

Agriculture, Food, and Natural Resources Career Cluster

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. It also includes non-traditional agricultural occupations like wind energy, solar energy, and oil and gas production.

Animal Science Statewide Program of Study



The Animal Science program of study focuses on the science, research, and business of animals and other living organisms. It teaches CTE learners how to apply 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 may also research and analyze the growth and destruction of species and research or diagnose diseases and injuries of animals.

AHS Courses for High School Credit Future Farmers of America (FFA) Teams

Level 1

- 9th Principles of Agriculture, Food, and Natural Resources

Level 2

- N/A

Level 3

- 10th Livestock Production

Level 4

- 11th Advanced Animal Science
- 12th Practicum in Agriculture, Food, and Natural Resources

Postsecondary Opportunities

Associates Degrees

- Food Science and Technology
- Veterinary Studies
- Biotechnology Laboratory Technician
- Biology Technician

Bachelor's Degrees

- Animal Sciences
- Agriculture
- Biology
- Zoology/ Animal Biology

Master's, Doctoral, and Professional Degrees

- Genetics
- Veterinary Medicine
- Biological and Physical Sciences
- Biological and Biomedical Sciences

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
<ul style="list-style-type: none"> Participate in Texas FFA 	<ul style="list-style-type: none"> Compete in an Agri-Science Fair 4H Volunteer at a local farm or with a veterinarian Participate in an FFA supervised agriculture experience

Industry-Based Certifications

- Agricultural Biotechnology
- AgriLife Veterinary Assistant Certificate
- Certified Veterinary Assistant, Level 1
- AHS - Elanco Fundamentals of Animal Science Certification**
- Elanco Veterinary Medical Applications Certification
- Equine Management & Evaluation Certification
- AHS - Feedyard Technician in Cattle Care & Handling**
- Licensed Veterinary Technician
- Production Agriculture - Job Ready
- Small Animal Science and Technology



Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Animal Breeders	\$39,139	28	9%
Animal Scientists	\$57,533	22	12%
Medical Scientists	\$63,898	435	27%
Veterinarians	\$93,496	294	24%
Zoologists and Wildlife Biologists	\$67,309	45	32%

Successful completion of the Animal Science program of study will fulfill requirements of a Business and Industry endorsement or STEM endorsement if the math and science requirements are met. Revised – August 2022



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Applied Agricultural Engineering Statewide Program of Study



The Applied Agricultural Engineering program of study explores the occupations and educational opportunities associated with applying knowledge of engineering technology and biological science to agricultural problems concerned with power and machinery, electrification, structures, soil and water conservation, and processing agricultural products. This program of study may also include exploration into diagnosing, repairing, or overhauling farm machinery and vehicles, such as tractors, harvesters, dairy equipment, and irrigation systems.

AHS Courses for High School Credit Future Farmers of America (FFA) Teams Welding Program

Level 1

- 9th Principles of Agriculture, Food, and Natural Resources

Level 2

- 10th Agricultural Mechanics and Metal Technologies

Level 3

- 11th Agricultural Structures Design and Fabrication

Level 4

- 12th Practicum in Agriculture, Food, and Natural Resources

Postsecondary Opportunities

Associates Degrees

- Heavy Equipment Maintenance Technology/ Technician
- Agricultural Mechanization, General
- Small Engine Mechanics and Repair Technology/ Technician
- Welding Technology/ Welder

Bachelor's Degrees

- Agricultural Engineering
- Agricultural Mechanization, General

Master's, Doctoral, and Professional Degrees

- Agricultural Engineering
- Agricultural Mechanization, General

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities

- Tour a farm products or machinery plant
- Participate in Texas FFA

Work-Based Learning Activities

- Earn a welding certification
- Intern at a farm products or machinery plant
- Participate in an FFA supervised agriculture experience

Industry-Based Certifications

- Agriculture Mechanics
- Agriculture Mechanics
- API 1104 Welding Pipelines and Related Facilities AWS Certified Welder
- AWS Certified Welder
- AWS D1.1 Structural Steel
- **AHS - AWS D9.1 Sheet Metal Welding**
- AWS SENSE Level 1: Entry Welder
- Feedyard Technician in Machinery Operation, Repair and Maintenance
- Industrial Technology Maintenance (ITM) - Maintenance Welding
- Machining Measurement, Material, and Safety Level I
- NCCER Welding Level I
- General Welding - Job Ready
- OSHA General 30*

*IBC sunseting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Outdoor Power Equipment and Other Small Engine Mechanics	\$32,406	366	16%
Welders	\$41,350	6171	9%
Farm Equipment Mechanics and Service Technicians	\$39,915	304	17%
Mobile Heavy Equipment Mechanics	\$47,299	1627	16%
Agricultural Engineers	\$64,792	9	13%

Successful completion of the Applied Agricultural Engineering program of study will fulfill requirements of a Business and Industry endorsement or STEM endorsement if the math and science requirements are met. Revised – August 2022

Arts, Audio/Video Technology, and Communications Career Cluster

The Arts, A/V Technology and Communications (AAVTC) Career Cluster focuses on careers in designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services. Careers in the AAVTC career cluster require a creative aptitude, a strong background in computer and technology applications, a strong academic foundation, and a proficiency in oral and written communication.

Digital Communications Statewide Program of Study



The Digital Communications program of study explores the occupations and educational opportunities associated with the production of audio and visual media formats for various purposes, such as TV broadcasts, advertising, video production, or motion pictures. This program of study may also include exploration into operating machines and equipment to record sound and images, such as microphones, sound speakers, video screens, projectors, video monitors, sound and mixing boards, and related electronic equipment.

AHS Courses for High School Credit AHS Sports Broadcasting Team

Level 1

- 9th Principles of Arts, Audio/Video Technology, and Communications

Level 2

- 10th Audio/Video Production I

Level 3

- 11th Audio/Video Production II

Level 4

- 12th Career Preparation I

Postsecondary Opportunities

Associates Degrees

- Recording Arts Technology/Technician
- Cinematography and Film/Video Production
- Radio and Television Broadcasting Technology/Technician
- Music Technology

Bachelor's Degrees

- Recording Arts Technology/Technician
- Cinematography and Film/Video Production
- Radio and Television
- Agricultural Communication/Journalism

Master's, Doctoral, and Professional Degrees

- Communications Technology/Technician
- Cinematography and Film/Video Production
- Radio and Television
- Agricultural Communication/Journalism

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
<ul style="list-style-type: none"> • Shadow a production team • Participate in SkillsUSA or TSA 	<ul style="list-style-type: none"> • Intern at a local television station or video production company • Work with a local company on a project

Industry-Based Certifications

- Adobe Certified Professional in Print and Digital Media Publication Using Adobe InDesign
- Adobe Certified Professional in Print and Digital Media Publication Using Adobe InDesign
- Adobe Certified Professional in Visual Design
- Adobe Certified Professional in Visual Design Using Adobe Photoshop
- Audio-Visual Communications - Job Ready
- Broadcasting and Journalism
- Digital Video Production Foundations



Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Sound Engineering Technicians	\$39,562	79	27%
Camera Operators, Television, Video, and Motion Picture	\$50,024	129	9%
Audio and Video Equipment Technicians	\$40,581	757	29%
Film and Video Editors	\$47,382	118	23%

Successful completion of the Digital Communications program of study will fulfill requirements of the Business and Industry endorsement. Revised – August 2022

Arts, Audio/Video Technology, and Communications Career Cluster

The Arts, A/V Technology and Communications (AAVTC) Career Cluster focuses on careers in designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services. Careers in the AAVTC career cluster require a creative aptitude, a strong background in computer and technology applications, a strong academic foundation, and a proficiency in oral and written communication.

Graphic Design & Multimedia Arts Statewide Program of Study



The Graphic Design and Multimedia Arts program of study explores the occupations and educational opportunities associated with designing or creating graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. This program of study may also include exploration into designing clothing and accessories, and creating special effects, animation, or other visual images using film, video, computers, or other electronic tools and media, for use in computer games, movies, music videos, and commercials.

AHS Courses for High School Credit AHS Lions Roar Newspaper Team

Level 1

- 9th Principles of Arts, A/V Technology, and Communications

Level 2

- 10th Graphic Design and Illustration I
- 10th-12th Commercial Photography I (extra elective option)

Level 3

- 11th Graphic Design and Illustration II

Level 4

- 12th Career Preparation

Postsecondary Opportunities

Associates Degrees

- Animation, Interactive Technology, Video Graphics and Special Effects
- Graphic Design
- Game and Interactive Media Design

Bachelor's Degrees

- Animation, Interactive Technology, Video Graphics and Special Effects
- Graphic Design
- Game and Interactive Media Design

Master's, Doctoral, and Professional Degrees

- Animation, Interactive Technology, Video Graphics and Special Effects
- Graphic Design
- Intermedia/Multimedia

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
<ul style="list-style-type: none"> • Join a website development or coding club • Participate in SkillsUSA or TSA 	<ul style="list-style-type: none"> • Intern with a multimedia or animation studio • Obtain a certificate or certification in graphic design

Industry-Based Certifications

- Adobe Certified Professional in Digital Video Using Adobe Premiere Pro
- Adobe Certified Professional in Graphic Design and Illustration Using Adobe Illustrator
- Adobe Certified Professional in Print and Digital Media Publication Using Adobe InDesign
- Adobe Certified Professional in Visual Design
- Adobe Certified Professional in Visual Design Using Adobe Photoshop
- Adobe Certified Professional In Visual Effects and Motion Graphics Using Adobe After Effects
- Audio-Visual Communications - Job Ready
- Autodesk Associate (Certified User) 3ds MAX
- Certified Professional Photographer
- Certified Professional Programmer
- Certified User: Programmer
- CodeHS Python Level 1 Certification
- Graphic Production Technology - Job Ready
- C++ Certified Associate Programmer
- Oracle Certified Associate Java SE 9 Programmer
- Certified Entry-Level Python Programmer (PCEP)

- Adobe Certified Professional Animate*

*IBC Sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Graphic Designers	\$44,824	1,433	15%
Multimedia Artists and Animators	\$67,392	186	21%

Successful completion of the Graphic Design & Multimedia Arts program of study will fulfill requirements of the Business and Industry endorsement. Revised – August 2022

Human Services Career Cluster

The Human Services Career Cluster focuses on preparing individuals for employment in career pathways that relate to families and human needs such as counseling and mental health services, family and community services, personal care services, and consumer services.

Family and Community Services Statewide Program of Study



The Family and Community Services program of study introduces students to knowledge and skills related to social services, including child and human development and consumer sciences. CTE learners may learn about or practice managing social and community services or teaching family and consumer sciences. Students may follow career paths in social work or therapy for children, families, or school communities.

AHS Courses for High School Credit FCCLA Membership

Level 1

- 9th Principles of Human Services

Level 2

- 10th Child Development

Level 3

- 11th Family and Community Services

Level 4

- 12th Practicum in Human Services

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
<ul style="list-style-type: none"> • Participate in American Association of Family and Consumer Sciences or Family, Career and Community Leaders of America 	<ul style="list-style-type: none"> • Volunteer at a community center • Intern for a community non-profit organization

Industry-Based Certifications

- AHS - Community Health Workers
- Child Development Associate (CDA)

Postsecondary Opportunities

Associates Degrees

- Human Development and Family Studies
- Human Services/Sciences, General
- Family and Consumer Sciences
- Community Health Services

Bachelor's Degrees

- Human Development and Family Studies
- Human Services/Sciences, General
- Family and Consumer Sciences
- Child and Family Services

Master's, Doctoral, and Professional Degrees

- Human Development and Family Studies
- Marriage and Family Therapy/Counseling
- Human Services/Sciences
- Family Studies



Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Child, Family, and School Social Workers	\$41,350	2,221	17%
Social and Community Services Managers	\$65,146	608	33%
Marriage and Family Therapists	\$42,266	217	35%
Social and Human Service Assistants	\$32,448	2,822	25%

Successful completion of the Family and Community Services program of study will fulfill requirements of the Public Service endorsement. Revised – August 2022

Education and Training Career Cluster

The Education and Training Career Cluster focuses on planning, managing, and providing education and training services and related learning support services. All parts of courses are designed to introduce learners to the various careers available within the Education and Training career cluster.

Teaching and Training Statewide Program of Study



The Teaching and Training program of study prepares CTE learners for careers related to teaching, instruction, and creation of instructional and enrichment materials. The program of study introduces CTE learners to a wide variety of student groups and their corresponding needs. It familiarizes them with the processes for developing curriculum, coordinating educational content, and coaching groups and individuals.

AHS Courses for High School Credit FCCLA Membership

Level 1

- 9th Principles of Human Service

Level 2

- 10th Child Development

Level 3

- 11th Instructional Practices

Level 4

- 12th Practicum in Education and Training

Postsecondary Opportunities

Associates Degrees

- Teacher Education
- Education, General (or specific subject area)
- Special Education
- Health and Physical Education/Fitness

Bachelor's Degrees

- Bilingual and Multilingual Education
- Education, General (or specific subject area)
- Special Education
- Health and Physical Education/Fitness

Master's, Doctoral, and Professional Degrees

- Instruction and Learning
- Educational Leadership and Administration, General
- Special Education
- Social and Philosophical Foundations of Education

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities

- Participate in the Texas Association of Future Educators or Family, Career, and Community Leaders of America

Work-Based Learning Activities

- Teach a community education class
- Intern as a teaching assistant or tutor
- Serve as a camp counselor

Industry-Based Certifications

- AHS - Educational Aide I



Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Adult Basic and Secondary Education and Literacy Teachers and Instructors	\$48,069	862	17%
Middle School Teachers, Except Special and Career/Technical Education	\$54,510	6,407	15%
Career and Technical Education Teachers, Secondary School	\$56,360	719	9%
Special Education Teachers, Secondary School	\$56,720	980	18%

Successful completion of the Teaching and Training program of study will fulfill requirements of the Public Service endorsement. Revised – August 2022