

# **SNOOK ISD**

## **Career & Technical Education**

### **Course Sequences**

2024-2025



Snook ISD  
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# Nondiscrimination Statement

In its efforts to promote nondiscrimination and as required by law, Snook ISD does not discriminate on the basis of race, religion, color, national origin, gender, sex, disability, age, or any other basis prohibited by law, in providing education services, activities, and programs, including CTE programs, and provides equal access to the Boy Scouts and other designated youth groups. The following district representatives have been designated to coordinate compliance with these legal requirements:

- Title IX Coordinator, for concerns regarding discrimination on the basis of sex, including sexual harassment or gender-based harassment: Dr. Megan Pape, Superintendent, 10110 FM 2155, Snook, TX 77878, 979-272-8307.
- ADA/Section 504 Coordinator, for concerns regarding discrimination on the basis of disability: Teresa Allen, Superintendent, 10110 FM 2155, Snook, TX 77878, 979-272-8307.
- All other concerns regarding discrimination: See the superintendent, Dr. Megan Pape, Superintendent, 10110 FM 2155, Snook, TX 77878, 979-272-8307.

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# 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 occupations, ranging from farmer, rancher, and veterinarian to geologist, land conservationist, and florist.

## Statewide Program of Study: Agricultural Technology and Mechanical Systems

The Agricultural Technology and Mechanical Systems program of study focuses on occupational and educational opportunities associated with applying engineering technology and biological science to agricultural problems related to power and machinery, electrification, structures, soil and water use, and processing agricultural products. This program of study includes diagnosing, repairing, or overhauling farm machinery and vehicles, such as tractors, harvesters, dairy equipment, and irrigation systems.

### Secondary Courses for High School Credit

- |                |  |
|----------------|--|
| <b>Level 1</b> | <ul style="list-style-type: none"> <li>Principles of Agriculture, Food, and Natural Resources</li> </ul>   |
| <b>Level 2</b> | <ul style="list-style-type: none"> <li>Agricultural Mechanics and Metal Technologies</li> <li>Agricultural Mechanics and Metal Technologies + Agricultural Laboratory and Field Experience</li> </ul>  |
| <b>Level 3</b> | <ul style="list-style-type: none"> <li>Geographic Information Systems (GIS) for Agriculture</li> <li>Agricultural Structures Design and Fabrication</li> <li>Agricultural Structures Design and Fabrication + Agricultural Laboratory and Field Experience</li> <li>Agricultural Power Systems</li> <li>Agricultural Power Systems + Agricultural Laboratory and Field Experience</li> </ul>   |
| <b>Level 4</b> | <ul style="list-style-type: none"> <li>Advanced Agriculture Power Systems (TBD)</li> <li>Agricultural Equipment Design and Fabrication</li> <li>Agricultural Equipment Design and Fabrication + Agricultural Laboratory and Field Experience</li> <li>Practicum in Agriculture, Food, and Natural Resources</li> <li>Practicum in Agriculture, Food, and Natural Resources + Extended Practicum in Agriculture, Food, and Natural Resources</li> <li>Career Preparation for Programs of Study</li> <li>Career Preparation for Programs of Study + Extended Career Preparation</li> <li>Scientific Research and Design</li> <li>Career and Technology Project-Based Capstone</li> </ul> |

### Aligned Advanced Academic Courses

**Dual Credit** Dual credit offerings will vary by Local Education Agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

### Work-Based Learning and Expanded Learning Opportunities

- |  |   |
|--|---|
| <b>Work-Based Learning Activities</b>  | <ul style="list-style-type: none"> <li>Participate in a farm mechanic apprenticeship at an equipment production company</li> <li>Intern at an equipment manufacturing facility working with agricultural engineers</li> </ul> |
| <b>Expanded Learning Opportunities</b> | <ul style="list-style-type: none"> <li>Participate in an FFA career, leadership, and speaking contest like an agriscience fair</li> <li>Participate in an agriculture robotics event</li> </ul>                               |

### Aligned Industry-Based Certifications

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



### Example Postsecondary Opportunities

#### Apprenticeships

- Farm Equipment Mechanic I

#### Associate Degrees

- Diesel Mechanics Technology
- Industrial Mechanics and Maintenance Technology

#### Bachelor's Degrees

- Agricultural Engineering
- Agricultural Systems Management

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

- Agricultural Engineering
- Industrial Technology

#### Additional Stackable IBCs/Licensures

- Diesel Equipment Technology-Off Highway Specialization CER1
- Accredited Farm Manager



### Example Aligned Occupations

#### Farm Equipment Mechanics and Service Technicians

Median Wage: \$46,582  
Annual Openings: 326  
10-Year Growth: 23%

#### Mobile Heavy Equipment Mechanics

Median Wage: \$57,943  
Annual Openings: 2637  
10-Year Growth: 31%

#### Farmers, Ranchers, and Other Agricultural Managers

Median Wage: \$65,490  
Annual Openings: 28,020  
10-Year Growth: 4%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>



# Agriculture, Food, and Natural Resources Career Cluster

## Statewide Program of Study: Agricultural Technology and Mechanical Systems

### Course Information

Level 1

Course	Prerequisites   Corequisites	Career Clusters
<b>Principles of Agriculture, Food, and Natural Resources*</b> 13000200 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	

Level 2

Course	Prerequisites   Corequisites	Career Clusters
<b>Agricultural Mechanics and Metal Technologies</b> 13002200 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Principles of AFNR <b>Recommended Corequisites:</b> None	
<b>Agricultural Mechanics and Metal Technologies + Agricultural Laboratory and Field Experience</b> 13002210 (2 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Principles of AFNR <b>Recommended Corequisites:</b> None	

Level 3

Course	Prerequisites   Corequisites	Career Clusters
<b>Geographic Information Systems (GIS) for Agriculture</b> N1300272 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Principles of AFNR <b>Recommended Corequisites:</b> None	
<b>Agricultural Structures Design and Fabrication</b> 13002300 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Agricultural Mechanics and Metal Technologies <b>Recommended Corequisites:</b> None	
<b>Agricultural Structures Design and Fabrication + Agricultural Laboratory and Field Experience</b> 13002310 (2 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Agricultural Mechanics and Metal Technologies <b>Recommended Corequisites:</b> None	
<b>Agricultural PowerSystems</b> 13002400 (2 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Principles of AFNR <b>Recommended Corequisites:</b> None	
<b>Agricultural PowerSystems + Agricultural Laboratory and Field Experience</b> 13002410 (3 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Principles of AFNR <b>Recommended Corequisites:</b> None	

\* Indicates course is included in more than one program of study.

For additional information on the **Agriculture, Food, and Natural Resources** career cluster, contact [cte@tea.texas.gov](mailto:cte@tea.texas.gov) or visit <https://tea.texas.gov/cte>



[LEA name] does not discriminate on the basis of race, color, national origin, sex, or disability in its programs or activities and provides equal access to the Boy Scouts and other designated youth groups. The following person has been designated to handle inquiries regarding the nondiscrimination policies: [title], [address], [telephone number], [email]. Further nondiscrimination information can be found at [Notification of Nondiscrimination in Career and Technical Education Programs](#).



# Agriculture, Food, and Natural Resources Career Cluster

## Statewide Program of Study: Agricultural Technology and Mechanical Systems

### Course Information

Level 4

Course	Prerequisites   Corequisites	Career Clusters
<b>Advanced Agriculture Power Systems</b> TBD (TBD credit)	<b>Prerequisites:</b> TBD <b>Corequisites:</b> TBD <b>Recommended Prerequisites:</b> TBD <b>Recommended Corequisites:</b> TBD	
<b>Agricultural Equipment Design and Fabrication</b> 13002350 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Agricultural Mechanics and Metal Technologies <b>Recommended Corequisites:</b> None	
<b>Agricultural Equipment Design and Fabrication + Agricultural Laboratory and Field Experience</b> 13002360 (2 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Agricultural Mechanics and Metal Technologies <b>Recommended Corequisites:</b> None	
<b>Practicum in Agriculture, Food, and Natural Resources*</b> First Time Taken: 13002500 (2 credits) Second Time Taken: 13002510 (2 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> a minimum of one credit from the courses in the AFNR career cluster <b>Recommended Corequisites:</b> None	
<b>Practicum in Agriculture, Food, and Natural Resources + Extended Practicum in Agriculture, Food, and Natural Resources*</b> First Time Taken: 13002505 (3 credits) Second Time Taken: 13002515 (3 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> a minimum of one credit from the courses in the AFNR career cluster <b>Recommended Corequisites:</b> None	
<b>Career Preparation for Programs of Study*</b> First Time Taken: 12701121 (2 credits)	<b>Prerequisites:</b> at least one Level 2 or higher CTE course <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Career Preparation for Programs of Study + Extended Career Preparation*</b> First Time Taken: 12701141 (3 credits)	<b>Prerequisites:</b> at least one Level 2 or higher CTE course <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Scientific Research and Design</b> 13037200 (1 credit)	<b>Prerequisites:</b> Biology, Chemistry, Integrated Physics, Chemistry (IPC), or Physics <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Career and Technical Education Project-Based Capstone*</b> First Time Taken: 12701101 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	

\* Indicates course is included in more than one program of study.

For additional information on the **Agriculture, Food, and Natural Resources** career cluster, contact [cte@tea.texas.gov](mailto:cte@tea.texas.gov) or visit <https://tea.texas.gov/cte>



[LEA name] does not discriminate on the basis of race, color, national origin, sex, or disability in its programs or activities and provides equal access to the Boy Scouts and other designated youth groups. The following person has been designated to handle inquiries regarding the nondiscrimination policies: [title], [address], [telephone number], [email]. Further nondiscrimination information can be found at [Notification of Nondiscrimination in Career and Technical Education Programs](#).

Agricultural Technology and Mechanical Systems



# 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 occupations, ranging from farmer, rancher, and veterinarian to geologist, land conservationist, and florist.

## Statewide 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.

### Secondary Courses for High School Credit



- |                |   |
|----------------|---|
| <b>Level 1</b> | <ul style="list-style-type: none"> <li>Principles of Agriculture, Food, and Natural Resources</li> </ul>  |
| <b>Level 2</b> | <ul style="list-style-type: none"> <li>Small Animal Management</li> <li>Equine Science</li> <li>Entrepreneurship I</li> </ul>   |
| <b>Level 3</b> | <ul style="list-style-type: none"> <li>Livestock Production</li> <li>Livestock Production + Agricultural Laboratory and Field Experience</li> </ul>   |
| <b>Level 4</b> | <ul style="list-style-type: none"> <li>Advanced Animal Science</li> <li>Veterinary Medical Applications</li> <li>Veterinary Medical Applications + Agricultural Laboratory and Field Experience</li> <li>Practicum in Agriculture, Food, and Natural Resources</li> <li>Practicum in Agriculture, Food, and Natural Resources + Extended Practicum in Agriculture, Food, and Natural Resources</li> <li>Practicum in Entrepreneurship</li> <li>Career Preparation for Programs of Study</li> <li>Career Preparation for Programs of Study + Extended Career Preparation</li> <li>Scientific Research and Design</li> <li>Career and Technical Education Project-Based Capstone</li> </ul> |

### Aligned Advanced Academic Courses

<b>AP or IB</b>	<ul style="list-style-type: none"> <li>AP Biology</li> <li>IB Biology SL</li> <li>IB Biology HL</li> </ul>
<b>Dual Credit</b>	Dual credit offerings will vary by Local Education Agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

### Work-Based Learning and Expanded Learning Opportunities

<b>Work-Based Learning Activities</b>	<ul style="list-style-type: none"> <li>Shadow an animal scientist in a biology lab to learn about applying science to understand animals and wildlife</li> <li>Intern in a veterinary clinic, caring for animals and wildlife being treated in the clinic</li> </ul>
<b>Expanded Learning Opportunities</b>	<ul style="list-style-type: none"> <li>Participate in an FFA career, leadership, and speaking contest like an agriscience fair</li> <li>Attend an agricultural industry seminar</li> </ul>

### Aligned Industry-Based Certifications

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



### 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

- Animal Sciences
- Biotechnology

#### Additional Stackable IBCs/Licensures

- Veterinarian
- Certified Veterinary Technician



### 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%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024



















For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study/additional-resources>

# Agriculture, Food, and Natural Resources Career Cluster

## Statewide Program of Study: Animal Science

### Course Information

Level	Course	Prerequisites   Corequisites	Career Clusters
Level 1	Principles of Agriculture, Food, and Natural Resources* 13000200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Level 2	Small Animal Management 13000400 (0.5 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
	Equine Science 13000500 (0.5 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
	Entrepreneurship I* 13011101 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Business, Marketing and Finance Recommended Corequisites: None	         
Level 3	Livestock Production 13000300 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
	Livestock Production/ Agricultural Laboratory and Field Experience 13000310 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Level 4	Advanced Animal Science 13000700 (1 credit)	Prerequisites: Biology and Chemistry or Integrated Physics and Chemistry (IPC); Algebra I and Geometry; and either Small Animal Management, Equine Science, or Livestock Production Corequisites: None Recommended Prerequisites: Veterinary Medical Applications Recommended Corequisites: None	

*Continued on next page*

\* Indicates course is included in more than one program of study.

For additional information on the Agriculture, Food, and Natural Resources career cluster, contact [cte@tea.texas.gov](mailto:cte@tea.texas.gov) or visit <https://tea.texas.gov/cte>

# Agriculture, Food, and Natural Resources Career Cluster

## Statewide Program of Study: Animal Science

### Course Information

Level 4

Course	Prerequisites   Corequisites	Career Clusters
<b>Veterinary Medical Applications</b> 13000600 (1 credit)	<b>Prerequisites:</b> Equine Science, Small Animal Management, or Livestock Production <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Veterinary Medical Applications + Agricultural Laboratory and Field Experience</b> 13000610 (2 credits)	<b>Prerequisites:</b> Equine Science, Small Animal Management, or Livestock Production <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Practicum in Agriculture, Food, and Natural Resources*</b> First Time Taken: 13002500 (2 credits) Second Time Taken: 13002510 (2 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> a minimum of one credit from the courses in the AFNR career cluster <b>Recommended Corequisites:</b> None	
<b>Practicum in Agriculture, Food, and Natural Resources + Extended Practicum in Agriculture, Food, and Natural Resources*</b> First Time Taken: 13002505 (3 credits) Second Time Taken: 13002515 (3 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> a minimum of one credit from the courses in the AFNR career cluster <b>Recommended Corequisites:</b> None	
<b>Practicum in Entrepreneurship*</b> First Time Taken: 13011111 (2 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Entrepreneurship I and Entrepreneurship II or successful completion of at least two courses in a CTE program of study <b>Recommended Corequisites:</b> None	         
<b>Career Preparation for Programs of Study*</b> First Time Taken: 12701121 (2 credits)	<b>Prerequisites:</b> at least one Level 2 or higher CTE course <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	             
<b>Career Preparation for Programs of Study + Extended Career Preparation*</b> First Time Taken: 12701141 (3 credits)	<b>Prerequisites:</b> at least one Level 2 or higher CTE course <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	             
<b>Scientific Research and Design*</b> 13037200 (1 credit)	<b>Prerequisites:</b> Biology, Chemistry, Integrated Physics, Chemistry (IPC), or Physics <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	     
<b>Career and Technical Education Project-Based Capstone*</b> First Time Taken: 12701101 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	       

\* Indicates course is included in more than one program of study.

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# 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 occupations, ranging from farmer, rancher, and veterinarian to geologist, land conservationist, and florist.

## Statewide Program of Study: Plant Science

The Plant Science program of study focuses on occupational and educational opportunities associated with the science, research, and business of plants and other living organisms. This program of study includes the application of biology and life science to real-world life processes of plants and vegetation, either in laboratories or in the field.



### Secondary Courses for High School Credit

- |                |  |
|----------------|--|
| <b>Level 1</b> | <ul style="list-style-type: none"> <li>Principles of Agriculture, Food, and Natural Resources</li> </ul>   |
| <b>Level 2</b> | <ul style="list-style-type: none"> <li>Landscape Design and Management</li> <li>Turf Grass Management</li> <li>Greenhouse Operation and Production</li> <li>Greenhouse Operation and Production + Agricultural Laboratory and Field Experience</li> <li>Entrepreneurship I</li> </ul>  |
| <b>Level 3</b> | <ul style="list-style-type: none"> <li>Viticulture</li> <li>Floral Design</li> <li>Floral Design + Agricultural Laboratory and Field Experience</li> <li>Horticultural Science</li> <li>Horticultural Science + Agricultural Laboratory and Field Experience</li> </ul>  |
| <b>Level 4</b> | <ul style="list-style-type: none"> <li>Advanced Plant and Soil Science</li> <li>Advanced Floral Design</li> <li>Practicum in Agriculture, Food, and Natural Resources</li> <li>Practicum in Agriculture, Food, and Natural Resources + Extended Practicum in Agriculture, Food, and Natural Resources</li> <li>Practicum in Entrepreneurship</li> <li>Career Preparation for Programs of Study</li> <li>Career Preparation for Programs of Study + Extended Career Preparation</li> <li>Career and Technical Education Project-Based Capstone</li> <li>Scientific Research and Design</li> </ul> |

### Aligned Advanced Academic Courses

<b>AP or IB</b>	<ul style="list-style-type: none"> <li>AP Biology</li> <li>AP Environmental Science</li> <li>IB Biology SL</li> <li>IB Biology HL</li> </ul>	<ul style="list-style-type: none"> <li>AP Chemistry</li> <li>IB Chemistry SL</li> <li>IB Chemistry HL</li> </ul>
<b>Dual Credit</b>	Dual credit offerings will vary by Local Education Agency	

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

### Work-Based Learning and Expanded Learning Opportunities

<b>Work-Based Learning Activities</b>	<ul style="list-style-type: none"> <li>Work in a part-time job at a landscaping company to learn about production and management of plants.</li> <li>Intern at an agricultural research company, working alongside a biological technician to learn about application of biology to plant production</li> </ul>
<b>Expanded Learning Opportunities</b>	<ul style="list-style-type: none"> <li>Participate in an FFA career, leadership, and speaking contest like an agriscience fair</li> <li>Participate in an industry-related competition like an agriscience fair</li> </ul>

### Aligned Industry-Based Certifications

- Agricultural Biotechnology
- BASF Plant Science Certification
- Commercial/NonCommercial Pesticide Applicator
- Commercial/NonCommercial Pesticide Applicator "Vegetation Management" License
- Horticulture - Landscaping - Job Ready
- Landscape Irrigator
- Principles of Floral Design Certification
- Production Agriculture - Job Ready
- Texas Certified Landscape Associate (TCLA)
- Texas Certified Nursery Professional
- Texas State Florist's Association Knowledge Based Floral Certification
- Texas State Florist's Association Level I Floral Certification
- Texas State Florist's Association Level II Floral Certification



### Example Postsecondary Opportunities

#### Apprenticeships

- Horticulturist

#### Associate Degrees

- Biology/Biological Sciences
- Biological and Physical Sciences

#### Bachelor's Degrees

- Horticulture
- Plant Pathology/Phytopathology

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

- Plant Breeding
- Botany/Plant Biology

#### Additional Stackable IBCs/Licensures

- Nursery Floral License
- Horticulturist Certification



### Example Aligned Occupations

#### Pesticide Handlers, Sprayers, and Applicators, Vegetation

Median Wage: \$46,153  
Annual Openings: 205  
10-Year Growth: 17%

#### Biological Technicians

Median Wage: \$45,787  
Annual Openings: 879  
10-Year Growth: 14%

#### Farmers, Ranchers, and Other Agricultural Managers

Median Wage: \$65,490  
Annual Openings: 28,020  
10-Year Growth: 4%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024



For more information visit:  
<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>



# Agriculture, Food, and Natural Resources Career Cluster

## Statewide Program of Study: *Plant Science*

### Course Information

Level 1

Course	Prerequisites   Corequisites	Career Clusters
<b>Principles of Agriculture, Food, and Natural Resources*</b> 1300200 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	

Level 2

Course	Prerequisites   Corequisites	Career Clusters
<b>Landscape Design and Management</b> 13001900 (0.5 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Turf Grass Management</b> 13001950 (0.5 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None	
<b>Greenhouse Operation and Production</b> 13002050 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Greenhouse Operation and Production + Agricultural Laboratory and Field Experience</b> 13002060 (2 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Entrepreneurship I*</b> 13011101 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Principles of Business, Marketing and Finance <b>Recommended Corequisites:</b> None	

Level 3

Course	Prerequisites   Corequisites	Career Clusters
<b>Viticulture</b> N1300265 (1 credit)	<b>Prerequisites:</b> at least one credit in a course from the AFNR career cluster <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Principles of AFNR <b>Recommended Corequisites:</b> None	
<b>Floral Design</b> 13001800 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Floral Design + Agricultural Laboratory and Field Experience</b> 13001810 (2 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	

*Continued on next page*

\* Indicates course is included in more than one program of study.

For additional information on the **Agriculture, Food, and Natural Resources** career cluster, contact [cte@tea.texas.gov](mailto:cte@tea.texas.gov) or visit <https://tea.texas.gov/cte>



# Agriculture, Food, and Natural Resources Career Cluster

## Statewide Program of Study: *Plant Science*

### Course Information

Level 3

Course	Prerequisites   Corequisites	Career Clusters
<b>Horticultural Science</b> 13002000 (1 credit)	<b>Prerequisites:</b> at least one credit in a course from the Agriculture, Food, and Natural Resources Career Cluster <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Horticultural Science + Agricultural Laboratory and Field Experience</b> 13002010 (2 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	

Level 4

Course	Prerequisites   Corequisites	Career Clusters
<b>Advanced Plant and Soil Science</b> 13002100 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Biology, Integrated Physics and Chemistry, Chemistry, or Physics and a minimum of one credit from the courses in the AFNR career cluster <b>Recommended Corequisites:</b> None	
<b>Advanced Floral Design</b> N1300270 (1 credit)	<b>Prerequisites:</b> Floral Design <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Practicum in Agriculture, Food, and Natural Resources*</b> First Time Taken: 13002500(2 credits) Second Time Taken: 13002510 (2 credits)	<b>Prerequisites:</b> a minimum of two credits with at least one course in a Level 2 or higher course from the AFNR career cluster <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	

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\* Indicates course is included in more than one program of study.

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# Agriculture, Food, and Natural Resources Career Cluster

## Statewide Program of Study: Plant Science

### Course Information

Level 4

Course	Prerequisites   Corequisites	Career Clusters
<b>Practicum in Agriculture, Food, and Natural Resources + Extended Practicum in Agriculture, Food, and Natural Resources*</b> First Time Taken: 13002505 (3 credits) Second Time Taken: 13002515 (3 credits)	<b>Prerequisites:</b> a minimum of two credits with at least one course in a Level 2 or higher course from the AFNR career cluster <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Practicum in Entrepreneurship*</b> First Time Taken: 13011111 (2 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Entrepreneurship I and Entrepreneurship II or successful completion of at least two courses in a CTE program of study <b>Recommended Corequisites:</b> None	
<b>Career Preparation for Programs of Study*</b> First Time Taken: 12701121 (2 credits)	<b>Prerequisites:</b> at least one Level 2 or higher CTE course <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Career Preparation for Programs of Study + Extended Career Preparation*</b> First Time Taken: 12701141 (3 credits)	<b>Prerequisites:</b> at least one Level 2 or higher CTE course <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Career and Technical Education Project-Based Capstone*</b> First Time Taken: 12701101 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Scientific Research and Design</b> 13037200 (1 credit)	<b>Prerequisites:</b> Biology, Chemistry, Integrated Physics, Chemistry (IPC), or Physics <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	

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# 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. This career cluster includes occupations ranging from business owner and entrepreneur to accountant, retail manager, and market analyst.

## Statewide Program of Study: *Business Management*

The Business Management program of study focuses on occupational and educational opportunities associated with planning, directing, and coordinating the administrative services and operations of an organization. It includes formulating policies, managing daily operations, and allocating the use of materials and human resources. This program of study also introduces students to mathematical modeling tools and organizational evaluation methods.



### Secondary Courses for High School Credit

- |                |  |
|----------------|--|
| <b>Level 1</b> | <ul style="list-style-type: none"> <li>Principles of Business, Marketing, and Finance</li> <li>Business Information Management I</li> <li>Business Information Management I + Business Lab</li> </ul>  |
| <b>Level 2</b> | <ul style="list-style-type: none"> <li>Virtual Business</li> <li>Business Law</li> <li>Business Information Management II</li> <li>Business Information Management II + Business Lab</li> <li>Entrepreneurship I</li> </ul>  |
| <b>Level 3</b> | <ul style="list-style-type: none"> <li>Business Management</li> <li>Global Business</li> <li>Human Resources Management</li> </ul>   |
| <b>Level 4</b> | <ul style="list-style-type: none"> <li>Statistics and Business Decision Making</li> <li>Practicum in Business Management</li> <li>Practicum in Business Management + Extended Practicum in Business Management</li> <li>Practicum in Entrepreneurship</li> <li>Career Preparation for Programs of Study</li> <li>Career Preparation for Programs of Study + Extended Career Preparation</li> </ul> |

### Aligned Advanced Academic Courses

<b>AP or IB</b>	AP Microeconomics AP Statistics	IB Economics SL IB Economics HL
<b>Dual Credit</b>	Dual credit offerings will vary by Local Education Agency.	

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

### Work-Based Learning and Expanded Learning Opportunities

<b>Work-Based Learning Activities</b>	<ul style="list-style-type: none"> <li>Intern at local business in the HR department</li> <li>Shadow the COO of a local business or chamber of commerce</li> </ul>
<b>Expanded Learning Opportunities</b>	<ul style="list-style-type: none"> <li>Participate in BPA, DECA, FBLA, or related UIL events</li> <li>Explore student membership in related professional organizations</li> </ul>

### Aligned Industry-Based Certifications

- Administrative Assisting
- Certified Associate in Project Management (CAPM)
- Entrepreneurship and Small Business
- General Management
- MB-920: Microsoft Dynamics 365 Fundamentals Finance and Operations Apps IBC info
- Microsoft Office Specialist 2016 Master
- Microsoft Office Specialist: Microsoft Access Expert (Access 2019)
- Microsoft Office Specialist: Microsoft Excel Expert (Excel 2019)
- Microsoft Office Specialist: Microsoft Word Expert (Word 2019)
- Project Management Institute (PMI) Project Management Ready
- Business of Retail: Certified Specialist
- Customer Service and Sales: Certified Specialist
- Student Social Media Marketing Certification



### Example Postsecondary Opportunities

#### Associate Degrees

- Business Administration and Management
- Human Resources Management



#### Bachelor's Degrees

- Business Analytics
- Accounting and Business

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

- Business Administration and Management
- Organizational Leadership

#### Additional Stackable IBCs/Licensures

- Professional Certificate in Team Leadership
- Property Tax Professionals



### Example Aligned Occupations

**First-Line Supervisors of Administrative Support Workers**  
 Median Wage: \$59,585  
 Annual Openings: 13,885  
 10-Year Growth: 9%

**Human Resources Specialists**  
 Median Wage: \$61,278  
 Annual Openings: 6,239  
 10-Year Growth: 23%

**General and Operations Managers**  
 Median Wage: \$83,220  
 Annual Openings: 25,450  
 10-Year Growth: 23%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:  
<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study/additional-resources>



# Business, Marketing, and Finance Career Cluster

## Statewide Program of Study: *Business Management*

### Course Information

Level 1

Course	Prerequisites   Corequisites	Career Clusters
<b>Principles of Business, Marketing, and Finance*</b> 13011200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
<b>Business Information Management I*</b> 13011400 (1 credit)	Prerequisites: None Recommended Corequisites: Business Information Management Lab Recommended Prerequisites: Touch Systems Data Entry Recommended Corequisites: None	
<b>Business Information Management I + Business Lab*</b> 13011410 (2 credits)	Prerequisites: None Recommended Corequisites: Business Information Management Recommended Prerequisites: Touch Systems Data Entry Recommended Corequisites: None	

Level 2

Course	Prerequisites   Corequisites	Career Clusters
<b>Virtual Business*</b> 13012000 (0.5 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Touch System Data Entry Recommended Corequisites: None	
<b>Business Law</b> 13011700 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
<b>Business Information Management II</b> 13011500 (1 credit)	Prerequisites: Business Information Management I Corequisites: None Recommended Prerequisites: Touch System Data Entry Recommended Corequisites: Business Information Management Lab	
<b>Business Information Management II + Business Lab</b> 13011510 (2 credits)	Prerequisites: Business Information Management I Corequisites: None Recommended Prerequisites: None Recommended Corequisites: BIM I or BIM II	
<b>Entrepreneurship I*</b> 13011101 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Business, Marketing and Finance Recommended Corequisites: None	

Level 3

Course	Prerequisites   Corequisites	Career Clusters
<b>Business Management</b> 13012100 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
<b>Global Business</b> 13011800 (0.5 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
<b>Human Resources Management*</b> 13011900 (0.5 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

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For additional information on the **Business, Marketing, and Finance** career cluster contact [cte@tea.texas.gov](mailto:cte@tea.texas.gov) or visit <https://tea.texas.gov/cte>



# Business, Marketing, and Finance Career Cluster

## Statewide Program of Study: *Business Management*

### Course Information

Level 4

Course	Prerequisites   Corequisites	Career Clusters
<b>Statistics and Business Decision Making*</b> 13016900 (1 credit)	Prerequisites: Algebra II Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
<b>Practicum in Business Management*</b> First Time Taken: 13012200 (2 credits) Second Time Taken: 13012210 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: Touch System Data Entry and Business Management or Business Information Management II Recommended Corequisites: None	
<b>Practicum in Business Management + Extended Practicum in Business Management*</b> First Time Taken: 13012205 (3 credits) Second Time Taken: 13012215 (3 credits)	Prerequisites: None Corequisites: Practicum in Business Management Recommended Prerequisites: Touch System Data Entry and Business Management or Business Information Management II Recommended Corequisites: None	
<b>Practicum in Entrepreneurship*</b> First Time Taken: 13011111 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: Entrepreneurship I and Entrepreneurship II or successful completion of at least two courses in a Career and Technical Education (CTE) program of study Recommended Corequisites: None	
<b>Career Preparation for Programs of Study*</b> First Time Taken: 12701121 (2 credits)	Prerequisites: at least one Level 2 or higher Career and Technical Education course Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
<b>Career Preparation for Programs of Study + Extended Career Preparation*</b> First Time Taken: 12701141 (3 credits)	Prerequisites: : at least one Level 2 or higher Career and Technical Education course Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

\* Indicates course is included in more than one program of study.

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# 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. This career cluster includes occupations ranging from medical assistant, registered nurse, and physical therapist to forensic science technician and athletic trainer.

## Statewide Program of Study: *Diagnostic and Therapeutic Services*

The Diagnostic and Therapeutic Services program of study focuses on occupational and educational opportunities associated with diagnosing and treating acute, episodic, or chronic illness independently or as part of a healthcare team. This program of study includes exploration of patient treatment and rehabilitative programs that help build or restore daily living skills to persons with disabilities or developmental delays.

### Secondary Courses for High School Credit



<b>Level 1</b>	<ul style="list-style-type: none"> <li>Principles of Health Science</li> <li>Principles of Diagnostic Healthcare</li> <li>Principles of Therapeutic Healthcare</li> <li>Principles of Allied Health</li> <li>Introduction to Dental Science</li> <li>Introduction to Imaging Technology</li> <li>Introduction to Pharmacy Science</li> </ul>
<b>Level 2</b>	<ul style="list-style-type: none"> <li>Medical Terminology</li> <li>Allied Health Therapeutic Services</li> <li>Dental Anatomy and Physiology</li> <li>Disaster Response</li> <li>Imaging Technology I</li> <li>Pharmacy I</li> </ul>
<b>Level 3</b>	<ul style="list-style-type: none"> <li>Anatomy and Physiology</li> <li>Medical Microbiology</li> <li>Medical Assistant</li> <li>Emergency Medical Technician–Basic</li> <li>Clinical Ethics</li> <li>Dental Equipment and Procedures</li> <li>Health Science Theory</li> <li>Health Science Theory+Health Science Clinical</li> <li>Respiratory Therapy I</li> <li>Imaging Technology II</li> <li>Pharmacy II</li> </ul>
<b>Level 4</b>	<ul style="list-style-type: none"> <li>Mathematics for Medical Professionals</li> <li>Pathophysiology</li> <li>Pharmacology</li> <li>Respiratory Therapy II</li> <li>Optical Technician</li> <li>Sterile Processing (TBD)</li> <li>Practicum in Health Science</li> <li>Practicum in Health Science + Extended Practicum in Health Science</li> <li>Career Preparation for Programs of Study</li> <li>Career Preparation for Programs of Study + Extended Career Preparation</li> </ul>

### Aligned Advanced Academic Courses

<b>AP or IB</b>	AP Biology IB Biology SL IB Biology HL	AP Chemistry IB Chemistry SL IB Chemistry HL
<b>Dual Credit</b>	Dual credit offerings will vary based on Local Education Agency.	

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

### Work-Based Learning and Expanded Learning Opportunities

<b>Work-Based Learning Activities</b>	<ul style="list-style-type: none"> <li>Intern with a medical assistant at a community clinic, hospital, assisted living or long-term care facility</li> <li>Participate in job shadowing experiences such as Emergency Medical Services (EMS) ride along, hospital/clinical job shadow</li> </ul>
<b>Expanded Learning Opportunities</b>	<ul style="list-style-type: none"> <li>Participate in Health Occupation Students of America (HOSA) or SkillsUSA</li> <li>Participate in Advanced Medical Ambulance Bus (AMBUS) event or Community Emergency Response Team (CERT) event</li> </ul>

### Aligned Industry-Based Certifications

- Certified Cardiographic Technician
- Certified Clinical Medical Assistant
- Certified Dental Assistant
- Certified EKG Technician
- Certified Nurse Aide (CNA)
- Certified Occupational Therapy Assistant
- Certified Patient Care Technician (CPCT)
- ECG Technician
- Emergency Medical Technician–Basic
- Limited Medical Radiologic Technologist
- Medical Assistant
- Medical Laboratory Assistant
- Medical Laboratory Technician
- Nationally Registered Certified EKG Technician
- Patient Care Technician
- Pharmacy Technician
- Phlebotomy Technician
- Registered Dental Assistant X-Ray Certification
- Emergency Medical Responder
- Certified Respiratory Therapist



### Example Postsecondary Opportunities

#### Apprenticeships

- Medical Assistant

#### Associate Degrees

- Emergency Medical Technology
- Radiologic Technology/Science

#### Bachelor's Degrees

- Emergency Medical Technology
- Medical Insurance Coding

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

- Medicine
- Occupational Therapy

#### Additional Stackable IBCs/Licensures

- Registered Diagnostic Medical Sonographer



### Example Aligned Occupations

#### Medical Assistants

Median Wage: \$36,834  
 Annual Openings: 11,638  
 10-Year Growth: 29%

#### Dental Hygienists

Median Wage: \$79,663  
 Annual Openings: 1,352  
 10-Year Growth: 32%

#### Physician Assistants

Median Wage: \$127,332  
 Annual Openings: 974  
 10-Year Growth: 41%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>



# Health Science Career Cluster

Statewide Program of Study: *Diagnostic and Therapeutic Services*

## Course Information

Level 1

Course	Prerequisites   Corequisites	Career Clusters
<b>Principles of Health Science*</b> 13020200 (1 credit)	Prerequisites: None Corequisites: None Recommended prerequisites: None Recommended corequisites: None	
<b>Principles of Diagnostic Healthcare</b> N1302106 (1 credit)	Prerequisites: None Corequisites: None Recommended prerequisites: None Recommended corequisites: None	
<b>Principles of Therapeutic Healthcare</b> N1302110 (1 credit)	Prerequisites: None Corequisites: None Recommended prerequisites: None Recommended corequisites: Biology	
<b>Principles of Allied Health*</b> N1302105 (1 credit)	Prerequisites: None Corequisites: None Recommended prerequisites: None Recommended corequisites: None	
<b>Introduction to Dental Science</b> N1302101 (1 credit)	Prerequisites: None Corequisites: None Recommended prerequisites: None Recommended corequisites: None	
<b>Introduction to Imaging Technology</b> N1302102 (1 credit)	Prerequisites: None Corequisites: None Recommended prerequisites: None Recommended corequisites: None	
<b>Introduction to Pharmacy Science</b> N1302103 (1 credit)	Prerequisites: None Corequisites: None Recommended prerequisites: None Recommended corequisites: None	

Level 2

Course	Prerequisites   Corequisites	Career Clusters
<b>Medical Terminology*</b> 13020300 (1 credit)	Prerequisites: None Corequisites: None Recommended prerequisites: None Recommended corequisites: None	
<b>Allied Health Therapeutic Services*</b> N1302120 (1 credit)	Prerequisites: None Corequisites: None Recommended prerequisites: Principles of Allied Health Recommended corequisites: None	
<b>Dental Anatomy and Physiology</b> N1302122 (1 credit)	Prerequisites: None Corequisites: None Recommended prerequisites: Biology and Introduction to Dental Science Recommended corequisites: None	
<b>Disaster Response</b> N1303011 (1 credit)	Prerequisites: None Corequisites: None Recommended prerequisites: Principles of Law, Public Safety, Corrections, and Security Recommended corequisites: None	
<b>Imaging Technology I</b> N1302123 (1 credit)	Prerequisites: None Corequisites: None Recommended prerequisites: Introduction to Imaging Technology Recommended corequisites: None	
<b>Pharmacy I</b> N1302127 (1 credit)	Prerequisites: None Corequisites: None Recommended prerequisites: Biology, Introduction to Pharmacy Science, or Principles of Health Science Recommended corequisites: None	

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# Health Science Career Cluster

Statewide Program of Study: *Diagnostic and Therapeutic Services*

## Course Information

Level 3

Course	Prerequisites   Corequisites	Career Clusters
<b>Anatomy and Physiology*</b> 13020600 (1 credit)	<b>Prerequisites:</b> One credit in Biology and one credit in Chemistry, Integrated Physics and Chemistry, or Physics <b>Corequisites:</b> None <b>Recommended prerequisites:</b> None <b>Recommended corequisites:</b> A course from the Health Science career cluster	
<b>Medical Microbiology*</b> 13020700 (1 credit)	<b>Prerequisites:</b> One credit in Biology, one credit in Chemistry, and at least one credit in a course from the Health Science career cluster <b>Corequisites:</b> None <b>Recommended prerequisites:</b> none <b>Recommended corequisites:</b> None	
<b>Medical Assistant</b> 13021015 (1 credit)	<b>Prerequisites:</b> Anatomy and Physiology (maybe a corequisite) <b>Corequisites:</b> Anatomy and Physiology (maybe a prerequisite) <b>Recommended prerequisites:</b> Medical Terminology <b>Recommended corequisites:</b> None	
<b>Emergency Medical Technician--Basic</b> N1303015 (2 credits)	<b>Prerequisites:</b> Biology <b>Corequisites:</b> None <b>Recommended prerequisites:</b> Principles of Law, Public Safety, Corrections, and Security; and Anatomy and Physiology <b>Recommended corequisites:</b> None	
<b>Clinical Ethics*</b> N1302121 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended prerequisites:</b> Principles of Nursing Science and Science of Nursing <b>Recommended corequisites:</b> None	
<b>Dental Equipment and Procedures</b> N1302130 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended prerequisites:</b> Introduction to Dental Science and Dental Anatomy and Physiology <b>Recommended corequisites:</b> None	
<b>Health Science Theory*</b> 13020400 (1 credit)	<b>Prerequisites:</b> One credit in Biology and at least one credit in a course from the Health Science career cluster. <b>Corequisites:</b> None <b>Recommended prerequisites:</b> Medical Terminology <b>Recommended corequisites:</b> Health Science Clinical	
<b>Health Science Theory+ Health Science Clinical*</b> 13020410 (2 credits)	<b>Prerequisites:</b> One credit in Biology and at least one credit in a course from the Health Science career cluster <b>Corequisites:</b> None <b>Recommended prerequisites:</b> None <b>Recommended corequisites:</b> None	
<b>Respiratory Therapy I</b> 13021120 (1 credit)	<b>Prerequisites:</b> At least one credit in a course from the Health Science career cluster <b>Corequisites:</b> None <b>Recommended prerequisites:</b> None <b>Recommended corequisites:</b> None	
<b>Imaging Technology II</b> N1302131 (2 credits)	<b>Prerequisites:</b> Imaging Technology I <b>Corequisites:</b> None <b>Recommended prerequisites:</b> Introduction to Imaging Technology <b>Recommended corequisites:</b> None	
<b>Pharmacy II</b> 13021030 (2 credits)	<b>Prerequisites:</b> One credit in Biology, one credit in Chemistry, and Pharmacy I <b>Corequisites:</b> None <b>Recommended prerequisites:</b> Algebra I, Introduction to Pharmacy Science, and Pharmacy I <b>Recommended corequisites:</b> None	

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# Health Science Career Cluster

Statewide Program of Study: *Diagnostic and Therapeutic Services*

## Course Information

Level 4

Course	Prerequisites   Corequisites	Career Clusters
<b>Mathematics for Medical Professionals*</b> 13020970 (1 credit)	<b>Prerequisites:</b> Geometry and Algebra II <b>Corequisites:</b> None <b>Recommended prerequisites:</b> None <b>Recommended corequisites:</b> None	
<b>Pathophysiology*</b> 13020800 (1 credit)	<b>Prerequisites:</b> One credit in Biology, one credit in Chemistry, and at least one credit in a Level 2 or higher course from the Health Science career cluster <b>Corequisites:</b> None <b>Recommended prerequisites:</b> Anatomy and Physiology <b>Recommended corequisites:</b> None	
<b>Pharmacology*</b> 13020950 (1 credit)	<b>Prerequisites:</b> One credit in Biology, one credit in Chemistry, and at least one credit in a Level 2 or higher course from the Health Science career cluster <b>Corequisites:</b> None <b>Recommended prerequisites:</b> None <b>Recommended corequisites:</b> None	
<b>Respiratory Therapy II</b> 13021122 (1 credit)	<b>Prerequisites:</b> Respiratory Therapy I <b>Corequisites:</b> None <b>Recommended prerequisites:</b> None <b>Recommended corequisites:</b> None	
<b>Optical Technician</b> N1302126 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended prerequisites:</b> Biology or Principles of Health Science <b>Recommended corequisites:</b> None	
<b>Sterile Processing</b> TBD	<b>Prerequisites:</b> TBD <b>Corequisites:</b> TBD <b>Recommended prerequisites:</b> TBD <b>Recommended corequisites:</b> TBD	
<b>Practicum in Health Science*</b> First Time Taken: 13020500 (2 credits) Second Time Taken: 13020510 (2 credits)	<b>Prerequisites:</b> Health Science Theory and Biology <b>Corequisites:</b> None <b>Recommended prerequisites:</b> None <b>Recommended corequisites:</b> None	
<b>Practicum in Health Science + Extended Practicum in Health Science*</b> First Time Taken: 13020505 (3 credits) Second Time Taken: 13020515 (3 credits)	<b>Prerequisites:</b> Health Science Theory and Biology <b>Corequisites:</b> None <b>Recommended prerequisites:</b> None <b>Recommended corequisites:</b> None	
<b>Career Preparation for Programs of Study</b> (2 credits)	<b>Prerequisites:</b> At least one Level 2 or higher Career and Technical Education course <b>Corequisites:</b> None <b>Recommended prerequisites:</b> None <b>Recommended corequisites:</b> None	
<b>Career Preparation for Programs of Study + Extended Career Preparation</b> (3 credits)	<b>Prerequisites:</b> At least one Level 2 or higher Career and Technical Education course <b>Corequisites:</b> None <b>Recommended prerequisites:</b> None <b>Recommended corequisites:</b> None	

\* Indicates course is included in more than one program of study.

For additional information on the **Health Science career cluster**, contact [cte@tea.texas.gov](mailto:cte@tea.texas.gov) or visit <https://tea.texas.gov/cte>



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# Information Technology Career Cluster

The Information Technology (IT) career cluster focuses on the design, development, support, and management of hardware, software, multimedia, and systems integration services. This career cluster includes occupations ranging from Software Developer and Programmer to Cybersecurity Specialists and Network Analysts.

## Statewide Program of Study: Cybersecurity

The Cybersecurity program of study focuses on occupational and educational opportunities associated with planning, implementing, upgrading, or monitoring security measures for the protection of computer networks and information. This program of study includes responding to computer security breaches and viruses and administering network security measures.



### Secondary Courses for High School Credit

- |                |   |
|----------------|---|
| <b>Level 1</b> | <ul style="list-style-type: none"> <li>Principles of Information Technology</li> <li>Fundamentals of Computer Science</li> <li>Foundations of Cybersecurity</li> </ul>  |
| <b>Level 2</b> | <ul style="list-style-type: none"> <li>Computer Science I</li> <li>Internetworking Technologies I (Cisco)</li> <li>Computer Maintenance</li> <li>Computer Maintenance/Computer Maintenance Lab</li> <li>AP Computer Science Principles</li> </ul>   |
| <b>Level 3</b> | <ul style="list-style-type: none"> <li>Engineering Applications of Computer Science Principles</li> <li>Internetworking Technologies II (Cisco)</li> <li>Advanced Cloud Computing</li> <li>Digital Forensics</li> <li>Discrete Mathematics for Computer Science</li> <li>Networking</li> <li>Networking/Networking Lab</li> <li>AP Computer Science A</li> <li>IB Computer Science Standard Level</li> <li>IB Computer Science Higher Level</li> </ul>  |
| <b>Level 4</b> | <ul style="list-style-type: none"> <li>Cybersecurity Capstone</li> <li>Independent Study In Technology Applications</li> <li>Independent Study in Evolving/Emerging Technologies</li> <li>Practicum in Information Technology</li> <li>Practicum in Information Technology + Extended Practicum in Information Technology</li> <li>Practicum in Science, Technology, Engineering, and Mathematics</li> <li>Practicum in Science, Technology, Engineering, and Mathematics + Extended Practicum in Science, Technology, Engineering, and Mathematics</li> <li>Career Preparation for Programs of Study</li> <li>Career Preparation for Programs of Study + Extended Career Preparation</li> <li>Career and Technical Education Project-Based Capstone</li> </ul> |

### Aligned Advanced Academic Courses

<b>AP or IB</b>	AP Computer Science A AP Computer Science Principles
<b>Dual Credit</b>	Dual credit offerings will vary by Local Education Agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

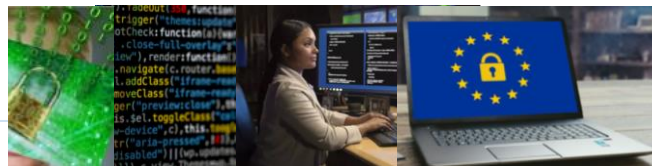
### Work-Based Learning and Expanded Learning Opportunities

<b>Work-Based Learning Activities</b>	<ul style="list-style-type: none"> <li>Intern at a local bank, hospital, or government office to develop skills in implementing security measures</li> <li>Interview an information security analyst to learn how they plan for, monitor, and upgrade security measures at their organization</li> </ul>
<b>Expanded Learning Opportunities</b>	<ul style="list-style-type: none"> <li>Participate in a Hackathon</li> <li>Participate in TSA or SkillsUSA</li> </ul>

### Aligned Industry-Based Certifications

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>Cisco 100-490 RSTech Supporting Cisco Routing and Switching Network Devices</li> <li>Cisco 200-201 CBROPS - Understanding Cisco Cybersecurity Operations Fundamentals</li> <li>Cisco CCNA (200-301) Implementing and Administering Cisco Solutions</li> <li>CodeHS Cybersecurity Level 1 Certification</li> <li>CompTIA A+ Certification</li> <li>CompTIA IT Fundamentals+</li> <li>CompTIA Network+</li> <li>CompTIA Security+</li> <li>Computer Networking Fundamentals - Job Ready</li> </ul> | <ul style="list-style-type: none"> <li>Cybersecurity Fundamentals</li> <li>Cybersecurity Fundamentals: An ISACA Certificate</li> <li>Information Technology Specialist: Networking</li> <li>Information Technology Specialist: Java</li> <li>Information Technology Specialist: JavaScript</li> <li>Microsoft 365 Fundamentals</li> <li>Microsoft Security, Compliance, and Identity Fundamentals</li> <li>Oracle Certified Associate Java SE 8 Programmer</li> <li>Cloud Essentials+</li> <li>CompTIA Linux+</li> <li>CompTIA Server+</li> </ul> |
|---|---|

Successful completion of the Cybersecurity program of study will fulfill requirements of the STEM Endorsement if the math and science requirements are met or the Business and Industry endorsement.



### Examples Postsecondary Opportunities

#### Associate Degrees

- Computer and Information Systems Security
- Computer Programming



#### Bachelor's Degrees

- Computer Science
- Computer Software Engineering

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

- Computer and Information Systems Security/Auditing/Information Assurance
- Computer Software Engineering

#### Additional Stackable IBCs/Licensures

- Certified Ethical Hacker (CEH)



### Example Aligned Occupations

#### Computer User Support Specialists

Median Wage: \$51,411  
Annual Openings: 5,757  
10-Year Growth: 21%

#### Software Developers

Median Wage: \$111,705  
Annual Openings: 15,324  
10-Year Growth: 36%

#### Information Security Analysts

Median Wage: \$110,268  
Annual Openings: 1,719  
10-Year Growth: 49%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:  
<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>



# Information Technology Career Cluster

## Statewide Program of Study: Cybersecurity

### Course Information

Level 1

Course	Prerequisites   Corequisites	Career Clusters
<b>Principles of Information Technology*</b> 13027200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
<b>Fundamentals of Computer Science*</b> 03580140 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
<b>Foundations of Cybersecurity</b> 03580850 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

Level 2

Course	Prerequisites   Corequisites	Career Clusters
<b>Computer Science I*</b> 03580200 (1 credit)	Prerequisites: Algebra I <i>or</i> Corequisites: Algebra I Recommended Prerequisites: None Recommended Corequisites: None	
<b>Internetworking Technologies I (Cisco)*</b> N1302803 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
<b>Computer Maintenance*</b> 13027300 (1 credit)	Prerequisites: None Recommended Corequisites: Computer Maintenance Lab Recommended Prerequisites: Principles of Information Technology Recommended Corequisites: None	
<b>Computer Maintenance + Computer Maintenance Lab*</b> 13027310 (2 credits)	Prerequisites: None Recommended Corequisites: Computer Maintenance Recommended Prerequisites: None Recommended Corequisites: None	
<b>AP Computer Science Principles*</b> A3580300 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Algebra I Recommended Corequisites: None	

Level 3

Course	Prerequisites   Corequisites	Career Clusters
<b>Engineering Applications of Computer Science Principles</b> N1303772 (1 credit)	Prerequisites: Algebra I Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
<b>Internetworking Technologies II (Cisco)*</b> N1302804 (1 credit)	Prerequisites: Internetworking Technologies I Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
<b>Advanced Cloud Computing*</b> N1302813 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: At least one credit in a Level 2 or higher course in computer science, programming, software development, or networking systems. Recommended Corequisites: None	

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\* Indicates course is included in more than one program of study.

For additional information on the **Information Technology** career cluster, contact [cte@tea.texas.gov](mailto:cte@tea.texas.gov) or visit <https://tea.texas.gov/cte>



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# Information Technology Career Cluster

## Statewide Program of Study: Cybersecurity

### Course Information

Level 3

Course	Prerequisites   Corequisites	Career Clusters
<b>Digital Forensics</b> 03580360 (1 credit)	<b>Prerequisites:</b> Foundations of Cybersecurity <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Discrete Mathematics for Computer Science*</b> 03580370 (1 credit)	<b>Prerequisites:</b> Algebra II <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Networking*</b> 13027400 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> Networking Lab <b>Recommended Prerequisites:</b> Principles of Information Technology, Computer Maintenance, and Computer Maintenance Lab <b>Recommended Corequisites:</b> None	
<b>Networking + Networking Lab*</b> 13027410 (2 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> Networking <b>Recommended Prerequisites:</b> Principles of Information Technology, Computer Maintenance, and Computer Maintenance Lab <b>Recommended Corequisites:</b> None	
<b>AP Computer Science A</b> A3580110 (1 math credit) A3580120 (1 LOTE credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Algebra I or a student should be comfortable with functions and the concepts found in the uses of functional notation such as $f(x) = x + 2$ and $f(x) = g(h(x))$ <b>Recommended Corequisites:</b> None	
<b>IB Computer Science Standard Level*</b> I3580200 (2 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Computer Science I, Algebra II <b>Recommended Corequisites:</b> None	
<b>IB Computer Science Higher Level *</b> I3580310 (1 math credit) I3580320 (1 LOTE credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Computer Science I, Algebra II <b>Recommended Corequisites:</b> None	

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# Information Technology Career Cluster

## Statewide Program of Study: Cybersecurity

### Course Information

Level 4

Course	Prerequisites   Corequisites	Career Clusters
<b>Cybersecurity Capstone</b> 03580855 (1 credit)	<b>Prerequisites:</b> Foundations of Cybersecurity <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Independent Study In Technology Applications</b> First Time Taken: 03580900 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> a minimum of one credit from the courses in the Information Technology Career Cluster <b>Recommended Corequisites:</b> None	
<b>Independent Study in Evolving/Emerging Technologies</b> First Time Taken: 03581500 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> a minimum of one credit from the courses in the Information Technology Career Cluster <b>Recommended Corequisites:</b> None	
<b>Practicum in Information Technology*</b> First Time Taken: 13028000 (2 credits) Second Time Taken: 13028010 (2 credits)	<b>Prerequisites:</b> A minimum of two high school information technology (IT) courses <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Practicum in Information Technology + Extended Practicum in Information Technology*</b> First Time Taken: 13028005 (3 credits) Second Time Taken: 13028015 (3 credits)	<b>Prerequisites:</b> Minimum of two high school information technology (IT) courses. <b>Corequisites:</b> Practicum in Information Technology <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Practicum in Science, Technology, Engineering, and Mathematics</b> First Time Taken: 13037400 (2 credits) Second Time Taken: 13037410 (2 credits)	<b>Prerequisites:</b> Algebra I and Geometry <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	

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# Information Technology Career Cluster

## Statewide Program of Study: Cybersecurity

### Course Information

Level 4

Course	Prerequisites   Corequisites	Career Clusters
<b>Practicum in Science, Technology, Engineering, and Mathematics + Extended Practicum in Science, Technology, Engineering, and Mathematics</b> First Time Taken: 13037405 (3 credits) Second Time Taken: 13037415 (3 credits)	<b>Prerequisites:</b> Algebra I and Geometry <b>Corequisites:</b> Practicum in Science, Technology, Engineering, and Mathematics <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Career Preparation for Programs of Study</b> First Time Taken: 12701121 (2 credits)	<b>Prerequisites:</b> at least one Level 2 or higher Career and Technical Education course <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Career Preparation for Programs of Study + Extended Career Preparation</b> First Time Taken: 12701141(3 credits)	<b>Prerequisites:</b> at least one Level 2 or higher Career and Technical Education course <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Career and Technical Education Project-Based Capstone</b> First Time Taken: 12701101 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	

\* Indicates course is included in more than one Program of Study.

For additional information on the **Information Technology** career cluster, contact [cte@tea.texas.gov](mailto:cte@tea.texas.gov) or visit <https://tea.texas.gov/cte>



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# 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. This career cluster includes occupations ranging from police officer and firefighter to political scientist and lawyer.

## Statewide Program of Study: Fire Science

The Fire Science program of study focuses on occupational and educational opportunities associated with fire prevention, protection, and firefighting. This program of study includes firefighter safety, building codes, and the necessary physical skills to perform rescues. Students will learn about preparedness, basic fire suppression techniques, basic arson investigation, hazardous material management, and educating the public about fire safety.



### Secondary Courses for High School Credit

**Level 1**

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

**Level 2**

- Disaster Response
- Fundamentals of Fire Protection (TBD)

**Level 3**

- Firefighter I
- National Security
- Emergency Medical Technician—Basic
- Crisis Care (TBD)
- Fire Prevention and Protections Systems (TBD)
- Fire Prevention Codes and Inspections (TBD)
- Anatomy and Physiology

**Level 4**

- Firefighter II
- Practicum in Law, Public Safety, Corrections, and Security
- Practicum in Law, Public Safety, Corrections, and Security + Extended Practicum in Law, Public Safety, Corrections, and Security
- Career Preparation for Programs of Study
- Career Preparation for Programs of Study + Extended Career Preparation
- Career and Technical Education Project-Based Capstone

### Aligned Advanced Academic Courses

**Dual Credit** Dual credit offerings will vary by Local Education Agency

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

### Work-Based Learning and Expanded Learning Opportunities

**Work-Based Learning Activities**

- Shadow a fire chief to learn about fire department operations and skills needed to be a firefighter
- Intern with a fire inspection company to learn about building safety, fire prevention, and fire protection

**Expanded Learning Opportunities**

- Tour a local fire department
- Participate in SkillsUSA

### Aligned Industry-Based Certifications

- Emergency Medical Technician – Basic
- IAED Emergency Telecommunicator
- Basic Structure Fire Protection
- Emergency Medical Responder



### Example Postsecondary Opportunities

**Apprenticeships**

- Fire Apprentice

**Associate Degrees**

- Emergency Medical Technology
- Fire Protection Technology

**Bachelor's Degrees**

- Fire Science
- Emergency Health Services

**Additional Stackable IBCs/Licensures**

- Hazardous Materials Awareness
- Fire Plan Examiner



### Example Aligned Occupations

**Emergency Medical Technicians**

Median Wage: \$34,169  
Annual Openings: 1,590  
10-Year Growth: 19%

**Firefighters**

Median Wage: \$52,353  
Annual Openings: 2,294  
10-Year Growth: 14%

**Fire Inspectors and Investigators**

Median Wage: \$67,014  
Annual Openings: 203  
10-Year Growth: 14%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:  
<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>



# Law and Public Service Career Cluster

## Statewide Program of Study: Fire Science

### Course Information

Level 1

Course	Prerequisites   Corequisites	Career Clusters
<b>Principles of Law, Public Safety, Corrections, and Security*</b> 13029200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

Level 2

Course	Prerequisites   Corequisites	Career Clusters
<b>Disaster Response</b> N1303011 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Law, Public Safety, Corrections, and Security Recommended Corequisites: None	
<b>Fundamentals of Fire Protection</b> TBD (TBD credit)	Prerequisites: TBD Corequisites: TBD Recommended Prerequisites: TBD Recommended Corequisites: TBD	

Level 3

Course	Prerequisites   Corequisites	Career Clusters
<b>Firefighter I</b> 13029900 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Law, Public Safety, Corrections, and Security Recommended Corequisites: None	
<b>National Security</b> 13018800 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Government and Public Administration and Public Management and Administration or Principles of Law, Public Safety, Corrections, and Security or Junior Reserve Officer Training Corps (JROTC) coursework Recommended Corequisites: None	
<b>Emergency Medical Technician— Basic</b> N1303015 (2 credits)	Prerequisites: Biology Corequisites: None Recommended Prerequisites: Principles of Law, Public Safety, Corrections, and Security; and Anatomy and Physiology Recommended Corequisites: None	
<b>Anatomy and Physiology</b> 13020600 (1 credits)	Prerequisites: One credit in Biology and one credit in Chemistry, Integrated Physics and Chemistry, or Physics Corequisites: None Recommended Prerequisites: a course from the Health Science career cluster Recommended Corequisites: None	
<b>Crisis Care*</b> TBD (TBD credit)	Prerequisites: TBD Corequisites: TBD Recommended Prerequisites: TBD Recommended Corequisites: TBD	
<b>Fire Prevention and Protections Systems</b> TBD (TBD credit)	Prerequisites: TBD Corequisites: TBD Recommended Prerequisites: TBD Recommended Corequisites: TBD	
<b>Fire Prevention Codes and Inspections</b> TBD (TBD credit)	Prerequisites: TBD Corequisites: TBD Recommended Prerequisites: TBD Recommended Corequisites: TBD	

\* Indicates course is included in more than one program of study.

For additional information on the Law and Public Service career cluster, contact [cte@tea.texas.gov](mailto:cte@tea.texas.gov) or visit <https://tea.texas.gov/cte>



# Law and Public Service Career Cluster

## Statewide Program of Study: Fire Science

### Course Information

Level 4

Course	Prerequisites   Corequisites	Career Clusters
<b>Firefighter II</b> 13030000 (3 credits)	<b>Prerequisites:</b> Firefighter I <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> Principles of Law, Public Safety, Corrections, and Security <b>Recommended Corequisites:</b> None	
<b>Practicum in Law, Public Safety, Corrections, and Security*</b> First Time Taken: 13030100 (2 credits) Second Time Taken: 13030110 (2 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Practicum in Law, Public Safety, Corrections, and Security + Extended Practicum in Law, Public Safety, Corrections, and Security*</b> First Time Taken: 13030105 (3 credits) Second Time Taken: 13030115 (3 credits)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Career Preparation for Programs of Study*</b> First Time Taken: 12701121 (2 credits)	<b>Prerequisites:</b> at least one Level 2 or higher Career and Technical Education course <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Career Preparation for Programs of Study + Extended Career Preparation*</b> First Time Taken: 12701141 (3 credits)	<b>Prerequisites:</b> at least one Level 2 or higher Career and Technical Education course <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Career and Technical Education Project-Based Capstone</b> First Time Taken: 12701101 (1 credit)	<b>Prerequisites:</b> None <b>Corequisites:</b> None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	

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For additional information on the **Law and Public Service** career cluster, contact [cte@tea.texas.gov](mailto:cte@tea.texas.gov) or visit <https://tea.texas.gov/cte>



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# 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. This career cluster includes occupations ranging from police officer and firefighter to political scientist and lawyer.

## Statewide Program of Study: Law Enforcement

The Law Enforcement program of study focuses on occupational and educational opportunities associated with the development and enforcement of laws by various branches of law enforcement. This program of study includes the history, organization, and functions of local, state, and federal law enforcement. Students will understand the role of constitutional law at local, state, and federal levels; the U.S. legal system; criminal law; and law enforcement terminology and the classification and elements of crime.



### Secondary Courses for High School Credit

- Level 1**
  - Principles of Law, Public Safety, Corrections, and Security

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- Level 2**
  - Law Enforcement I
  - Criminal Investigation
  - Federal Law Enforcement and Protective Services

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- Level 3**
  - Law Enforcement II
  - Correctional Services
  - Forensic Psychology
  - Counseling and Mental Health
  - Crisis Care (TBD)

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- Level 4**
  - Forensic Science
  - Practicum in Law, Public Safety, Corrections, and Security
  - Practicum in Law, Public Safety, Corrections, and Security + Extended Practicum in Law, Public Safety, Corrections, and Security
  - Career Preparation for Programs of Study
  - Career Preparation for Programs of Study + Extended Career Preparation

### Aligned Advanced Academic Courses

**Dual Credit** Dual credit offerings will vary by Local Education Agency

*Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.*

### Work-Based Learning and Expanded Learning Opportunities

**Work-Based Learning Activities**

- Shadow a detective to learn about investigations and the role of detectives in law enforcement
- Intern in dispatch at a local law enforcement agency to learn about first responder roles and processes

**Expanded Learning Opportunities**

- Visit a police department
- Participate in TSA or SkillsUSA

### Aligned Industry-Based Certifications

- IAED Emergency Telecommunicator
- Non-Commissioned Security Officer Level II License



### Example Postsecondary Opportunities

**Apprenticeships**

- Security Specialist

**Associate Degrees**

- Criminal Justice
- Law Enforcement

**Bachelor's Degrees**

- Forensic Science
- Criminal Justice

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

- Criminal Justice
- Criminology and Criminal Justice

**Additional Stackable IBCs/Licensures**

- Jailer – Basic County Corrections
- Basic Telecommunicator



### Example Aligned Occupations

**Police and Sheriff's Patrol Officers**

Median Wage: \$64,373  
Annual Openings: 5,424  
10-Year Growth: 13%

**Detectives and Criminal Investigators**

Median Wage: \$82,090  
Annual Openings: 1,536  
10-Year Growth: 8%

**First-Line Supervisors of Police and Detectives**

Median Wage: \$97,571  
Annual Openings: 5461  
0-Year Growth: 12%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:  
<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>



# Law and Public Service Career Cluster

## Statewide Program of Study: Law Enforcement

### Course Information

	Course	Prerequisites   Corequisites	Career Clusters
Level 1	<b>Principles of Law, Public Safety, Corrections, and Security*</b> 13029200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Level 2	<b>Law Enforcement I</b> 13029300 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisite: Principles of Law, Public Safety, Corrections, and Security Recommended Corequisites: None	
	<b>Criminal Investigation</b> 13029550 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisite: Principles of Law, Public Safety, Corrections, and Security Recommended Corequisites: None	
	<b>Federal Law Enforcement and Protective Services*</b> 13029800 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisite: Principles of Law, Public Safety, Corrections, and Security Recommended Corequisites: None	
Level 3	<b>Law Enforcement II</b> 13029400 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisite: Law Enforcement I Recommended Corequisites: None	
	<b>Correctional Services</b> 13029700 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisite: Principles of Law, Public Safety, Corrections, and Security Recommended Corequisites: None	
	<b>Forensic Psychology</b> N1303012 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisite: Law Enforcement I and Psychology Recommended Corequisites: None	
	<b>Counseling and Mental Health</b> 13024600 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisite: Principles of Human Services Recommended Corequisites: None	
	<b>Crisis Care*</b> TBD (TBD credit)	Prerequisites: TBD Corequisites: TBD Recommended Prerequisite: TBD Recommended Corequisites: TBD	
Level 4	<b>Forensic Science</b> 13029500 (1 credit)	Prerequisites: one credit in Biology, one credit in Chemistry, Integrated Physics and Chemistry, or Physics Corequisites: None Recommended Prerequisite: None Recommended Corequisites: None	

\* Indicates course is included in more than one program of study.

For additional information on the Law and Public Service career cluster, contact [cte@tea.texas.gov](mailto:cte@tea.texas.gov) or visit <https://tea.texas.gov/cte>

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# Law and Public Service Career Cluster

## Statewide Program of Study: Law Enforcement

### Course Information

Level 4	Course	Prerequisites   Corequisites	Career Clusters
	<b>Practicum in Law, Public Safety, Corrections, and Security*</b> First Time Taken: 13030100 (2 credits) Second Time Taken: 13030110 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
	<b>Practicum in Law, Public Safety, Corrections, and Security + Extended Practicum in Law, Public Safety, Corrections, and Security*</b> First Time Taken: 13030105 (3 credits) Second Time Taken: 13030115 (3 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
	<b>Career Preparation for Programs of Study*</b> First Time Taken: 12701121 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
	<b>Career Preparation for Programs of Study + Extended Career Preparation*</b> First Time Taken: 12701141 (3 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

\* Indicates course is included in more than one program of study.

For additional information on the Law and Public Service career cluster, contact [cte@tea.texas.gov](mailto:cte@tea.texas.gov) or visit <https://tea.texas.gov/cte>

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# Manufacturing Career Cluster

The Manufacturing career cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and process engineering. This career cluster includes occupations ranging from Welder and Machinist to Industrial Engineering Technician, and Semi-Conductor Processing Technician.

## Statewide Program of Study: Welding

The Welding program of study focuses on occupational and educational opportunities associated with the development and use of automatic and computer-controlled machines, tools, and robots that perform work on metal or plastic. This program of study addresses how to modify parts to make or repair machine tools or maintain individual machines, and how to use hand-welding or flame-cutting equipment.



### Secondary Courses for High School Credit

- |                |   |
|----------------|---|
| <b>Level 1</b> | <ul style="list-style-type: none"> <li>• Introduction to Welding</li> <li>• Principles of Manufacturing</li> </ul>  |
| <b>Level 2</b> | <ul style="list-style-type: none"> <li>• Occupational Safety and Environmental Technology I</li> <li>• Introduction to Film Interpretation of Weldments</li> <li>• Welding I</li> <li>• Entrepreneurship I</li> </ul>   |
| <b>Level 3</b> | <ul style="list-style-type: none"> <li>• Welding II</li> <li>• Welding II + Welding II Lab</li> </ul>   |
| <b>Level 4</b> | <ul style="list-style-type: none"> <li>• Practicum in Entrepreneurship</li> <li>• Practicum in Manufacturing</li> <li>• Practicum in Manufacturing + Extended Practicum in Manufacturing</li> <li>• Career Preparation for Programs of Study</li> <li>• Career Preparation for Programs of Study + Extended Career Preparation</li> </ul> |

### Aligned Advanced Academic Courses

**Dual Credit** Dual credit offerings will vary by Local Education Agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count toward Completer status for this program of study.

### Work-Based Learning and Expanded Learning Opportunities

- |  |   |
|--|---|
| <b>Work-Based Learning Activities</b>  | <ul style="list-style-type: none"> <li>• Job shadow a welder</li> <li>• Intern for a local welding company</li> </ul>   |
| <b>Expanded Learning Opportunities</b> | <ul style="list-style-type: none"> <li>• Tour a welding shop</li> <li>• Participate in SkillsUSA</li> <li>• Participate in a welding project that benefits the community</li> </ul> |

### Industry-Based Certifications

- API 1104 Welding Pipelines and Related Facilities
- AWS Certified Welder
- AWS D1.1 Structural Steel
- AWS D9.1 Sheet Metal Welding
- AWS SENSE Level I: Entry Welder
- Industrial Technology Maintenance (ITM)
- Maintenance Welding
- NCCER Construction Technology Certification Level I
- NCCER Core
- NCCER Welding Level I
- Welding - Job Ready



### Postsecondary Opportunities

#### Apprenticeships

- Welding

#### Associate Degrees

- Welding Technology
- Building/Construction Site Management
- Operations Management and Supervision

#### Bachelor's Degrees

- Welding Technology
- Construction Management
- Project Management
- Building/Construction Site Management

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

- Engineering
- Engineering/Industrial Management
- Manufacturing Engineering
- Construction Engineering



### Example Aligned Occupations

#### Welders, Cutters, Solderers, and Brazers

Median Wage: \$48,177  
Annual Openings: 6,792  
10-Year Growth: 23%

#### First-Line Supervisors of Production and Operating Workers

Median Wage: \$62,584  
Annual Openings: 5,926  
10-Year Growth: 17%

#### Industrial Production Managers

Median Wage: \$119,691  
Annual Openings: 1,296  
10-Year Growth: 19%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>






# Manufacturing Career Cluster
















## Statewide Program of Study: Welding

### Course Information



Level 1

Course	Prerequisites   Corequisites	Career Clusters
<b>Introduction to Welding</b> 13032250 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Algebra I Recommended Corequisites: Algebra I	 
<b>Principles of Manufacturing*</b> 13032200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Algebra I or Geometry Recommended Corequisites: None	

Level 2

Course	Prerequisites   Corequisites	Career Clusters
<b>Occupational Safety and Environmental Technology I</b> N1303680 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Transportation Systems, Principles of Distribution and Logistics, or Principles of Manufacturing Recommended Corequisites: None	  
<b>Introduction to Film Interpretation of Weldments</b> N1303687 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Algebra I Recommended Corequisites: None	
<b>Welding I</b> 13032300 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: Algebra I, Principles of Manufacturing, Introduction to Precision Metal Manufacturing, or Introduction to Welding Recommended Corequisites: None	
<b>Entrepreneurship I</b> 13011101 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Business, Marketing and Finance Recommended Corequisites: None	         

Level 3

Course	Prerequisites   Corequisites	Career Clusters
<b>Welding II</b> 13032400 (2 credits)	Prerequisites: Welding I Corequisites: None Recommended Prerequisites: Algebra I or Geometry Recommended Corequisites: None	
<b>Welding II + Welding II Lab</b> 13032410 (3 credits)	Prerequisites: Welding I Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

\* Indicates course is included in more than one program of study.

For additional information on the **Manufacturing** career cluster, contact [cte@tea.texas.gov](mailto:cte@tea.texas.gov) or visit <https://tea.texas.gov/cte>



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# Manufacturing Career Cluster

## Statewide Program of Study: Welding

### Course Information

Level 4

Course	Prerequisites   Corequisites	Career Clusters
<b>Practicum in Entrepreneurship</b> First Time Taken: 13011111 (2 credits)	Prerequisites: None Corequisites: None <b>Recommended Prerequisites:</b> Entrepreneurship I and Entrepreneurship II or successful completion of at least two courses in a career and technical education (CTE) program of study <b>Recommended Corequisites:</b> None	
<b>Practicum in Manufacturing</b> First Time Taken: 13033000 (2 credits) Second Time Taken: 13033010 (2 credits)	Prerequisites: None Corequisites: None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Practicum in Manufacturing + Extended Practicum in Manufacturing*</b> First Time Taken: 13033005 (3 credits) Second Time Taken: 13033015 (3 credits)	Prerequisites: None Corequisites: None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Career Preparation for Programs of Study</b> First Time Taken: 12701121 (2 credits)	Prerequisites: at least one Level 2 or higher Career and Technical Education Corequisites: None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	
<b>Career Preparation for Programs of Study + Extended Career Preparation</b> First Time Taken: 12701141 (3 credits)	Prerequisites: at least one Level 2 or higher Career and Technical Education Corequisites: None <b>Recommended Prerequisites:</b> None <b>Recommended Corequisites:</b> None	

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