New Mexico Agriculture, Food & Natural Resources Course Framework

Science of Small Animals (0162)

Suggested Course Length: 180 Days

AFNR Pathway: Animal Systems (AS), Biotechnology Systems (BS), Agribusiness Systems (ABS)

Prerequisite: Agricultural Science (0132) or Introduction to the Science of Agriculture (0133) Recommended.

Instructional Design Philosophy

Science of Small Animals is an advanced animal systems course focusing on companion animals, small animal production, animal health, nutrition, reproduction, genetics, biotechnology, welfare, and animal-related careers. Students examine the scientific principles and management practices associated with rabbits, dogs, cats, poultry, aquaculture species, bees, laboratory animals, and service animals.

The SAE serves as the backbone of instruction. Students should develop a companion animal, veterinary science, rabbit production, poultry, aquaculture, apiary, animal training, service animal, animal entrepreneurship, or research SAE. Every unit contributes to a comprehensive small animal management portfolio and capstone project.

Course-at-a-Glance

Quarter	Units	Days
Q1	Units 1-3	45
Q2	Units 4-6	45
Q3	Units 7-9	45
Q4	Units 10-12	45

Unit 1: Small Animal Industry Overview

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Present and Future Animal Industry Trends	AS.01 Animal Agriculture Systems	Industry Trends Report	Industry Journals	Companion Animal SAE
Ways Animals Help People	AS.01 Animal Industry Applications	Service Animal Research	Industry Resources	Service Animal SAE
Animal Science Careers	AS.04 Career Exploration	Career Portfolio	AgCareers	Career Development Events

Unit Assessment

- Animal Industry Report
- Small Animal Career Portfolio

Unit 2: Small Animal Industries

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Rabbit Industry	AS.07 Animal Production Systems	Rabbit Industry Analysis	ARBA Resources	Rabbit SAE
Dog and Cat Industries	AS.07 Companion Animal Systems	Companion Animal Report	Veterinary Resources	Companion Animal SAE
Laboratory and Service Animals	AS.07 Specialty Animal Systems	Industry Investigation	Research Facilities Resources	Placement SAE

Unit Assessment

- Small Animal Industry Portfolio

Unit 3: Specialty Animal Industries

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Aquaculture Industry	AS.07 Aquaculture Systems	Aquaculture Production Report	Aquaculture Resources	Aquaculture SAE
Bee Industry	AS.07 Alternative Animal Systems	Apiary Investigation	Beekeeping Associations	Apiary SAE
Other Small Animal Enterprises	AS.07 Entrepreneurial Animal Systems	Enterprise Analysis	Industry Resources	Entrepreneurship SAE

Unit Assessment

- Specialty Animal Industry Report

Unit 4: Animal Nutrition Fundamentals

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Nutritional Needs of Animals	AS.03 Animal Nutrition	Feed Evaluation	Feed Industry Resources	Animal Ownership SAE
Animal Digestion Systems	AS.03 Digestive Physiology	Digestive System Project	Veterinary Curriculum	Research SAE
Nutrients and Their Importance	AS.03 Nutrient Analysis	Nutrient Comparison Activity	Extension Publications	Companion Animal SAE

Unit Assessment

- Animal Nutrition Portfolio
- Feed Evaluation Project

Unit 5: Feed Management and Ration Development

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Balancing Rations	AS.03 Feeding Programs	Ration Formulation Project	Feed Software	Animal Production SAE
Life Stage Feeding Programs	AS.03 Nutrition Systems	Feeding Plan	Industry Feeding Guides	Companion Animal SAE
Specialized Nutrition Programs	AS.03 Animal Management Practices	Diet Development Project	Veterinary Nutrition Resources	Entrepreneurship SAE

Unit Assessment

- Nutrition Management Plan

Unit 6: Animal Reproduction

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Reproductive Anatomy and Physiology	AS.06 Animal Reproduction	Reproductive Systems Lab	Animal Reproduction Resources	Breeding SAE
Natural Reproduction	AS.06 Reproductive Management	Reproductive Plan	Industry Publications	Rabbit or Dog Breeding SAE
Developmental Stages	AS.06 Animal Growth and Development	Growth Timeline Project	Animal Science Curriculum	Animal Ownership SAE

Unit Assessment

- Reproduction Portfolio

Unit 7: Genetics and Biotechnology

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Genetics Principles	AS.06 Genetic Principles	Genetics Problem Set	Genetics Curriculum	Breeding SAE
Molecular Biotechnology	BS.03 Biotechnology Applications	Biotechnology Investigation	CASE Biotechnology	Research SAE
Organismic Biotechnology	BS.03 Biotechnology Systems	Biotechnology Case Study	Industry Resources	Agriscience Fair

Unit Assessment

- Genetics and Biotechnology Portfolio

Unit 8: Animal Health Management

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Managing Diseases and Parasites	AS.05 Animal Health	Disease Identification Lab	Veterinary Resources	Veterinary Science SAE
Animal Health Programs	AS.05 Health Management Systems	Health Plan	Extension Resources	Companion Animal SAE
Health Equipment and Technologies	AS.05 Animal Care Systems	Equipment Identification Practicum	Veterinary Supply Resources	Veterinary Science CDE

Unit Assessment

- Animal Health Portfolio

Unit 9: Animal Welfare and Ethical Care

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Animal Welfare Issues	AS.08 Animal Welfare and Ethics	Welfare Assessment	AVMA Resources	Companion Animal SAE
Ethical Animal Care	AS.08 Responsible Care Systems	Ethics Case Study	Industry Guidelines	Veterinary SAE
Environmental Factors Affecting Performance	AS.07 Production Environment	Environmental Assessment	Animal Industry Resources	Research SAE

Unit Assessment

- Animal Welfare Analysis

Unit 10: Animal Behavior, Training and Conditioning

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Animal Behavior	AS.08 Behavioral Systems	Behavior Observation Journal	Animal Behavior Resources	Companion Animal SAE
Training Principles	AS.08 Animal Management Practices	Training Plan	Industry Trainers	Service Animal SAE
Conditioning Programs	AS.07 Animal Performance Systems	Conditioning Project	Show Animal Resources	Entrepreneurship SAE

Unit Assessment

- Animal Training Portfolio

Unit 11: Marketing and Economic Concepts

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Supply and Demand Concepts	ABS.01 Economic Principles	Market Analysis	USDA Market Reports	Entrepreneurship SAE
Companion Animal Services	ABS.01 Business Environment	Business Investigation	Industry Publications	Animal Business SAE
Consumer Preferences	ABS.01 Consumer Analysis	Consumer Survey Project	Industry Resources	Marketing SAE

Unit Assessment

- Small Animal Marketing Portfolio

Unit 12: Science of Small Animals Capstone

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Animal Management Systems	AS.03-AS.08 Animal Systems Integration	Management Portfolio	Industry Mentors	Animal SAE
Health and Nutrition	AS.03, AS.05	Comprehensive Management Plan	Veterinary Resources	Companion Animal SAE
Genetics and Reproduction	AS.06 Genetics and Reproduction	Breeding Program Analysis	Breed Associations	Breeding SAE
Marketing and Entrepreneurship	ABS.01 Economic and Marketing Systems	Business Portfolio	Farm Credit, SBA Resources	Entrepreneurship SAE

Capstone Assessment

Students develop and present a complete **Small Animal Science Portfolio** including:

1. Animal Industry Investigation
2. Nutrition Program
3. Feed Ration Analysis
4. Genetics Project
5. Reproduction Plan
6. Animal Health Program

7. Welfare Assessment
8. Training and Conditioning Project
9. Marketing Analysis
10. SAE Documentation and Reflection

SAE Backbone Model

Quarter	SAE Milestone
Q1	Establish companion animal, rabbit, poultry, aquaculture, or veterinary SAE
Q2	Develop nutrition and reproduction management competencies
Q3	Implement genetics, biotechnology, and animal health projects
Q4	Complete marketing, training, and capstone portfolio

End Goal

Every student completes a documented:

- Companion Animal SAE
- Veterinary Science SAE
- Rabbit Production SAE
- Poultry SAE
- Aquaculture SAE

- Apiary SAE
- Animal Training SAE
- Animal Entrepreneurship SAE

while developing competencies in:

- Animal Nutrition
- Animal Reproduction
- Genetics & Biotechnology
- Animal Health
- Animal Welfare
- Animal Behavior
- Training & Conditioning
- Companion Animal Management
- Veterinary Science
- Agricultural Marketing

This course serves as New Mexico's advanced companion and specialty animal science course and provides preparation for Veterinary Science CDEs, Agriscience Fair projects, Companion Animal careers, Animal Biotechnology programs, and postsecondary animal science pathways.