



## 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	
11 <sup>th</sup> Grade	Wildlife, Fisheries, and Ecology Management (Optional)	
	Livestock Production	
12 <sup>th</sup> Grade	Advanced Animal Science	Advanced Animal Science
	Veterinary Medical Applications	Mathematical Applications in Agriculture, Food, and Natural Resources
12 <sup>th</sup> Grade	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

#### Aligned Advanced Academic Course(s)

- AP Biology

#### 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: \$29,906  
Annual Openings: 1,348  
10-Year Growth: 24%

##### Veterinary Technologists and Technicians

Median Wage: \$33,679  
Annual Openings: 1,217  
10-Year Growth: 24%

##### Veterinarian

Median Wage: \$103,160  
Annual Openings: 347  
10-Year Growth: 26%

Successful completion of this program of study will fulfill requirements of the Business and Industry Endorsement. Approved Statewide Program of Study. C. E. King High School – 2024-25



## 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

#### 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.

#### 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.

#### 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.

#### Mathematical Applications in Agriculture, Food, and Natural Resources (Satisfies a math credit)

13001000

**Grade: 11-12**

**Credit: 1**

*Prerequisite: Algebra I      Recommended Prerequisite: one credit in Agriculture, Food, and Natural Resources*

In Mathematical Applications in Agriculture, Food, and Natural Resources, students will apply knowledge and skills related to mathematics, including algebra, geometry, and data analysis in the context of agriculture, food, and natural resources. To prepare for careers in agriculture, food, and natural resources, students must acquire technical knowledge in the discipline as well as apply academic skills in mathematics. To prepare for success, students need opportunities to reinforce, apply, and transfer their knowledge and skills related to mathematics in a variety of contexts.

### Level 3

#### Livestock Production

13000300

**Grade: 10-12**

**Credit: 1**

In Livestock Production, students will acquire knowledge and skills related to livestock and the livestock production industry. Livestock 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 skills and knowledge, acquire 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 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 Medical Applications

13000600

**Grade: 11-12**

**Credit: 1**

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

Veterinary Medical Applications 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 skills and knowledge, 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: 1 credit in an Agriculture, Food and Natural Resources course (Animal Science focus)*

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.