



# Agriculture, Food, and Natural Resources

The Agriculture, Food, and Natural Resources (AFNR) Career Cluster focuses on the essential elements of life food, water, land, and air. This career cluster includes a diverse spectrum of occupations, ranging from farmer, rancher, and veterinarian to geologist, land conservationist, and florist.



## Program of Study: Animal Science

The Animal Science program of study focuses on occupational and educational opportunities associated with the science, research, and business of animals and other living organisms. This program of study includes applying biology and life science to real-world life processes of animals and wildlife, either in laboratories or in the field, which could include a veterinary office, a farm or ranch, or any outdoor area harboring animal life. Students will research and analyze the growth and destruction of species and research or diagnose diseases and injuries of animals.

### Courses

	Vet Med Pathway	Non-Vet Med Pathway
9 <sup>th</sup> Grade	Principles of Agriculture, Food, and Natural Resources	
10 <sup>th</sup> Grade	Small Animal Management	
	Equine Science	
	Entrepreneurship I	
11 <sup>th</sup> Grade	Wildlife, Fisheries, and Ecology Management (Optional)	
	Livestock and Poultry Production	
12 <sup>th</sup> Grade	Advanced Animal Science	Advanced Animal Science
	Veterinary Science	Practicum in Agriculture, Food, and Natural Resources
	Practicum in Agriculture, Food, and Natural Resources	OR
	OR	Career Preparation for Programs of Study
	Career Preparation for Programs of Study	



### Example Postsecondary Opportunities

#### Apprenticeships

- Reproduction Technician

#### Associate Degrees

- Biological and Physical Sciences
- Entomology

#### Bachelor's Degrees

- Animal Science
- Zoology/Animal Biology

#### Master's, Doctoral, and Professional Degrees

- Marine Sciences
- Biotechnology

#### Additional Stackable IBCs/License

- Veterinarian
- Certified Veterinary Technician

### Work-Based Learning/Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> <li>• Intern in a veterinary clinic, caring for animals and wildlife being treated in the clinic</li> <li>• Earn industry certification</li> <li>• Work with Sheldon Animal Care Center</li> </ul>
Expanded Learning Opportunities	Sheldon FFA

### Aligned Industry-Based Certifications

- Certified Veterinary Assistant, Level 1 OR Elanco Veterinary Medical Applications Certification
- Elanco Fundamentals of Animal Science Certification

### Example Aligned Occupations

#### Veterinary Assistants and Laboratory Animal Caretakers

Median Wage: \$33,581  
Annual Openings: 1,953  
10-Year Growth: 24%

#### Veterinary Technologists and Technicians

Median Wage: \$35,698  
Annual Openings: 1,217  
10-Year Growth: 24%

#### Veterinarian

Median Wage: \$125,030  
Annual Openings: 435  
10-Year Growth: 26%



## Animal Science Course Information

### Level 1

#### Principles of Agriculture, Food & Natural Resources

13000200

**Grade: 9-10**

**Credit: 1**

Principles of Agriculture, Food, and Natural Resources will allow students to develop knowledge and skills regarding career and educational opportunities, personal development, globalization, industry standards, details, practices, and expectations. To prepare for careers in agriculture, food, and natural resources, students must attain academic skills and knowledge in agriculture. To prepare for success, students need opportunities to learn, reinforce, experience, apply, and transfer their knowledge and skills in a variety of settings.

### Level 2

#### Equine Science

13000500

**Grade: 10-12**

**Credit: 0.5**

In Equine Science, students will acquire knowledge and skills related to equine animal systems and the equine industry. Equine Science may address topics related to horses, donkeys, and mules. To prepare for careers in the field of animal science, students must enhance academic knowledge and skills, acquire knowledge and skills related to animal systems, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings.

#### Small Animal Management

13000400

**Grade: 10-12**

**Credit: 0.5**

In Small Animal Management, students will acquire knowledge and skills related to small animals and the small animal management industry. Small Animal Management may address topics related to small mammals such as dogs and cats, amphibians, reptiles, and birds. To prepare for careers in the field of animal science, students must enhance academic knowledge and skills, acquire knowledge and skills related to animal systems, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer knowledge and skills in a variety of settings.

#### Entrepreneurship I

13011101

**Grade: 10-12**

**Credit: 1**

In Entrepreneurship I, students will gain the knowledge and skills needed to become an entrepreneur in a free enterprise system. Students will learn the key concepts necessary to begin and operate a business. The primary focus of the course is to help students identify the types and selection criteria of business structures, understand the components of a business plan, determine feasibility of an idea using research, and develop and present a business concept. In addition, students will understand the basics of management, accounting, finance, marketing, risk, and product development.

#### Wildlife, Fisheries, and Ecology Management (Optional)

13001500

**Grade: 10-12**

**Credit: 1**

Wildlife, Fisheries, and Ecology Management examines the management of game and non-game wildlife species, fish, and aquacrops and their ecological needs as related to current agricultural practices. To prepare for careers in natural resource systems, students must attain academic skills and knowledge, acquire technical knowledge and skills related to natural resources, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings.

### Level 3

#### Livestock and Poultry Production

13000300

**Grade: 11-12**

**Credit: 1**

*Prerequisite: At least one credit from the Agriculture, Food, and Natural Resources Career Cluster*

In Livestock and Poultry Production, students acquire knowledge and skills related to the livestock and poultry production industry. Livestock and Poultry Production may address topics related to beef cattle, dairy cattle, swine, sheep, goats, and poultry. To prepare for careers in the field of animal science, students must attain academic knowledge and skills, acquire knowledge and skills related to livestock and poultry systems and the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings.



## Animal Science Course Information

Level 4

### Advanced Animal Science (Satisfies a science credit)

13000700

**Grade: 11-12**

**Credit: 1**

*Prerequisite: Biology and Chemistry or IPC; Algebra I and Geometry; Small Animal Science or Equine Science or Livestock Production*

Advanced Animal Science examines the interrelatedness of human, scientific, and technological dimensions of livestock production. Instruction is designed to allow for the application of scientific and technological aspects of animal science through field and laboratory experiences. To prepare for careers in the field of animal science, students must attain academic skills and knowledge, acquire knowledge and skills related to animal systems, and develop knowledge and skills regarding career opportunities, entry requirements, and industry standards. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings.

Industry Based Certification: Elanco Fundamentals of Animal Science Certification

### Veterinary Science

13000600

**Grade: 11-12**

**Credit: 1**

*Prerequisite: Equine Science, Small Animal Management, or Livestock Production*

Veterinary Science covers topics relating to veterinary practices, including practices for large and small animal species. To prepare for careers in the field of animal science, students must attain academic knowledge and skills, acquire technical knowledge and skills related to animal systems and the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer knowledge and skills and technologies in a variety of settings.

Industry Based Certification: Elanco Veterinary Medical Applications Certification OR Certified Veterinary Assistant, Level 1

### Practicum in Agriculture, Food, and Natural Resources – Animal Science

13002500

**Grade: 12**

**Credit: 2**

*Prerequisite: A minimum of two credits with at least one course in a Level 2 or higher course from the Agriculture, Food, and Natural Resources career cluster*

Practicum in Agriculture, Food, and Natural Resources is designed to give students supervised practical application of knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experiences such as employment, independent study, internships, assistantships, mentorships, or laboratories. To prepare for careers in agriculture, food and natural resources, students must attain academic skills and knowledge, acquire technical knowledge and skills related to the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills and technologies in a variety of settings.