New Mexico Agriculture, Food & Natural Resources Course Framework

Science of Wildlife and Forestry Management (0182)

Suggested Course Length: 180 Days

AFNR Pathway: Natural Resource Systems (NRS), Environmental Service Systems (ESS), Animal Systems (AS)

Prerequisite: Agricultural Science (0132) or Environmental Science/Natural Resources (0181) Recommended.

Instructional Design Philosophy

Science of Wildlife and Forestry Management provides students with advanced study in forest ecosystems, silviculture, wildlife conservation, habitat management, aquaculture, game bird production, forestry operations, and natural resource stewardship. Students investigate how forests and wildlife resources can be managed for ecological sustainability, recreational use, and economic productivity.

The SAE serves as the backbone of instruction. Students should develop a Forestry, Wildlife Management, Conservation, Aquaculture, Natural Resources, Environmental Science, Habitat Improvement, or Outdoor Recreation SAE that grows throughout the year and culminates in a resource management portfolio.

Course-at-a-Glance

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

Quarter	Units	Days
Q4	Units 10-12	45

Unit 1: Introduction to Forestry and Natural Resources

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Defining Forests	NRS.03 Forest Resource Systems	Forest Resource Inventory	US Forest Service	Forestry SAE
Importance of Forests	NRS.03 Resource Management	Forest Benefits Report	State Forestry Resources	Conservation SAE
Forest Ecology	ESS.01 Ecosystem Relationships	Forest Ecosystem Analysis	Project Learning Tree	Environmental SAE

Unit Assessment

- Forest Ecosystem Investigation
- Forest Resource Portfolio

Unit 2: Forest Biology and Health

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Growth and Decline of Forest Trees	NRS.03 Forest Ecology	Tree Growth Analysis	Forestry Texts	Forestry Research SAE
Forest Tree Diseases	NRS.03 Forest Health Management	Disease Identification Lab	Forest Health Resources	Agriscience SAE
Forest Tree Pests	NRS.03 Pest Management Systems	Pest Survey Project	Forest Service Publications	Research SAE

Unit Assessment

- Forest Health Portfolio
- Tree Disease Investigation

Unit 3: Forestry Measurements and Inventory

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Measuring Trees	NRS.03 Forest Resource Assessment	Tree Measurement Lab	Forestry Equipment Guides	Forestry SAE
Measuring Timber Stands	NRS.03 Inventory Systems	Timber Cruise Project	Forest Inventory Resources	Placement SAE
Mapping and Surveying	NRS.03 Resource Planning	Forest Mapping Activity	GIS Resources	Natural Resources SAE

Unit Assessment

- Timber Inventory Project

Unit 4: Forest Management and Conservation

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Government Role in Forest Management	NRS.03 Resource Policy	Forestry Regulations Report	State Forestry Agencies	Career Exploration
Fire in Forest Management	NRS.03 Forest Protection Systems	Fire Management Plan	Wildfire Education Resources	Forestry SAE
Forest Conservation Practices	NRS.02 Conservation Practices	Conservation Plan	NRCS Resources	Conservation SAE

Unit Assessment

- Forest Management Plan

Unit 5: Harvesting and Reforestation

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Harvesting Forest Trees	NRS.03 Forest Production Systems	Harvest Plan	Forestry Industry Resources	Forestry SAE
Reforestation Practices	NRS.03 Forest Regeneration	Reforestation Project	State Forestry Resources	Conservation SAE
Forestry Safety Practices	NRS.03 Forestry Operations Safety	Safety Assessment	Forestry Safety Programs	Placement SAE

Unit Assessment

- Reforestation Portfolio
- Forestry Safety Certification

Unit 6: Forest Products and Wood Science

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Forest Products and Uses	NRS.03 Forest Resource Utilization	Product Analysis	Forest Products Industry	Forestry SAE
Wood Characteristics	PST.01 Material Science Applications	Wood Identification Lab	Wood Technology Guides	Natural Resources SAE
Processing Forest Products	PST.01 Processing Systems	Processing Investigation	Industry Resources	Entrepreneurship SAE

Unit Assessment

- Forest Products Portfolio

Unit 7: Urban Forestry and Tree Care

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Urban Forestry	NRS.03 Urban Resource Management	Urban Forestry Plan	Arbor Day Foundation	Urban Forestry SAE
Tree Selection	PS.02 Plant Selection Principles	Tree Selection Project	Urban Forestry Guides	Landscape SAE
Transplanting and Pruning Trees	PS.03 Plant Maintenance Systems	Tree Care Practicum	Arborist Resources	Tree Care SAE

Unit Assessment

- Urban Forestry Project

Unit 8: Wildlife Ecology and Conservation

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
History of Wildlife Conservation	NRS.04 Wildlife Resource Management	Conservation Timeline	Wildlife Agencies	Wildlife SAE
Species Endangerment	NRS.04 Species Conservation	Endangered Species Report	US Fish & Wildlife Service	Research SAE
Wildlife Conservation Practices	NRS.04 Habitat Conservation	Conservation Plan	Conservation Organizations	Wildlife SAE

Unit Assessment

- Wildlife Conservation Portfolio

Unit 9: Wildlife Habitats and Population Management

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Wildlife Habitat Requirements	NRS.04 Habitat Management	Habitat Evaluation	NRCS Wildlife Guides	Habitat SAE
Creating Wildlife Habitat	NRS.04 Habitat Improvement	Habitat Design Project	Conservation Partners	Wildlife SAE
Wildlife Population Management	NRS.04 Wildlife Population Systems	Population Study	State Wildlife Agencies	Wildlife Research SAE

Unit Assessment

- Wildlife Habitat Management Plan

Unit 10: Aquaculture Systems

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Aquaculture Industry	AS.07 Aquaculture Systems	Industry Analysis	Aquaculture Resources	Aquaculture SAE
Fish Environmental Requirements	AS.07 Aquatic Production Systems	System Design Activity	Fisheries Resources	Research SAE
Fish Nutrition and Digestion	AS.03 Animal Nutrition	Feeding Program	Aquaculture Publications	Aquaculture Production SAE
Propagating and Marketing Fish	AS.07 Aquaculture Production	Marketing Project	Industry Resources	Entrepreneurship SAE

Unit Assessment

- Aquaculture Management Portfolio

Unit 11: Game Birds and Game Animal Management

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Game Bird Identification and Production	NRS.04 Wildlife Species Management	Species Identification Project	Wildlife Management Resources	Game Bird SAE
Environmental Requirements of Wildlife	NRS.04 Habitat Assessment	Habitat Analysis	Wildlife Guides	Wildlife SAE
Game Animal Management	NRS.04 Wildlife Population Management	Management Plan	State Game Agencies	Hunting and Wildlife SAE
Harvesting and Preparing Game Animals	NRS.04 Wildlife Utilization	Harvest Management Report	Wildlife Extension Resources	Outdoor Recreation SAE

Unit Assessment

- Wildlife Species Portfolio

Unit 12: Wildlife and Forestry Management Capstone

Length: 15 Days

Course Competency	AFNR Performance Indicator	Sample Measurement	Teacher Resources	SAE/FFA Connection
Forest Resource Management	NRS.03 Forest Systems Integration	Forest Management Portfolio	Forestry Professionals	Forestry SAE
Wildlife Management	NRS.04 Wildlife Systems Integration	Wildlife Management Plan	Wildlife Agencies	Wildlife SAE
Conservation Planning	NRS.02 Conservation Systems	Stewardship Project	NRCS Resources	Conservation SAE
Environmental Communication	CRP.04 Communication Skills	Public Presentation	FFA Resources	Leadership Development

Capstone Assessment

Students develop and present a complete **Wildlife & Forestry Management Portfolio** including:

1. Forest Resource Inventory
2. Forest Management Plan
3. Reforestation Project
4. Forest Health Assessment
5. Wildlife Habitat Plan
6. Wildlife Population Study
7. Aquaculture Project

8. Conservation Stewardship Project
9. SAE Documentation
10. Natural Resources Presentation

SAE Backbone Model

Quarter	SAE Milestone
Q1	Establish forestry, wildlife, aquaculture, or conservation SAE
Q2	Complete forest inventory and management activities
Q3	Develop wildlife habitat and population management projects
Q4	Complete conservation portfolio and capstone presentation

End Goal

Every student completes a documented:

- Forestry SAE
- Wildlife Management SAE
- Conservation SAE
- Aquaculture SAE
- Natural Resources SAE
- Environmental Research SAE

while developing competencies in:

- Forest Ecology
- Forest Management
- Reforestation
- Forest Products
- Wildlife Conservation
- Habitat Management
- Population Management
- Aquaculture
- Natural Resource Stewardship
- Environmental Leadership

This course serves as New Mexico's advanced wildlife and forestry pathway course and provides strong preparation for Natural Resources CDEs, Forestry careers, Wildlife Biology programs, Conservation agencies, Environmental Science degrees, and natural resource management professions.