

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



Career & Technical Education

The Animal Science program of study focuses on the science, research, and business of animals and other living organisms. This pathway encompasses everything from putting food on our tables to turning raw materials into products everyone uses. Students will apply biology and life science to real-world life processes of animals and wildlife, either in laboratories or in the field. Students conclude with courses focusing on animal health and welfare, including diagnosis and treatment of diseases and injuries of animals.

Secondary Courses for High School Credit

9th Grade

- Principles of Agriculture, Food, and Natural Resources

10th Grade

- Small Animal Management (Fall)
- Equine Science (Spring)

11th Grade

- Livestock Production/Lab (AAC)

12th Grade

- Advanced Animal Science (AAC)

or

- Veterinary Medical Applications + Lab (AAC)

9th - 12th Grade

Floral Design (Non-Pathway Course)

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities

- Participate in FFA supervised agriculture experience

Work-Based Learning Activities

- Volunteer at a local farm or with a veterinarian

Industry-Based Certifications

- Elanco Fundamentals of Animal Science Certification



Postsecondary Opportunities

Associates Degrees

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

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% |

Business, Marketing, and Finance Career Cluster

The Business, Marketing, and Finance Career Cluster focuses on careers in planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations.

Accounting and Financial Services Statewide Program of Study



Career & Technical Education

The Accounting and Financial Services program of study teaches CTE learners how to examine, analyze, and interpret financial records. Through this program of study, students will learn the skills necessary to perform financial services, prepare financial statements, interpret accounting records, give advice, or audit and evaluate statements prepared by others. This program of study will also introduce students to mathematical modeling tools.

Secondary Courses for High School Credit

9th Grade

- Principles of Business, Marketing, and Finance

10th Grade

- Business Information Management I

11th Grade

- Accounting I

12th Grade

- Securities and Investments (AAC)

Postsecondary Opportunities

Associates Degrees

- Real Estate
- Financial, General
- Financial Planning and Services
- Certified Income Specialist

Bachelor's Degrees

- Accounting
- Business Administration
- Financial, General
- Financial Planning and Services
- Certified Income Specialist

Master's, Doctoral, and Professional Degrees

- Financial Accounting
- Business Administration
- Financial Planning

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities

- Participate in DECA

Work-Based Learning Activities

- Intern with a local accounting firm
- Earn Microsoft Office certifications

Industry-Based Certifications

- Microsoft Office Specialist: Word Expert
- Microsoft Office Specialist: Excel Expert
- Microsoft Office Specialist: PowerPoint



Aligned Occupations

| Occupations | Median Wage | Annual Openings | % Growth |
|---------------------------------|-------------|-----------------|----------|
| Accountants and Auditors | \$71,469 | 14,436 | 22% |
| Loan Officers | \$68,598 | 2,419 | 19% |
| Personal Financial Advisors | \$86,965 | 1,861 | 52% |
| Administrative service Managers | \$96,138 | 2,277 | 21% |
| Insurance Underwriters | \$66,206 | 594 | 14% |

Information Technology Career Cluster

The Information Technology (IT) Career Cluster focuses on building linkages in IT occupations for entry level, technical, and professional careers related to the design, development, support, and management of hardware, software, multimedia, and systems integration services.

Programming & Software Development *Statewide Program of Study*



Career & Technical Education

The Programming and Software Development program of study explores the occupations and education opportunities associated with researching, designing, developing, and testing operating systems-level software, compilers, and network distribution software for any industry or practical purpose. Largely, this is accomplished through guided exploration into creating, modifying, and testing the codes, forms, and scripts that allow computer applications to run.

Secondary Courses for High School Credit

9th Grade

- Computer Science I

10th Grade

- AP Computer Science A

11th Grade

- Computer Science III

12th Grade

- Independent Study

9th – 12th Grade

- AP Computer Science Principles

Postsecondary Opportunities

Associates Degrees

- Computer Programmer
- Computer Software Engineer
- Certified Software Analyst

Bachelor's Degrees

- Management Information Systems, General
- Computer Software Engineer
- Information Science/Studies

Master's, Doctoral, and Professional Degrees

- Computer Software Engineer
- Information Science/Studies

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities

- Join TSA or UIL Computer Science
- Job shadow a software engineer

Work-Based Learning Activities

- Earn an IT certification

Industry-Based Certifications

- Python Certified Entry Level Programmer



Aligned Occupations

| Occupations | Median Wage | Annual Openings | % Growth |
|---------------------|-------------|-----------------|----------|
| Software Developer | \$103,334 | 2,985 | 25% |
| App Developer | \$104,499 | 6,311 | 30% |
| Computer Programmer | \$79,893 | 1,454 | 9% |

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*



Career & Technical Education

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.

Secondary Courses for High School Credit

9th Grade

- Principles of Human Services

10th Grade

- Human Growth and Development

11th Grade

- Counseling and Mental Health

12th Grade

- Family and Community Services (AAC)

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

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities

- Participate in Family, Career and Community Leaders of America (FCCLA)

Work-Based Learning Activities

- Volunteer at a community center
- Intern for a community non-profit organization

Industry-Based Certifications

- American Heart Association Heartsaver CPR/First Aid



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% |

Health Science Career Cluster

The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development. To pursue a career in the health science industry, students should learn to reason, think critically, make decisions, solve problems, communicate effectively, and work well with others.

Diagnostics & Therapeutics Statewide Program of Study



Career & Technical Education

The Healthcare Diagnostics program of study introduces students to occupations and education opportunities related to performing complex medical laboratory tests for the diagnosis, treatment, and prevention of disease. This program of study may also include exploration into the opportunities associated with blood laboratories as well as radiologic technology and ultrasound technology.

Secondary Courses for High School Credit

9th Grade

- Principles of Health Science

10th Grade

- Medical Terminology

11th Grade

- Anatomy and Physiology (AAC)

12th Grade

- Health Science Theory (AAC)

Postsecondary Opportunities

Associates Degrees

- Nuclear Medical Technology/Technologist
- Magnetic Resonance Imaging (MRI) Technology/Technician

Bachelor's Degrees

- Nuclear Medical Technology/Technologist
- Medical Radiologic Technology/Science Radiation Therapist

Master's, Doctoral, and Professional Degrees

- Radiologist
- Radiologic Technology/Science Radiographer



Work-Based Learning and Expanded Learning Opportunities

Exploration Activities

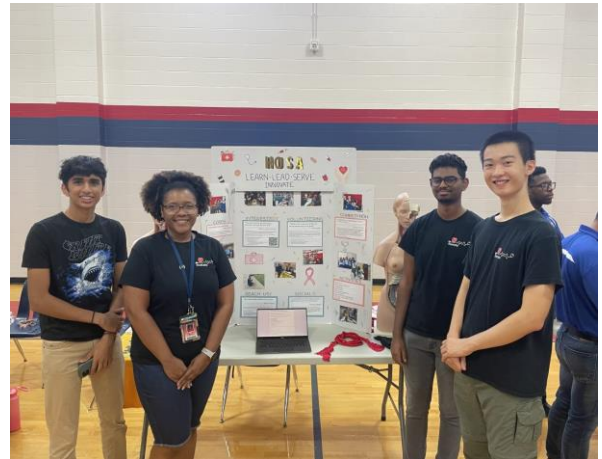
- Participate in Health Occupation Students of America (HOSA)

Work-Based Learning Activities

- Perform clinical rotations at a community wellness center, hospital, assisted living, nursing home

Industry-Based Certifications

- American Heart Association Heartsaver CPR/First Aid



Aligned Occupations

| Occupations | Median Wage | Annual Openings | % Growth |
|--|-------------|-----------------|----------|
| Diagnostic Medical Sonographers | \$69,909 | 495 | 35% |
| Phlebotomist | \$30,597 | 1,442 | 36% |
| Nuclear Medicine Technologists | \$75,962 | 91 | 13% |
| Radiologic Technologists | \$55,494 | 1,196 | 21% |
| Magnetic Resonance Imaging Technologists | \$68,661 | 217 | 21% |

Law and Public Service Career Cluster

The Law and Public Service Career Cluster focuses on planning, managing, and providing legal services, public safety, protective services, and homeland security, including professional and technical support services. Students will examine the roles and responsibilities of police, courts, corrections, private security, and fire and emergency services.

Law Enforcement Statewide Program of Study



Career & Technical Education

The Law Enforcement program of study teaches CTE learners about the development of, adherence to, and protection of various branches of law. Students will learn how to appropriately and legally respond to breaches in the law according to statutory rules and regulations as well as investigate how and why the breaches occurred.

Secondary Courses for High School Credit

9th Grade

- Principles of Law, Public Safety, Corrections, and Security

10th Grade

- Law Enforcement I

11th Grade

- Law Enforcement II (AAC)

12th Grade

- Forensic Science (AAC)

Postsecondary Opportunities

Associates Degrees

- Criminal Justice/Safety Studies/Law
- Enforcement Administration
- Criminal Justice/Police Science
- Corrections
- Criminalistics and Criminal Science

Bachelor's Degrees

- Criminal Justice/Safety Studies/Law
- Enforcement Administration
- Criminal Justice/Police Science
- Juvenile Corrections
- Cyber/Computer Forensics and Counterterrorism

Master's, Doctoral, and Professional Degrees

- Criminal Justice/Safety Studies/Law
- Enforcement Administration
- Natural Resources
- Law Enforcement and Protective Services

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities

- Join the Texas Public Service Association or local criminal justice clubs
- Join SkillsUSA or TSA

Work-Based Learning Activities

- Attend court hearings and other legal procedures



Aligned Occupations

| Occupations | Median Wage | Annual Openings | % Growth |
|--|-------------|-----------------|----------|
| Police and Sheriff's Patrol Officers | \$60,112 | 5,241 | 13% |
| Probation Officers and Correctional Treatment Officers | \$44,054 | 793 | 9% |
| Correctional Officers and Jailers | \$40,186 | 4,683 | 9% |
| Immigration and Customs Inspectors | \$78,104 | 1,236 | 9% |
| First-Line Supervisors of Police and Detectives | \$91,312 | 253 | 25% |

Engineering Career Cluster

The Science, Technology, Engineering, and Mathematics (STEM) Career Cluster focuses on planning, managing, and providing scientific research and professional and technical services, including laboratory and testing and research and development services.

Engineering Foundations Statewide Program of Study



Career & Technical Education

The Engineering program of study focuses on the design, development, and use of engines, machines, structures, and automation processes, as well as rapid prototyping methods. Engineering pathway students will learn how to apply science, mathematical methods, and empirical evidence to the innovation, design, construction, operation, and maintenance of different operations and manufacturing systems. Engineering students endeavor to improve the state of the world in ethical, cost-effective, efficient, and innovative ways. If you enjoy identifying a problem, producing solutions, and turning ideas into reality, then Engineering may be the right career pathway for you.

Secondary Courses for High School Credit

9th Grade

- Principles of Applied Engineering

10th Grade

- Engineering Design and Presentation I

11th Grade

- Engineering Science

12th Grade

- Engineering Design and Problem Solving

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities

- Participate in SkillsUSA or TSA competitions

Work-Based Learning Activities

- Intern at an engineering firm

Industry-Based Certifications

- Autodesk Associate (Certified User) & Professional Fusion 360



Postsecondary Opportunities

Associates Degrees

- Electrical and Electronics Engineering
- Drafting and Design Technology/ Technician, General
- Engineering Technology

Bachelor's Degrees

- Electrical and Electronics Engineering
- CAD/CADD Drafting and/or Design Technology/ Technician
- Bioengineering and Biomedical Engineering
- Construction Engineering Technology/ Technician

Master's, Doctoral, and Professional Degrees

- Electrical and Electronics Engineering
- Mechanical Engineering
- Bioengineering and Biomedical Engineering

Aligned Occupations

| Occupations | Median Wage | Annual Openings | % Growth |
|----------------------|-------------|-----------------|----------|
| Aerospace Engineers | \$110,843 | 481 | 9% |
| Industrial Engineers | \$97,074 | 1,263 | 10% |
| Mechanical Engineers | \$91,107 | 1,535 | 11% |
| Chemical Engineers | \$112,819 | 474 | 9% |
| Electrical Engineers | \$98,405 | 1,137 | 105 |