supervising teachers. Students need to have completed a teaching methods class prior to enrolling in this course. Consent of Instructor required.

**AXED 5235. Directed Teaching in Extension Education  
4-9 Credits (4-9)**

Four- to fourteen-week professional experiences in directed teaching and observation provided in cooperative extension at the county, regional, or state level. Taught with AXED 448 with reduced credit hours for graduate students. Restricted to AXED majors. May be repeated up to 9 credits.

**AXED 5310. New Mexico Water Issues  
3 Credits (3)**

Designed for agricultural and natural resource professionals who must educate others or provide leadership on complex water issues in New Mexico. Students will travel to four distinct geographic and cultural regions of the state and study water policies, issues, and delivery technologies in each region. Specific areas covered will be determined by resource professionals who will present past, current and future issues involved in the distribution of water. Urban impacts on water use will also be investigated. May be repeated up to 3 credits.

**AXED 5320. Risk and Crisis Communications in Agricultural, Consumer, and Environmental Sciences  
3 Credits (3)**

The purpose of this course is to introduce risk and crisis as interdisciplinary concepts, reviewing theoretical frameworks from a variety of fields and perspectives, such as communication, social psychology and public relations. Students will develop a theoretical understanding of all aspects of strategic communication pertaining to risks. Using readings and reflective writings, you will understand how individuals cognitively process risks and how to leverage trust and knowledge to facilitate public understanding. In addition, you will learn crisis communication and management from an organizational perspective. Using case studies and discussions, students will be able to recommend strategies for managing crises occurred to agricultural and natural resource industries.

**Learning Outcomes**

1. Develop a critical understanding of theoretical and conceptual frameworks related to risk and crisis communications
2. Use an integrated framework to analyze the communication strategies used by the agricultural and natural resource industries
3. Recommend effective and ethical strategies for managing actual and potential crises

**AXED 5510. Research Methods  
3 Credits (3)**

Students learn the research process as it is applied to solving problems in the behavioral sciences. Prepares students to conduct and critique research and to diffuse research findings. Implications, applications, and ethics of research also stressed. Students develop a research proposal for a problem of their choice. May be repeated up to 3 credits.

**AXED 5515. Data Collection and Analysis  
3 Credits (3)**

Introduction to basic concepts of data collection and analysis. Interpretations from observational studies and controlled experiments. Roles of descriptive and inferential statistics in a complete data analysis. Mean, median, standard deviation, and graphical summaries of data. Correlation and simple regression. One- and two-sample tests and confidence intervals. Chi-square tests and basic analysis of variance. Competency in arithmetic and algebra required. An undergraduate statistics course recommended. May be repeated up to 3 credits.

**AXED 5610. Leadership on Agricultural and Natural Resource Issues  
3 Credits (3)**

Investigates leadership concepts and group dynamics as they relate to a changing world and complex agricultural and natural resource issues. Topics include emotional intelligence, leading change, political leadership, facilitating agreement, team building, and managing conflict in agricultural and natural resource settings. Taught with AXED 475 with differential assignments for graduate students. May be repeated up to 3 credits.

**AXED 5615. Effective Management of Volunteer Programs  
3 Credits (3)**

For individuals currently involved in, or interested in being involved in, the management and supervision of volunteer programs. Emphasis on practical application, utilizing a research and academic base. Explores the roles, functions, and tasks of volunteers and managers of volunteers including recruitment, orientation and training, supervision, evaluation, recognition and retention. May be repeated up to 3 credits.

**AXED 5993. Workshops in Agricultural, Extension, and Technology Education  
1-3 Credits (1-3)**

Workshop procedures applied to current trends in agricultural, extension, and technology education. A maximum of seven credits will count towards a degree. May be repeated up to 7 credits.

**AXED 5994. Creative Component  
1-4 Credits (1-4)**

For nonthesis program. Individual investigations or projects, either qualitative or quantitative studies. A maximum of six credits will count towards a degree. May be repeated up to 88 credits.

**AXED 5996. Special Topics  
1-4 Credits (1-4)**

Specific subjects and credits to be announced in the Schedule of Classes. Students can take only a maximum of four credits per semester and no more than six credits will count towards a degree. May be repeated up to 6 credits.

**AXED 5998. Internship/Cooperative Experience  
1-6 Credits (1-6)**

Supervised professional on-the-job learning experience. May be repeated up to 6 credits.

**AXED 5999. Master's Thesis  
1-6 Credits (1-6)**

Thesis. May be repeated up to 88 credits.