

STRANDS AND STANDARDS

ANIMAL SCIENCE 1



Course Description

Students will develop knowledge and skills in a wide range of scientific principles, including genetics, anatomy, physiology, nutrition, disease, pests, and management practices. The scientific processes of observation, measurement, hypothesizing, data gathering, interpretation, analysis, and application are included. Career opportunities and educational preparation are examined. Learning activities are varied, with classroom, laboratory, and field experiences emphasized.

Intended Grade Level	9-12
Units of Credit	1.0
Core Code	30.02.00.00.040
Concurrent Enrollment Core Code	N/A
Prerequisite	N/A
Skill Certification Test Number	120
Test Weight	1.0
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Agriculture (CTE/General)
Endorsement 2	Agriculture Science
Endorsement 3	N/A

STRAND 1

Student will participate in personal and leadership development activities through the FFA.

Standard 1

Student will use communication skills to effectively communicate with others.

- Understand when it is appropriate to listen and to speak.
- Understand and follow verbal and written instructions for classroom and laboratory activities.
- Will practice communication skills through public speaking using one or more of the following activities: memorized speech, prepared speech, extemporaneous speech, parliamentary practice, group presentation, or serving in a leadership capacity.

Standard 2

Student will effectively use teamwork to respectfully work with others.

- Identify and understand different roles in working with a team.
- Lead a group discussion or serve in a leadership capacity.

Standard 3

Student will use critical thinking and problem-solving skills.

- Analyze the cause of the problem.
- Develop a solution to address the problem.
- Implement the plan.
- Evaluate the effectiveness of the plan.

Standard 4

Student will be dependable, reliable, steady, trustworthy, and consistent in performance and behavior.

- Set and meet goals on attendance and punctuality.
- Prioritize, plan, and manage work to complete assignments and projects on time.

Standard 5

Student will be accountable for results.

- Use an achievement chart for activities and behaviors in class that encourages a personal evaluation of classroom performance.
- Use reflection to describe what was learned, what went well, what could have been improved, and what are the implications to the learning process.
- Track and communicate progress toward completion of assignments and projects.

Standard 6

Be familiar with the legal requirements and expectations of the course.

- Be familiar with the course disclosure statement and all requirements for successful completion of the course.
- Demonstrate workplace ethics, e.g. fair, honest, disciplined.

Performance Skills

- Student will practice communication skills through public speaking using one or more of the following activities: memorized speech, prepared speech, extemporaneous speech, parliamentary practice, group presentation, or serving in a leadership capacity.

STRAND 2

Student will participate in work-based learning activities through the Supervised Agricultural Experience (SAE) Program.

Standard 1

Student will demonstrate employability skills.

- Use a career search network to find career choices.
- Identify appropriate CTE Pathway for selected career choice.
- Prepare for entry into the work force by completing one of the following: list of required skills needed for a career choice, a resume including a list of demonstrated skills, a cover letter or letter of application, a job application, or participate in an actual or simulated job interview.

Standard 2

Student will participate in a work-based learning experience outside the classroom.

- Student will plan and implement a Supervised Agricultural Experience Program:
 - Foundational SAE: Career exploration and planning, employability skills for college and career readiness, personal financial management and planning, workplace safety, and agricultural literacy.
 - Immersion SAE: Ownership/entrepreneurship, placement/internship, research, school-based enterprise, and/or service-learning experiences.

Standard 3

Student will develop a job portfolio specific to their selected SAE/WBL experience.

- Student will keep a personal record/journal/log of their SAE/WBL experience; including pictures, financial records or log of their hours, skills learned, goals, reflection, etc.

Performance Skills

- Student will keep a personal record/journal/log of their SAE/WBL experience; including pictures, financial records or log of their hours, skills learned, goals, reflection, etc.

STRAND 3

Students will apply scientific principles in the selection of animals.

Standard 1

Discuss the origin and importance of agricultural animals.

- Explain domestication and its contributions to animal agriculture.
- Evaluate the adaptation of animals to production practices.

Standard 2

Classify animals according to hierarchical taxonomy and agricultural use.

- Explain the meaning and importance of the binomial system of nomenclature (animal scientific classification and naming).
- State the scientific and common names of major animal agriculture species in Utah.
- Classify animal species based on their agricultural uses.

Standard 3

Discuss genetic inheritance in agricultural animals.

- Explain the meaning and importance of genetics.
- Describe and predict how traits are inherited in agricultural animals.
- Identify common agricultural animals on the basis of breed.

Standard 4

Select agricultural animals to fulfill production objectives.

- Explain the importance of animal selection in the success of a production enterprise.
- Evaluate the importance of conformation in animal selection.
- Describe how the muscular and skeletal systems contribute to the conformation of an agricultural animal.
- Identify major external parts of agricultural animals.
- Utilize breed and type characteristics in animal selection.
- Explain the use of quantitative breeding values (expected progeny differences) in animal selection.

Performance Skills

- Identify breeds of beef, dairy, swine, and sheep.
- Select agricultural animals based on production objectives.

STRAND 4

Students will apply principles of animal breeding and reproduction to gain desired offspring.

Standard 1

Describe the role of animal breeding.

- Discuss the meaning and importance of reproduction in animal agriculture.
- Identify important factors in breeding readiness.
- Explain the benefits of using genetically superior animals in the production of animals and animal products.
- Explain the concept of hybrid vigor as it relates to animal agriculture.

Standard 2

Analyze the components of the animal reproductive system.

- Identify and explain the function of the components of the female reproductive system in agricultural animals.
- Identify and explain the function of the components of the male reproductive system in agricultural animals.

Standard 3

Explain animal reproductive processes.

- Explain reproductive efficiency in agricultural animals.
- Describe natural and artificial breeding of agricultural animals.
- Relate the reproduction cycle in female mammals to reproductive efficiency (i.e., estrous cycle).

Performance Skills

- Demonstrate reproductive technologies.

STRAND 5

Students will apply principles of animal nutrition to ensure the proper growth, development, reproduction, and economic production of animals.

Standard 1

Compare and contrast the digestive systems of agricultural animals.

- Describe the structure and function of the ruminant digestive system.

- Describe the structure and function of non-ruminant digestive systems.
- Describe the structure and function of avian digestive systems.

Standard 2

Explain the role of nutrition in animal productivity.

- List essential nutrients and describe the importance of each.
- Compare and contrast common feedstuffs in the diets of ruminant and non-ruminant animals.
- Discuss the meaning and use of feed additives and growth promotants.

Standard 3

Provide appropriate nutrition for animals.

- Relate the role of nutrition to the age, performance, and condition of animals.
- Determine feed rations for specific species, ages, and conditions of animals.
- Calculate balanced rations for agricultural animals.

Performance Skills

- Calculate a balanced ration for agricultural animals.

STRAND 6

Students will apply management principles for maintaining the health and well-being of agricultural animals.

Standard 1

Summarize the role of animal well-being in the animal industry.

- Explain the meaning and importance of animal well-being.
- Utilize safe practices in working with animals.
- Relate concepts of animal welfare and animal rights to animal well-being.

Standard 2

Apply animal anatomy and physiology to maintain animal health.

- Describe the role of major organ systems (skeletal, muscular, nervous, respiratory, digestive, circulatory, excretory, and reproductive) in maintaining animal health.
- Discuss common diseases, parasites, and physiological disorders of animals.
- Design and implement an animal health plan to promote efficiency of production.

Standard 3

Provide for the health and well-being of agricultural animals.

- Prescribe and implement prevention and treatment for animal diseases, parasites, and other disorders.
- Perform simple health checks on animals.
- Diagnose illnesses and disorders based on symptoms and problems caused by diseases, parasites, and physiological disorders.
- Identify and describe zoonotic diseases.
- Consider species-specific requirements in animal well-being.
- Identify and demonstrate use of equipment in animal health.

Performance Skills

- Utilize livestock management practices.
- Research and debate a current animal welfare and animal rights issues.

STRAND 7

Students will examine consumer products, services, and benefits derived from the production of agricultural animals.

Standard 1

Identify and evaluate consumer products that come from agricultural animals.

- Identify and grade wholesale and retail cuts of meat.
- Recognize signs of meat spoilage.
- Describe the various carcass characteristics that determine meat grade.
- Describe how milk and milk products are produced, processed and graded.
- Identify consumer products that are derived from by-products of animal production.
- Identify and grade poultry products, including eggs.
- Describe the impact of food safety issues on animal production.

Standard 2

Identify and evaluate services and benefits that come from agricultural animals.

- Identify the benefits provided by companion animals.
- Describe the role of exotic pets in the animal industry.
- Compare and contrast the use of agricultural animals in recreational activities including racing, showing, and power.
- Describe the use of animals in therapy programs.

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions	
		1	2	3	4	5	6	7	8	9	10			