



2025 - 2026

Career and Technical Education Guide





FHS CTE

Career Clusters and Programs of Study

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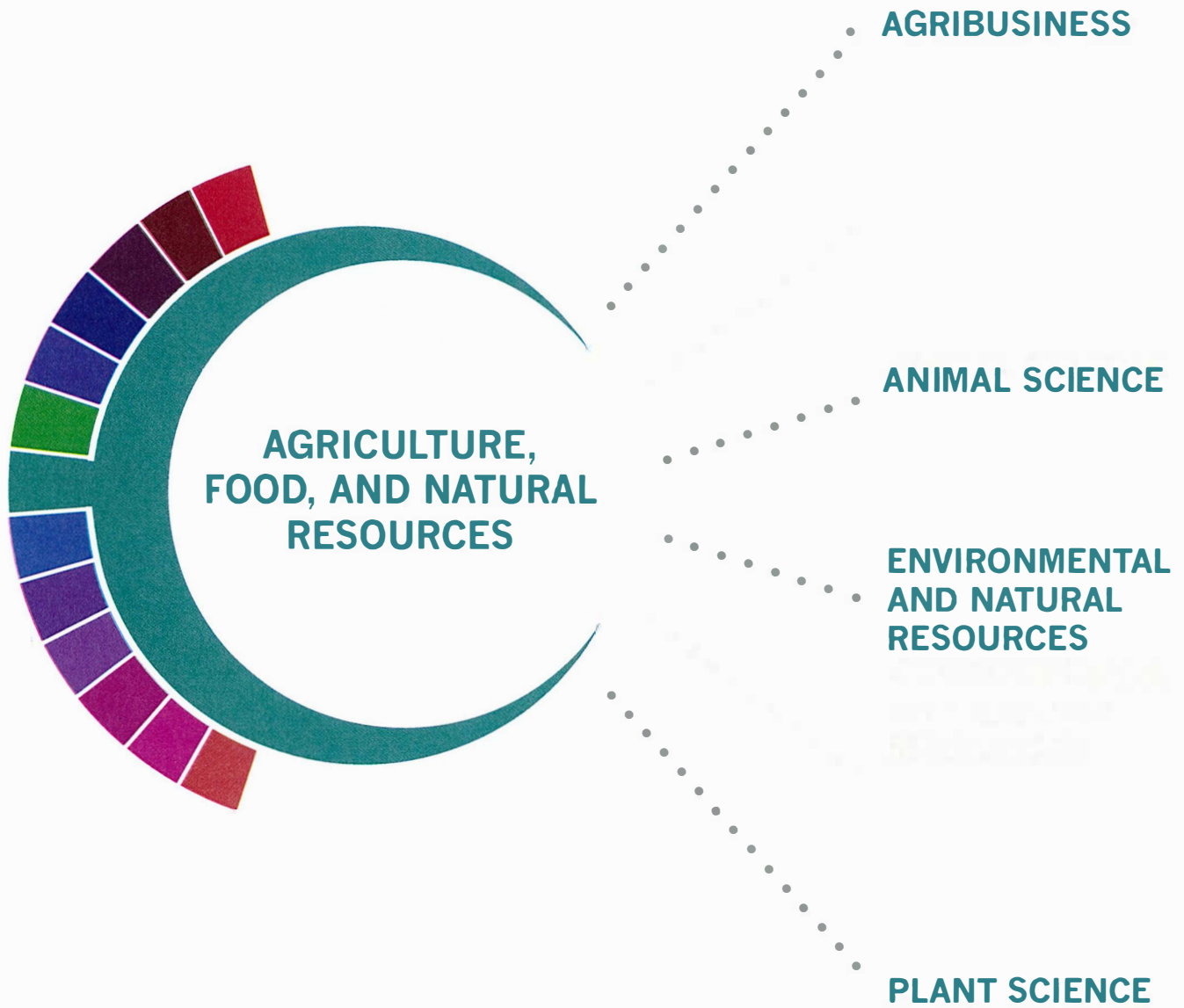
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Agriculture, Food, and Natural Resources Career Cluster

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: *Agriculture Business, Leadership, and Communications*

The Agriculture Business, Leadership, and Communications program of study focuses on occupational and educational opportunities associated with farming and agriculturally related businesses that supply farm inputs, such as machinery and seeds. This program of study includes exploration of farm product marketing, the purchase of farm products either for processing or resale, and the process of grading or classifying unprocessed food or other agricultural products.

Secondary Courses for High School Credit

- Level 1**
 - Principles of Agriculture, Food, and Natural Resources
 - Professional Communications
- Level 2**
 - Mustang INCubatoredu – Entrepreneurship I
- Level 3**
 - Agribusiness Management and Marketing
- Level 4**
 - Career and Technical Education Project-Based Capstone
 - Practicum in Agriculture, Food, and Natural Resources
 - Career Preparation for Programs of Study
 - Career Preparation for Programs of Study + Extended Career Preparation

Aligned Advanced Academic Courses

AP	AP Economics AP Statistics
Dual Credit	3470W DC College Math for Business & Social Science 3425W DC College Calculus for Business and Social Science

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	<ul style="list-style-type: none"> Shadow at a farm or ranch that manages livestock and crops to learn about processing and sales Intern at an agrochemical manufacturer to learn about new technologies in agribusiness
Expanded Learning Opportunities	<ul style="list-style-type: none"> Participate in an FFA career, leadership, and speaking contest like an agriscience fair Attend an agricultural industry seminar

Aligned Industry-Based Certifications

- Entrepreneurship and Small Business
- Microsoft Office Specialist: Microsoft Excel Expert (Excel 2019)
- Production Agriculture - Job Ready

Successful completion of the *Agriculture Business, Leadership, and Communications* program of study will fulfill requirements of the *Business and Industry* endorsement.



Example Postsecondary Opportunities

Associate Degrees

- Accounting
- Agribusiness

Bachelor's Degrees

- Agriculture Economics
- Agribusiness

Master's, Doctoral, and Professional Degrees

- Accounting
- Applied Economics

Additional Stackable IBCs/License

- Accredited Farm Manager



Example Aligned Occupations

Loan Interviewers and Clerks

Median Wage: \$46,572
Annual Openings: 2,307
10-Year Growth: 10%

Loan Officers

Median Wage: \$66,285
Annual Openings: 2,261
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: Agriculture Business, Leadership, and Communications

Course Information


Level 1

Course	Prerequisites Corequisites	Career Clusters
5100 Principles of Agriculture, Food, and Natural Resources* 13000200 (1 credit)	Prerequisites: None Grades: 9-12	
7220 Professional Communications 13009900 (0.5 credit)	Prerequisites: None Grades: 9-12	   

Level 2

Course	Prerequisites Corequisites	Career Clusters
5040 Mustang INCubatoredu Entrepreneurship I* 13011101 (1 credit)	Recommended Prerequisites: Principles of Business, Marketing and Finance Grades: 11-12	         

Level 3

Course	Prerequisites Corequisites	Career Clusters
5101 Agribusiness Management and Marketing 13000900 (1 credit)	Recommended Prerequisites: Principles of Agriculture or Principles of Business Grades: 10-12	

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 or visit <https://tea.texas.gov/cte>






































Agriculture, Food, and Natural Resources Career Cluster

Statewide Program of Study: Agriculture Business, Leadership, and Communications

Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
5008 Career and Technical Education Project-Based Capstone* First Time Taken: 12701101 (1 credit)	Prerequisites: None Grades: 11-12	         
5130 Practicum in Agriculture, Food, and Natural Resources* Second Time Taken: 13002510 (2 credits)	Recommended Prerequisites: Agribusiness Management & Marketing Grades: 11-12	
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	           
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	           

* 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 or visit <https://tea.texas.gov/cte>



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

- | | |
|----------------|---|
| Level 1 | <ul style="list-style-type: none"> Principles of Agriculture, Food, and Natural Resources |
| Level 2 | <ul style="list-style-type: none"> Small Animal Management Equine Science |
| Level 3 | <ul style="list-style-type: none"> Livestock Production |
| Level 4 | <ul style="list-style-type: none"> Advanced Animal Science Veterinary Medical Applications Practicum in Agriculture, Food, and Natural Resources |

Aligned Advanced Academic Courses

AP or IB	AP Biology AP Chemistry AP Calculus AB
Dual Credit	No Dual Credit options currently.

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.

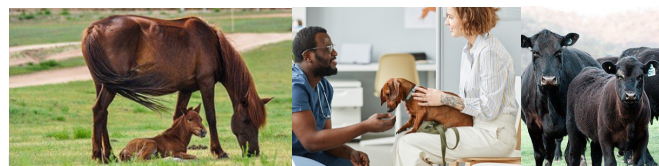
Work-Based Learning and Expanded Learning Opportunities

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

Aligned Industry-Based Certifications

- | | |
|--|--|
| <ul style="list-style-type: none"> Agricultural Biotechnology AgriLife Veterinary Assistant Certificate Certified Veterinary Assistant, Level I Elanco Fundamentals of Animal Science Certification Elanco Veterinary Medical Applications Certification | <ul style="list-style-type: none"> Equine Management and Evaluation Certification Feedyard Technician in Cattle Care and Handling Licensed Veterinary Technician Production Agriculture - Job Ready Small Animal Science and Technology |
|--|--|

Successful completion of the Animal Science program of study will fulfill requirements of a Business and Industry endorsement.



Example Postsecondary Opportunities

Apprenticeships

- Reproduction Technician

Associate Degrees

- Biological and Physical Sciences
- Entomology

Bachelor's Degrees

- Animal Science
- Zoology/Animal Biology

Master's, Doctoral, and Professional Degrees

- Marine Sciences
- Biotechnology

Additional Stackable IBCs/License

- Veterinarian
- Certified Veterinary Technician



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 1

Course	Prerequisites Corequisites	Career Clusters
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5100 Principles of Agriculture, Food, and Natural Resources*
13000200 (1 credit)

Prerequisites: None
Grades: 9-12



Level 2

Course	Prerequisites Corequisites	Career Clusters
--------	------------------------------	-----------------

5190 Small Animal Management
13000400 (0.5 credit)

Recommended Prerequisites: Principles of Agriculture
Grades: 9-12



5135 Equine Science
13000500 (0.5 credit)

Recommended Prerequisites: Principles of Agriculture
Grades: 9-12



Level 3

Course	Prerequisites Corequisites	Career Clusters
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5185 Livestock Production
13000300 (1 credit)

Recommended Prerequisites: Principles of Agriculture
Grades: 10-12



Level 4

Course	Prerequisites Corequisites	Career Clusters
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5155 Advanced Animal Science
13000700 (1 credit)

Prerequisites: Biology and Chemistry or IPC; Algebra I and Geometry; and either Small Animal Management/Equine Science, or Livestock Production
Recommended Prerequisites: Veterinary Medical Applications
Grades: 11-12



5105 Veterinary Medical Applications
13000600 (1 credit)

Prerequisites: Small Animal Management/ Equine Science, or Livestock Production
Grades: 11-12



5150 Practicum in Agriculture, Food, and Natural Resources*
First Time Taken:
13002500 (2 credits)

Prerequisites: Veterinary Medical Applications
Grades: 12



* 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 or visit <https://tea.texas.gov/cte>



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: *Environmental and Natural Resources*

The Environmental and Natural Resources program of study focuses on occupational and educational opportunities associated with the research, design, and engineering of plans for prevention and control of environmental hazards. This program of study includes conducting research for the purpose of identifying, abating, or eliminating sources of pollutants or hazards that affect either the environment or the health of the population.



Secondary Courses for High School Credit

Level 1 • Principles of Agriculture, Food, and Natural Resources

Level 2 • Wildlife, Fisheries, and Ecology Management

Level 3

Level 4 • Career and Technical Education Project-Based Capstone
• Practicum in Agriculture, Food, and Natural Resources

Aligned Advanced Academic Courses

AP or IB	AP Biology AP Environmental Science
Dual Credit	No Dual Credit options currently.

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	<ul style="list-style-type: none"> Intern in an environmental services office in local government to learn about sanitation and waste management Participate in a water treatment plant operator apprenticeship at a local water management company
Expanded Learning Opportunities	<ul style="list-style-type: none"> Participate in an FFA career, leadership, and speaking contest like an agriscience fair Attend an agricultural industry seminar

Aligned Industry-Based Certifications

- Ducks Unlimited Ecology Conservation and Management Certification
- Natural Resources Systems
- Water Operators, Class D



Example Postsecondary Opportunities

Apprenticeships

- Water Treatment Plant Operator

Associate Degrees

- Environmental/Environmental Engineering Technology
- Water Quality and Wastewater Treatment Management and Recycling Technology

Bachelor's Degrees

- Environmental Engineering
- Environmental Health

Master's, Doctoral, and Professional Degrees

- Biology/Biological Sciences
- Ecology

Additional Stackable IBCs/License

- Pesticide Dealer License



Example Aligned Occupations

Environmental Engineering Technologists and Technicians

Median Wage: \$48,124
Annual Openings: 186
10-Year Growth: 18%

Environmental Scientists and Specialists

Median Wage: \$75,421
Annual Openings: 731
10-Year Growth: 25%

Environmental Engineers

Median Wage: \$103,246
Annual Openings: 316
10-Year Growth: 18%

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



For more information visit:
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Agriculture, Food, and Natural Resources Career Cluster


Statewide Program of Study: *Environmental and Natural Resources*

Course Information

Level 1

Course	Prerequisites Corequisites	Career Clusters
5100 Principles of Agriculture, Food, and Natural Resources* 13000200 (1 credit)	Prerequisites: None Grades: 9-12	












Level 2

Course	Prerequisites Corequisites	Career Clusters
5165 Wildlife, Fisheries, and Ecology Management 13001500 (1 credit)	Recommended Prerequisites: Principles of Agriculture Grades: 10-12	

Level 3

Course	Prerequisites Corequisites	Career Clusters
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Level 4

Course	Prerequisites Corequisites	Career Clusters
5008 Career and Technical Education Project-Based Capstone* First Time Taken: 12701101 (1 credit)	Prerequisites: None Grades: 11-12	         
5130 Practicum in Agriculture, Food, and Natural Resources* Second Time Taken: 13002510 (2 credits)	Recommended Prerequisites: Wildlife, Fisheries, and Ecology Management Grades: 11-12	

* 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



Level 1	<ul style="list-style-type: none"> Principles of Agriculture, Food, and Natural Resources
Level 2	<ul style="list-style-type: none"> Mustang INCubatoredu – Entrepreneurship I
Level 3	<ul style="list-style-type: none"> Horticultural Science Floral Design
Level 4	<ul style="list-style-type: none"> Advanced Plant and Soil Science Advanced Floral Design Career and Technical Education Project-Based Capstone Practicum in Agriculture, Food, and Natural Resources

Aligned Advanced Academic Courses

AP or IB	AP Biology AP Environmental Science AP Chemistry
Dual Credit	No Dual Credit options currently.

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

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 Florists' Association Knowledge Based Floral Certification
- Texas State Florists' Association Level I Floral Certification
- Texas State Florists' Association Level II Floral Certification

Successful completion of the Plant Science program of study will fulfill requirements of the Business and Industry endorsement.



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/License

- 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
5100 Principles of Agriculture, Food, and Natural Resources* 13000200 (1 credit)	Prerequisites: None Grades: 9-12	

Level 2

Course	Prerequisites Corequisites	Career Clusters
5040 Mustang INCubatoredu Entrepreneurship I* 13011101 (1 credit)	Recommended Prerequisites: Principles of Business, Marketing and Finance Grades: 11-12	

Level 3

Course	Prerequisites Corequisites	Career Clusters
5195 Horticultural Science 13002000 (1 credit)	Prerequisites: At least one credit in a course from the Ag career cluster Grades: 10-12	
5175 Floral Design 13001800 (1 credit)	Prerequisites: None Grades: 10-12	

Level 4

Course	Prerequisites Corequisites	Career Clusters
5160 Advanced Plant and Soil Science 13002100 (1 credit)	Recommended Prerequisites: Biology, IPC, Chemistry, or Physics and a minimum of one credit in a course from the Ag career cluster Grades: 11-12	
5180 Advanced Floral Design N1300270 (1 credit)	Prerequisites: Floral Design Grades: 11-12	
<i>Continued on next page</i>		

* 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 or visit <https://tea.texas.gov/cte>

Friendswood ISD 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: Lindsey Foley, Executive Director Human Resources, 302 Laurel Dr, Friendswood, TX 77546 (281-482-1267) lfoley@fisd12.net. 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: *Plant Science*

Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
5008 Career and Technical Education Project-Based Capstone* First Time Taken: 12701101 (1 credit)	Prerequisites: None Grades: 11-12	         
5130 Practicum in Agriculture, Food, and Natural Resources* Second Time Taken: 13002510 (2 credits)	Prerequisites: A minimum of two credits with at least one course in a Level 2 or higher course from the Ag career cluster OR if a Floral Practicum - Advanced Floral Design Grades: 11-12	

* 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 or visit <https://tea.texas.gov/cte>



**DIGITAL
COMMUNICATIONS**

**GRAPHIC DESIGN AND
INTERACTIVE MEDIA**

Arts, Audio Visual Technology, and Communication Career Cluster

The Arts, Audio Visual Technology, and Communication (AAVTC) career cluster focuses on designing, producing, exhibiting, performing, writing, and publishing multimedia content requiring creative aptitude, fluency in computer and technology applications, and proficiency in oral and written communication. This career cluster includes occupations ranging from camera operator, audio and video technician, director, and producer to graphic designer and web and digital interface designer.

Statewide Program of Study: *Digital Communications*

The Digital Communications program of study focuses on occupational and educational opportunities associated with the production of audio and visual media formats for various purposes, such as TV broadcasts, advertising, video production, or motion pictures. The program of study includes operating machines and equipment such as microphones, sound speakers, video screens, projectors, video monitors, sound and mixing boards, and related electronic equipment to record sound and images.



Secondary Courses for High School Credit

- | | |
|----------------|--|
| Level 1 | <ul style="list-style-type: none"> Film Appreciation - Principles of Arts, Audio/Video Technology, and Communications Digital Communications in the 21st Century - FJH Professional Communications |
| Level 2 | <ul style="list-style-type: none"> Audio/Video Production I Digital Audio Technology I Mustang INCubatoredu – Entrepreneurship I |
| Level 3 | <ul style="list-style-type: none"> Audio/Video Production II + Audio/Video Production II Lab Digital Audio Technology II |
| Level 4 | <ul style="list-style-type: none"> Practicum in Audio/Video Production Practicum in Digital Audio Technology Career Preparation for Programs of Study Career Preparation for Programs of Study + Extended Career Preparation |

Aligned Advanced Academic Courses

AP or IB	
Dual Credit	No Dual Credit options currently.

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	<ul style="list-style-type: none"> Shadow a sound designer to learn how sound and foley are created for movies or podcasts Intern with a technical director at a sports team, recording studio, or radio station Shadow a technician on a live news broadcast, concert, or other event
Expanded Learning Opportunities	<ul style="list-style-type: none"> Participate in SkillsUSA or TSA Participate in Student Television Network Capture and edit film and audio for a podcast with a local community organization

Aligned Industry-Based Certifications

- | | |
|---|---|
| <ul style="list-style-type: none"> Adobe Certified Professional in Digital Video Using Adobe Premiere Pro Adobe Certified Professional in Print and Digital Media Publication Using Adobe InDesign Adobe Certified Professional in Visual Design | <ul style="list-style-type: none"> Adobe Certified Professional in Visual Design Using Adobe Photoshop Audio-Visual Communications - Job Ready Broadcasting and Journalism Digital Video Production Foundations |
|---|---|

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



Example Postsecondary Opportunities

Apprenticeships

- Light Technician

Associate Degrees

- Commercial and Advertising Art
- Animation, Interactive Technology, Video Graphics, and Special Effects

Bachelor's Degrees

- Cinematography and Film/Video Production
- Recording Arts Technology

Master's, Doctoral, and Professional Degrees

- Animation, Interactive Technology, Video Graphics, and Special Effects
- Communications Technology

Additional Stackable IBCs/License

- CompTIA Digital Media and Entertainment Professional Certification (DMEP)



Example Aligned Occupations

Camera Operators, Television, Video, and Film

Median Wage: \$48,422
Annual Openings: 155
10-Year Growth: 20%

Audio and Video Technicians

Median Wage: \$46,319
Annual Openings: 626
10-Year Growth: 30%

Producers and Directors

Median Wage: \$65,029
Annual Openings: 522
10-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>

Arts, Audio Visual Technology, and Communication Career Cluster













Statewide Program of Study: *Digital Communications*

Course Information



Level 1

Course	Prerequisites Corequisites	Career Clusters
7105 Film Appreciation - Principles of Arts, Audio/Video Technology, and Communications* 13008200 (1 credit)	Prerequisites: None Grades: 9-12	
7220 Professional Communications 13009900 (0.5 credit)	Prerequisites: None Grades: 9-12	   

Level 2

Course	Prerequisites Corequisites	Career Clusters
7108 Audio/Video Production I 13008500 (1 credit)	Prerequisites: None Grades: 9-12	
7185 Digital Audio Technology I 13009950 (1 credit)	Prerequisites: None Grades: 9-12	
5040 Mustang INCubatoredu Entrepreneurship I* 13011101 (1 credit)	Recommended Prerequisites: Principles of Business, Marketing and Finance Grades: 11-12	         

Level 3

Course	Prerequisites Corequisites	Career Clusters
7100 Audio/Video Production II + Audio/Video Production II Lab (MCS I) 13008610 (2 credits)	Prerequisites: Audio/Video Production I Grades: 10-12	
7186 Digital Audio Technology II 13009960 (1 credit)	Prerequisites: Digital Audio Technology I Grades: 10-12	

Continued on next page

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








For additional information on the **Arts, Audio Visual Technology and Communication** career cluster, contact cte@tea.texas.gov or visit <https://tea.texas.gov/cte>

Arts, Audio Visual Technology, and Communication Career Cluster

Statewide Program of Study: *Digital Communications*

Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
7125 Practicum in Audio/Video Production I (MCS II) First Time Taken: 13008700 (2 credits)	Prerequisites: Audio/Video Production II and Audio/Video Production II Lab Grades: 11-12	 
7150 Practicum in Audio/Video Production II (MCS III) Second Time Taken: 13008710 (2 credits)	Prerequisites: Practicum in Audio/Video Production I Grade: 12	 
7156 Practicum in Digital Audio Technology N1300996 (2 credits)	Prerequisites: Digital Audio Technology II Grades: 11-12	
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	

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

For additional information on the **Arts, Audio Visual Technology and Communication** career cluster, contact cte@tea.texas.gov or visit <https://tea.texas.gov/cte>



Arts, Audio Visual Technology, and Communication Career Cluster

The Arts, Audio Visual Technology, and Communication (AAVTC) career cluster focuses on designing, producing, exhibiting, performing, writing, and publishing multimedia content requiring creative aptitude, fluency in computer and technology applications, and proficiency in oral and written communication. This career cluster includes occupations ranging from camera operator, audio and video technician, director, and producer to graphic designer and web and digital interface designer.

Statewide Program of Study: *Graphic Design and Interactive Media*

The Graphic Design and Interactive Media program of study focuses on occupational and educational opportunities associated with designing or creating graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. The program of study includes designing clothing and accessories and creating special effects, animation, or other visual images using film, video, computers, or other electronic tools and media for use in computer games, movies, music videos, and commercials.



Secondary Courses for High School Credit

Level 1	<ul style="list-style-type: none"> Film Appreciation - Principles of Arts, Audio/Video Technology, and Communications Digital Media - FJH
Level 2	<ul style="list-style-type: none"> Graphic Design and Illustration I Commercial Photography I
Level 3	<ul style="list-style-type: none"> Graphic Design and Illustration II Commercial Photography II
Level 4	<ul style="list-style-type: none"> Practicum in Graphic Design and Illustration Career Preparation for Programs of Study Career Preparation for Programs of Study + Extended Career Preparation

Aligned Advanced Academic Courses

AP or IB	AP Studio Art: Two-Dimensional Design Portfolio
Dual Credit	No Dual Credit options currently.

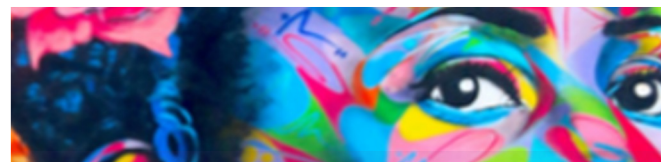
Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> Shadow an art director at a branding firm or design agency Intern in the marketing and communications department of a technology company
Expanded Learning Opportunities	<ul style="list-style-type: none"> Participate in SkillsUSA or TSA Participate in Student Television Network Join a related co-curricular or extracurricular club such as web development or computer coding

Aligned Industry-Based Certifications

- Adobe Certified Professional in Digital Video Using Adobe Premiere Pro
- Adobe Certified Professional in Graphic Design and Illustration Using Adobe Illustrator
- Adobe Certified Professional in Print and Digital Media Publication Using Adobe InDesign
- Adobe Certified Professional in Visual Design
- Adobe Certified Professional in Visual Design Using Adobe Photoshop
- Adobe Certified Professional in Visual Effects and Motion Graphics Using Adobe After Effects
- Audio-Visual Communications - Job Ready
- Autodesk Associate (Certified User) 3ds MAX
- C++ Certified Associate Programmer
- Certified Entry-Level Python Programmer (PCEP)
- Certified Professional Photographer
- Certified Professional Programmer
- Certified User: Programmer
- CodeHS Python Level I Certification
- Graphic Production Technology - Job Ready
- Oracle Certified Associate Java SE 8 Programmer



Example Postsecondary Opportunities

Associate Degrees

- Graphic Design
- Digital Arts

Bachelor's Degrees

- Web Page, Digital/Multimedia and Information Resources Design
- Design and Visual Communications

Master's, Doctoral, and Professional Degrees

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

Additional Stackable IBCs/License

- Certified Textile Designer (CTD)



Example Aligned Occupations

Software Developers

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

Graphic Designers

Median Wage: \$50,973
Annual Openings: 1,766
10-Year Growth: 10%

Art Directors

Median Wage: \$81,926
Annual Openings: 619
10-Year Growth: 18%

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>

Arts, Audio Visual Technology, and Communication Career Cluster





Statewide Program of Study: *Graphic Design and Interactive Media*

Course Information



Level 1

Course	Prerequisites Corequisites	Career Clusters
7105 Film Appreciation - Principles of Arts, Audio + Video Technology, and Communications* 13008200 (1 credit)	Prerequisites: None Grades: 9-12	

Level 2

Course	Prerequisites Corequisites	Career Clusters
7165 Graphic Design and Illustration I* 13008800 (1 credit)	Prerequisites: None Grades: 9-12	
7616 Commercial Photography I 13009100 (1 credit)	Recommended Prerequisites: Journalism Grades: 10-12	
5040 Mustang INCubatoredu Entrepreneurship I* 13011101 (1 credit)	Recommended Prerequisites: Principles of Business, Marketing and Finance Grades: 11-12	         

Level 3

Course	Prerequisites Corequisites	Career Clusters
7170 Graphic Design and Illustration II 13008900 (1 credit)	Prerequisites: Graphic Design and Illustration I Grades: 10-12	
7617 Commercial Photography II 13009200 (1 credit)	Prerequisites: Commercial Photography I Grades: 11-12	

Continued on next page

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

For additional information on the **Arts, Audio Visual Technology, and Communication** career cluster, contact cte@tea.texas.gov or visit <https://tea.texas.gov/cte>



Arts, Audio Visual Technology, and Communication Career Cluster

Statewide Program of Study: *Graphic Design and Interactive Media*

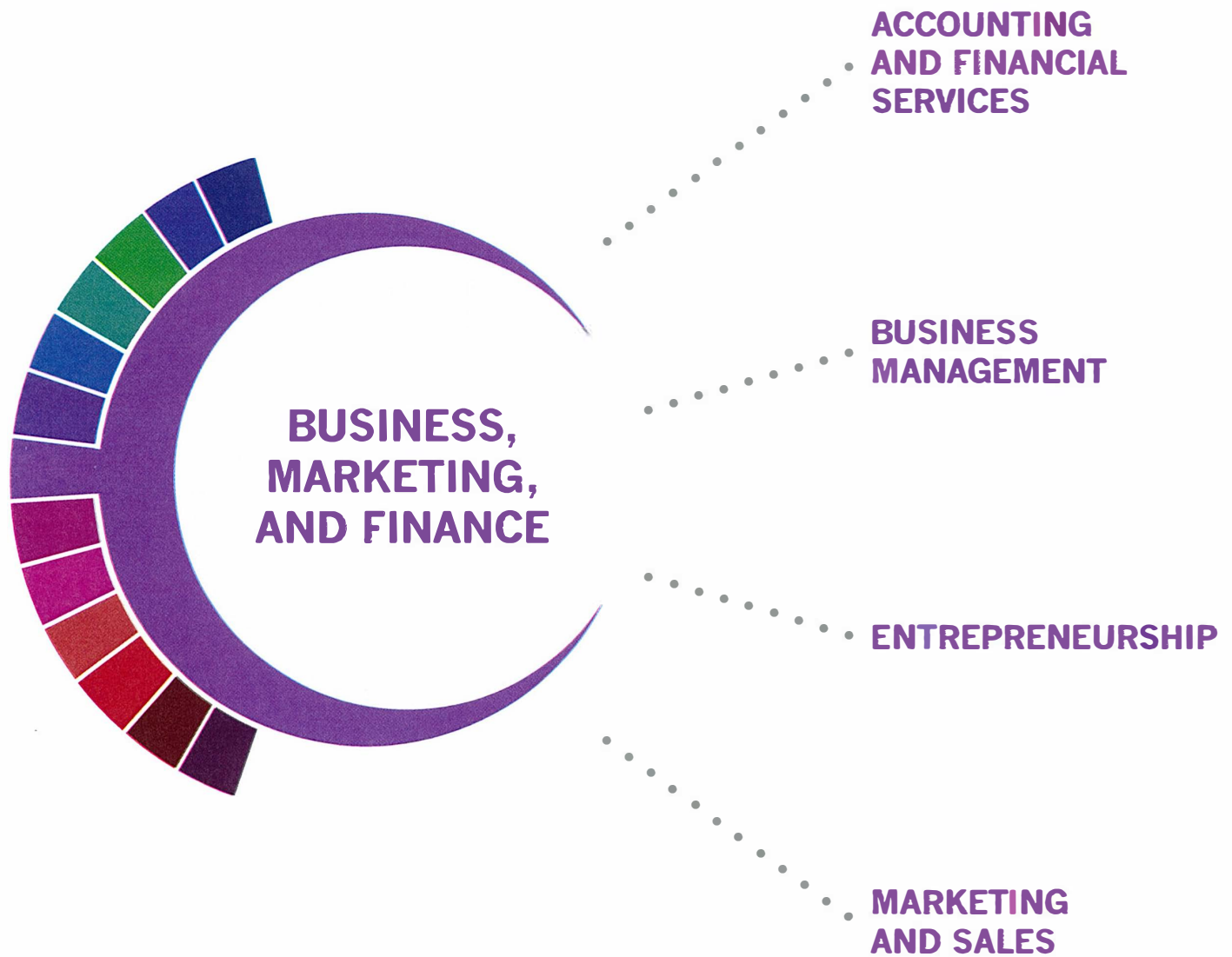
Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
Practicum in Graphic Design and Illustration First Time Taken: 13009000 (2 credits)	Prerequisites: Graphic Design and Illustration II Grades: 11-12	
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	

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

For additional information on the **Arts, Audio Visual Technology, and Communication** career cluster, contact cte@tea.texas.gov or visit <https://tea.texas.gov/cte>



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: Accounting and Financial Services

The Accounting and Financial Services program of study focuses on occupational and educational opportunities associated with examining, analyzing, and interpreting financial records. It includes exploration of financial services, preparing financial statements, auditing financial statements prepared by others, and interpreting accounting records. This program of study also introduces students to mathematical modeling tools.



Secondary Courses for High School Credit

- | | |
|----------------|--|
| Level 1 | <ul style="list-style-type: none"> Principles of Business, Marketing, and Finance Money Matters |
| Level 2 | <ul style="list-style-type: none"> Accounting I Mustang INCubatoredu - Entrepreneurship I |
| Level 3 | <ul style="list-style-type: none"> Accounting II |
| Level 4 | <ul style="list-style-type: none"> Stock Market Practicum in Business Management Career Preparation for Programs of Study Career Preparation for Programs of Study + Extended Career Preparation |

Aligned Advanced Academic Courses

AP or IB	
Dual Credit	3470W DC College Math for Business & Social Science 3425W DC College Calculus for Business and Social Science

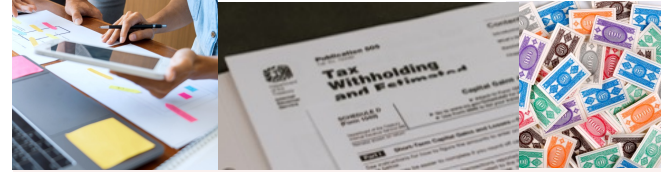
Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> Intern with a certified public accountant (CPA) at a local business Intern with a city or county auditor's office Shadow a financial advisor as an intern at an investment company
Expanded Learning Opportunities	<ul style="list-style-type: none"> Participate in BPA, DECA, or FBLA Explore student membership in professional organizations such as AICPA, CIMA, or TXCPA

Aligned Industry-Based Certifications

- | | |
|---|--|
| <ul style="list-style-type: none"> Accounting – Basic Accounting Foundations Certified Insurance Service Representative Intuit QuickBooks Certified User MB-920: Microsoft Dynamics 365 Fundamentals Finance and Operations Apps Microsoft Office Specialist: Microsoft Access Expert (Access 2019) | <ul style="list-style-type: none"> Microsoft Office Specialist: Microsoft Excel Expert (Excel 2019) Volunteer Income Tax Assistance/Tax Counseling Certification: Advanced Volunteer Income Tax Assistance/Tax Counseling Certification: Basic Volunteer Income Tax Assistance/Tax Counseling Certification: Volunteer for Elderly |
|---|--|



Example Postsecondary Opportunities

Associate Degrees

- Accounting
- Bookkeeping

Bachelor's Degrees

- Accounting
- Banking and Financial Support Services

Master's, Doctoral, and Professional Degrees

- Business Administration and Management
- Finance

Additional Stackable IBCs/License

- Project Management Professional
- Property Tax Consultants Service Contract Providers



Example Aligned Occupations

Tax Preparers

Median Wage: \$56,956
Annual Openings: 898
10-Year Growth: 14%

Accountants and Auditors

Median Wage: \$78,022
Annual Openings: 12,989
10-Year Growth: 20%

Personal Financial Advisors

Median Wage: \$77,605
Annual Openings: 1,877
10-Year Growth: 21%

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: *Accounting and Financial Services*

Course Information

Level 1	Course	Prerequisites Corequisites	Career Clusters
	5000 Principles of Business, Marketing, and Finance* 13011200 (1 credit)	Prerequisites: None Grades: 9-12	 
	5020 Money Matters 13016200 (1 credit)	Recommended Prerequisites: Principles of Business, Marketing, and Finance Grades: 10-12	
Level 2	Course	Prerequisites Corequisites	Career Clusters
	5050 Accounting I 13016600 (1 credit)	Prerequisites: Principles of Business, Marketing, and Finance Grades: 10-12	
	5040 Mustang INCubatoredu - Entrepreneurship I* 13011101 (1 credit)	Recommended Prerequisites: Principles of Business, Marketing, and Finance Grades: 11-12	         
Level 3	Course	Prerequisites Corequisites	Career Clusters
	5053 Accounting II 13016700 (1 credit)	Prerequisites: Accounting I Grades: 11-12	
	<i>Continued on next page</i>		

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

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



Business, Marketing, and Finance Career Cluster

Statewide Program of Study: *Accounting and Financial Services*

Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
5070 Stock Market - Securities and Investments 13016400 (1 credit)	Prerequisites: Principles of Business, Marketing, & Finance and Money Matters Grades: 11-12	
5010 Business Intern - Practicum in Business Management* First Time Taken: 13012200 (2 credits)	Prerequisites: Principles of Business, Marketing & Finance and 1 additional Business, Marketing, or Finance course Grades: 11-12	
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	

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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

- | | |
|----------------|--|
| Level 1 | <ul style="list-style-type: none"> Principles of Business, Marketing, and Finance |
| Level 2 | <ul style="list-style-type: none"> Virtual Business - Entrepreneurship FJH Business Law Mustang INCubatoredu - Entrepreneurship I |
| Level 3 | |
| Level 4 | <ul style="list-style-type: none"> Practicum in Business Management Career Preparation for Programs of Study Career Preparation for Programs of Study + Extended Career Preparation |

Aligned Advanced Academic Courses

AP or IB	AP Economics AP Statistics
Dual Credit	3470W DC College Math for Business & Social Science 3425W DC College Calculus for Business and Social Science

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.

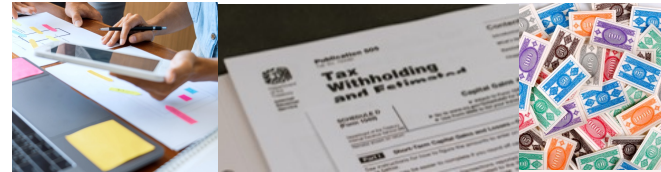
Work-Based Learning and Expanded Learning Opportunities

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

Aligned Industry-Based Certifications

- | | |
|---|---|
| <ul style="list-style-type: none"> Administrative Assisting Certified Associate in Project Management (CAPM) Entrepreneurship and Small Business General Management MB-920: Microsoft Dynamics 365 Fundamentals Finance and Operations Apps Microsoft Office Specialist 2016 Master Microsoft Office Specialist: Microsoft Access Expert (Access 2019) | <ul style="list-style-type: none"> 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 Stukent Social Media Marketing Certification |
|---|---|

Successful completion of the Business Management program of study will fulfill requirements of the Business and Industry endorsement.



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/License

- 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
	5000 Principles of Business, Marketing, and Finance* 13011200 (1 credit)	Prerequisites: None Grades: 9-12	 
Level 2	Course	Prerequisites Corequisites	Career Clusters
	5067 Business Law* 13011700 (1 credit)	Recommended Prerequisites: Principles of Business or Principles of Law Grades: 11-12	 
Level 3	Course	Prerequisites Corequisites	Career Clusters
	5040 Mustang INCubatoredu - Entrepreneurship I* 13011101 (1 credit)	Recommended Prerequisites: Principles of Business, Marketing, and Finance Grades: 11-12	         
Level 4	Course	Prerequisites Corequisites	Career Clusters
	5010 Business Intern - Practicum in Business Management* First Time Taken: 13012200 (2 credits)	Prerequisites: Principles of Business, Marketing & Finance and 1 additional Business, Marketing, or Finance course Grades: 11-12	

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

For additional information on the **Business, Marketing, and Finance** career cluster, contact 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
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	

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

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

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: *Entrepreneurship*

The Entrepreneurship program of study focuses on occupational and educational opportunities associated with planning, launching, directing, and coordinating public or private sector ventures. This program of study includes formulating policies, launching businesses or organizations, managing daily operations, analyzing management structures, and planning for the use of materials and human resources.

Secondary Courses for High School Credit

- | | |
|----------------|---|
| Level 1 | <ul style="list-style-type: none"> Principles of Business, Marketing, and Finance |
| Level 2 | <ul style="list-style-type: none"> Mustang INCubatoredu - Entrepreneurship I |
| Level 3 | <ul style="list-style-type: none"> Mustang ACCEleratoredu - Entrepreneurship II |
| Level 4 | <ul style="list-style-type: none"> Career and Technical Education Project-Based Capstone Practicum in Business Management Practicum in Marketing Career Preparation for Programs of Study Career Preparation for Programs of Study + Extended Career Preparation |

Aligned Advanced Academic Courses

AP or IB	AP Statistics
Dual Credit	3470W DC College Math for Business & Social Science 3425W DC College Calculus for Business and Social Science

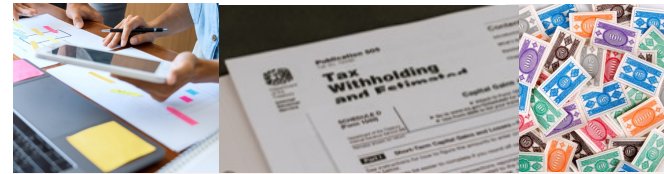
Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> Intern at a local start-up or a business incubator Participate in the development and launch of a school-based enterprise
Expanded Learning Opportunities	<ul style="list-style-type: none"> Job shadow an entrepreneur Participate in BPA, DECA, FBLA, or related UIL events

Aligned Industry-Based Certifications

- Entrepreneurship and Small Business
- Facebook Digital Marketing Associate Certification
- Stukent Social Media Marketing Certification
- Customer Service and Sales: Certified Specialist
- Business of Retail: Certified Specialist



Example Postsecondary Opportunities

Associate Degrees

- Operations Management and Supervision
- Organizational Leadership

Bachelor's Degrees

- Business Administration and Management
- Public Administration

Master's, Doctoral, and Professional Degrees

- Business Administration
- Public Administration

Additional Stackable IBCs/License

- Salesforce
- Service Contract Providers

Example Aligned Occupations

General and Operations Managers

Median Wage: \$83,220
Annual Openings: 25,450
10-Year Growth: 23%

Management Analysts

Median Wage: \$93,983
Annual Openings: 6,030
10-Year Growth: 25%

Chief Executives

Median Wage: \$163,567
Annual Openings: 648
10-Year Growth: 3%

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: *Entrepreneurship*

Course Information

Level 1	Course	Prerequisites Corequisites	Career Clusters
	5000 Principles of Business, Marketing, and Finance* 13011200 (1 credit)	Prerequisites: None Grades: 9-12	 
Level 2	Course	Prerequisites Corequisites	Career Clusters
	5040 Mustang INCubatoredu - Entrepreneurship I* 13011101 (1 credit)	Recommended Prerequisites: Principles of Business, Marketing, and Finance Grades: 11-12	         
Level 3	Course	Prerequisites Corequisites	Career Clusters
	5080 Mustang ACCeleratoredu - Entrepreneurship II 13011102 (1 credit)	Prerequisites: Mustang INCubatoredu - Entrepreneurship I Grade: 12	
Level 4	Course	Prerequisites Corequisites	Career Clusters
	5008 Career and Technical Education Project-Based Capstone* First Time Taken: 12701101 (1 credit)	Prerequisites: None Grades: 11-12	         
	5010 Business Intern - Practicum in Business Management* First Time Taken: 13012200 (2 credits)	Prerequisites: Principles of Business, Marketing & Finance and 1 additional Business, Marketing, or Finance course Grades: 11-12	
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* Indicates course is included in more than one program of study.

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



Business, Marketing, and Finance Career Cluster

Statewide Program of Study: *Entrepreneurship*

Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
5510 Practicum in Marketing I* First Time Taken: 13034800 (2 credits)	Prerequisites: Principles of Business, Marketing, & Finance and 1 other course in Marketing Grades: 11-12	
5545 Practicum in Marketing II Second Time Taken: 13034810 (2 credits)	Prerequisites: Practicum in Marketing I Grade: 12	
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	

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

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

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: **Marketing and Sales**

The Marketing and Sales program of study focuses on occupational and educational opportunities associated with collecting information to estimate potential sales of a product or service and create campaigns to market or distribute goods and services. It includes applying data related to customer demographics, preferences, needs, and buying habits.

Secondary Courses for High School Credit



Level 1	<ul style="list-style-type: none"> Principles of Business, Marketing, and Finance Digital Media - FJH
Level 2	<ul style="list-style-type: none"> Sports and Entertainment Marketing Virtual Business - Entrepreneurship FJH Mustang INCubatoredu - Entrepreneurship I
Level 3	<ul style="list-style-type: none"> Fundamentals of Real Estate Social Media Marketing The Stable - Retail Management
Level 4	<ul style="list-style-type: none"> Practicum in Marketing I Practicum in Marketing II Marketing Career Preparation for Programs of Study Career Preparation for Programs of Study + Extended Career Preparation

Aligned Advanced Academic Courses

AP or IB	AP Statistics
Dual Credit	3470W DC College Math for Business & Social Science 3425W DC College Calculus for Business and Social Science

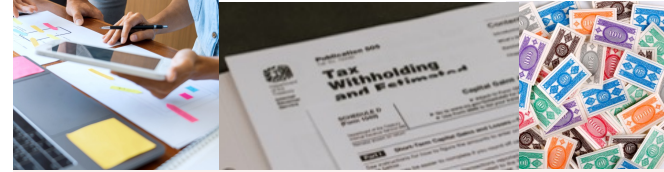
Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> Intern at a marketing and advertising company Job shadow a pharmaceutical sales representative Intern at a local retail company
Expanded Learning Opportunities	<ul style="list-style-type: none"> Job shadow an account representative at a marketing firm Participate in BPA, DECA, FBLA, or related UIL events

Aligned Industry-Based Certifications

- Business of Retail: Certified Specialist
- Certified Insurance Service Representative
- Customer Service and Sales: Certified Specialist
- Entrepreneurship and Small Business
- Facebook Digital Marketing Associate Certification
- Retail Merchandising - Job Ready
- Stukent Social Media Marketing Certification
- Real Estate Sales Agent License**



Example Postsecondary Opportunities

Associate Degrees

- Marketing/Marketing Management
- Retail Management

Bachelor's Degrees

- Business Administration
- Marketing/Marketing Management
- Fashion Merchandising

Master's, Doctoral, and Professional Degrees

- Business Administration
- Applied Economics
- Business Analytics

Additional Stackable IBCs/License

- Salesforce
- Service Contract Providers



Example Aligned Occupations

Retail Salespersons

Median Wage: \$28,356
Annual Openings: 56,132
10-Year Growth: 15%

Market Research Analysts

Median Wage: \$60,926
Annual Openings: 5,688
10-Year Growth: 35%

Sales Managers

Median Wage: \$123,729
Annual Openings: 3,368
10-Year Growth: 21%

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: *Marketing and Sales*

Course Information

Level 1

Course	Prerequisites Corequisites	Career Clusters
5000 Principles of Business, Marketing, and Finance* 13011200 (1 credit)	Prerequisites: None Grades: 9-12	

Level 2

Course	Prerequisites Corequisites	Career Clusters
5465 Sports and Entertainment Marketing 13034600 (0.5 credit)	Recommended Prerequisites: Principles of Business, Marketing and Finance Grades: 10-12	
5040 Mustang INCubatoredu - Entrepreneurship I* 13011101 (1 credit)	Recommended Prerequisites: Principles of Business, Marketing, and Finance Grades: 11-12	

Level 3

Course	Prerequisites Corequisites	Career Clusters
5485/5486 Fundamentals of Real Estate* N1301120 (2 credits) Two-year course – 1 credit per year	Recommended Prerequisites: Principles of Business Marketing and Finance Junior year - 5486 Senior year - 5485	
5480 Social Media Marketing 13034650 (0.5 credit)	Recommended Prerequisites: Principles of Business, Marketing, and Finance Grades: 10-12	
5003 The Stable - Retail Management* N1303420 (1 credit)	Prerequisites: Principles of Business, Marketing, and Finance or Graphic Design I Recommended Corequisites: Accounting I or Social Media Marketing Grades: 10-12	

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

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



Business, Marketing, and Finance Career Cluster

Statewide Program of Study: *Marketing and Sales*

Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
5510 Practicum in Marketing I* First Time Taken: 13034800 (2 credits)	Prerequisites: Principles of Business, Marketing, & Finance and 1 other course in Marketing Grades: 11-12	
5545 Practicum in Marketing II Second Time Taken: 13034810 (2 credits)	Prerequisites: Practicum in Marketing I Grade: 12	
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	

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**TEACHING
AND TRAINING**



Education and Training Career Cluster

The Education and Training career cluster focuses on planning, managing, and providing education and training services and related learning support services. All parts of courses are designed to introduce learners to the various careers available within the Education and Training career cluster. This career cluster includes a diverse spectrum of occupations, ranging from teaching assistant, classroom teacher, to school administrator.

Statewide Program of Study: Teaching and Training

The Teaching and Training program of study focuses on occupational and educational opportunities associated with careers related to teaching, instructing, and creating instructional and enrichment materials. The program of study includes recognizing a variety of student groups and their corresponding needs, identifying processes for developing curriculum and coordinating educational content, and coaching groups and individuals.



Secondary Courses for High School Credit

- | | |
|----------------|---|
| Level 1 | <ul style="list-style-type: none"> Principles of Education and Training |
| Level 2 | <ul style="list-style-type: none"> Child Development |
| Level 3 | <ul style="list-style-type: none"> Ready, Set, Teach I - Instructional Practices |
| Level 4 | <ul style="list-style-type: none"> Ready Set Teach II - Practicum in Education and Training Career and Technical Education Project-Based Capstone Career Preparation for Programs of Study Career Preparation for Programs of Study + Extended Career Preparation |

Aligned Advanced Academic Courses

Dual Credit	5386 Dual Credit Ready Set Teach II
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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

- Serve as a camp counselor to learn mentoring, facilitation, and lesson planning skills
- Volunteer in a tutoring center to learn lesson planning and skills assessment

Expanded Learning Opportunities

- Participate in FCCLA
- Participate in TAFE

Aligned Industry-Based Certifications

- Educational Aide I



Example Postsecondary Opportunities

Apprenticeships

- Teacher Apprentice

Associate Degrees

- Adult and Continuing Education and Teaching
- Educational/Instructional Technology

Bachelor's Degrees

- Elementary Education and Teaching
- Secondary Education and Teaching

Master's, Doctoral, and Professional Degrees

- Educational Leadership and Administration, General
- Curriculum and Instruction

Additional Stackable IBCs/License

- Generalist, Grades EC-4



Example Aligned Occupations

Teaching Assistants, Except Postsecondary

Median Wage: \$28,066
Annual Openings: 10,000
10-Year Growth: 15%

Secondary School Teachers, Except Special Education and CTE

Median Wage: \$61,035
Annual Openings: 8,288
10-Year Growth: 14%

Education Administrators, Kindergarten through Secondary

Median Wage: \$81,976
Annual Openings: 2,676
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>



Education and Training Career Cluster

Statewide Program of Study: Teaching and Training

Course Information

Level 1

Course	Prerequisites Corequisites	Career Clusters
5360 Principles of Education and Training* 13014200 (1 credit)	Prerequisites: None Grades: 9-12	

Level 2

Course	Prerequisites Corequisites	Career Clusters
5370 Child Development* 13024700 (1 credit)	Recommended Prerequisites: Principles of Education and Training Grades: 9-12	

Level 3

Course	Prerequisites Corequisites	Career Clusters
5380 Ready Set Teach I - Instructional Practices 13014400 (2 credits)	Prerequisites: Principles of Education and Training or Child Development Grades: 11-12	

Level 4

Course	Prerequisites Corequisites	Career Clusters
5385 Ready Set Teach II - Practicum in Education and Training		
5386 A/B Dual Credit Ready Set Teach II - Practicum in Education and Training First Time Taken: 13014500 (2 credits)	Prerequisites: Ready Set Teach I - Instructional Practices Grade: 12	

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

For additional information on the **Education and Training** career cluster, contact cte@tea.texas.gov or visit <https://tea.texas.gov/cte>



Education and Training Career Cluster

Statewide Program of Study: Teaching and Training

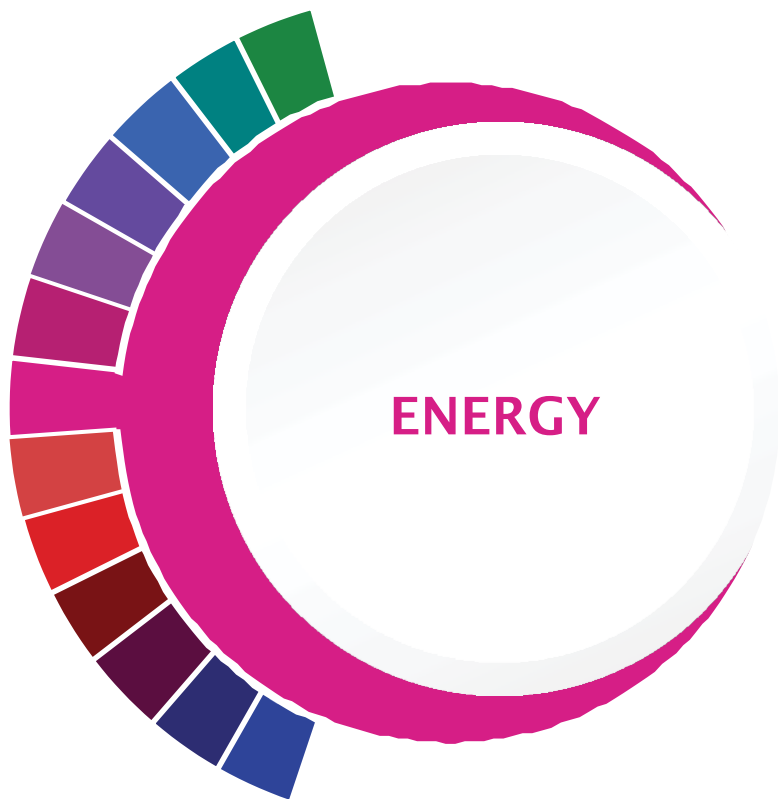
Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
5008 Career and Technical Education Project-Based Capstone* First Time Taken: 12701101 (1 credit)	Prerequisites: None Grades: 11-12	
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	

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

For additional information on the **Education and Training** career cluster, contact cte@tea.texas.gov or visit <https://tea.texas.gov/cte>



ENERGY

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REFINING AND
CHEMICAL
PROCESSES



Energy Career Cluster

The Energy career cluster prepares individuals for careers in the designing, processing, planning, maintaining, generating, transmission, and distribution of traditional and alternative energy. This career cluster includes occupations ranging from petroleum engineers, rotary drill operators, chemical technicians and, power plant operators to solar photovoltaic installers and wind turbine service technicians.

Statewide Program of Study: Refining and Chemical Processes

The Refining and Chemical Processes program of study focuses on occupational and educational opportunities associated with how to monitor, adjust, and operate equipment housed in petrochemical plants and refineries. This program of study includes exploration of computer technology and instrumentation used to operate a variety of systems and industrial processes.

Secondary Courses for High School Credit



Level 1

Level 2

- Level 3**
- Math for PTEC
 - Humanities for PTEC
 - Introduction to Process Technology
 - Speech for PTEC

- Level 4**
- Principles of Quality PTEC
 - English for PTEC
 - Technical Writing for PTEC
 - Government for PTEC

Aligned Advanced Academic Courses

AP or IB	AP Chemistry
Dual Credit	Dual Credit Process Technology at the LyondellBasell Center for Petrochemical, Energy, and Technology San Jacinto College

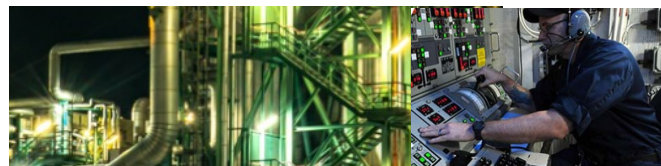
Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count toward concentrator/completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> • Shadow a chemical technician in a laboratory at a chemical manufacturing plant • Intern at a power plant to learn about industrial processes and plant operations
Expanded Learning Opportunities	<ul style="list-style-type: none"> • Tour a refining and chemical plant • Participate in SkillsUSA

Aligned Industry-Based Certifications

- NCCER Core
- NCCER Electronic System Technician Level I
- NCCER Instrumentation Level I
- Certified Production Technician (CPT) 4.0
- Lean Six Sigma Green Belt Certification
- Industrial Technology Maintenance (ITM) - Process Control Systems



Example Postsecondary Opportunities

Associate Degrees

- Chemical Process Technology
- Instrumentation Technology/Technician
- Manufacturing Engineering Technology/Technician
- Industrial Technology/Technician



Bachelor's Degrees

- Chemical Engineering
- Engineering/Industrial Management
- Industrial Engineering
- Manufacturing Engineering

Master's, Doctoral, and Professional Degrees

- Mechanical Engineering
- Chemical Engineering
- Engineering/Industrial Management
- Industrial Engineering



Example Aligned Occupations

Chemical Technicians

Median Wage: \$58,129
Annual Openings: 892
10-Year Growth: 17%

Power Plant Operators

Median Wage: \$94,669
Annual Openings: 231
10-Year Growth: 3%

Petroleum Engineers

Median Wage: \$134,225
Annual Openings: 1,443
10-Year Growth: 27%

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>



Energy Career Cluster

Statewide Program of Study: Refining and Chemical Processes

Course Information

Level 1

Course	Prerequisites Corequisites	Career Clusters
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Level 2

Course	Prerequisites Corequisites	Career Clusters
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Level 3

Course	Prerequisites Corequisites	Career Clusters
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5903 Math for PTEC - Applied Mathematics for Technical Professionals*
12701410 (0.5 credit)

Prerequisites: None
Junior Year - Fall



5905 Humanities for PTEC
03221600 (0.5 credit)

Prerequisites: None
Junior Year - Fall



5802 Introduction to Process Technology
13040502 (1 credit)

Prerequisites: None
Junior Year - Spring



5901 Speech for PTEC
03240900 (1 credit)

Prerequisites: None
Junior Year - Spring



Level 4

Course	Prerequisites Corequisites	Career Clusters
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5807 Principles of Quality PTEC
13040504 (1 credit)

Prerequisites: Introduction to Process Technology
Senior Year - Fall



5808 English for PTEC
03220400 (0.5 credit)

Prerequisites: None
Senior Year - Fall



5809 Technical Writing for PTEC
03220400 (0.5 credit)

Prerequisites: English for PTEC
Senior Year - Spring



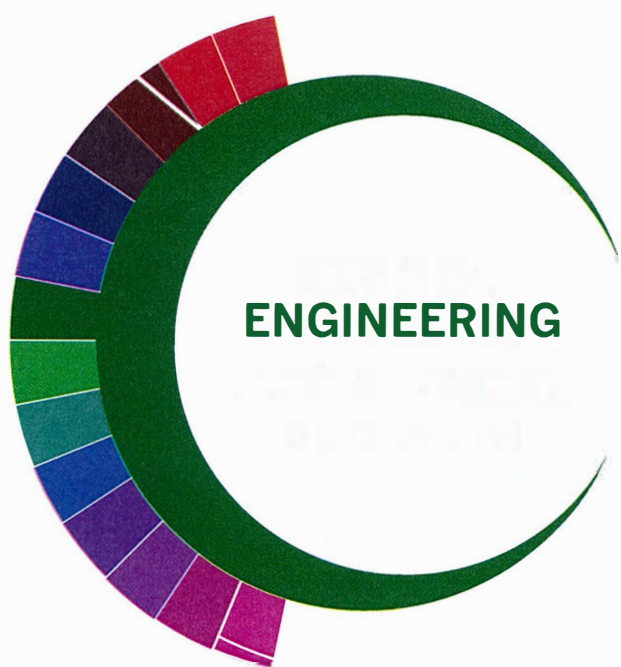
5810 Government for PTEC
03330100 (0.5 credit)

Prerequisites: None
Senior Year - Spring



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

For additional information on the **Energy** career cluster, contact cte@tea.texas.gov or visit <https://tea.texas.gov/cte>



ENGINEERING



**ENGINEERING
FOUNDATIONS**

Engineering Career Cluster

The Engineering career cluster focuses on planning, designing, testing, building, and maintaining of machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and to mapping technician.

Statewide Program of Study: Engineering Foundations

The Engineering Foundations program of study focuses on occupational and educational opportunities associated with a wide range of skills applied in the Engineering industry. Students will design, test, and evaluate projects related to engines, machines, and structures. This program of study includes applying scientific, mathematical, and empirical evidence to solve problems through innovation, design, construction, operation, and maintenance of different engineering systems.

Secondary Courses for High School Credit

Level 1	<ul style="list-style-type: none"> Principles of Applied Engineering - FJH Introduction to Engineering Design (PLTW)
Level 2	<ul style="list-style-type: none"> Robotics I
Level 3	<ul style="list-style-type: none"> SystemsGo Rocketry - Engineering Design and Presentation I Engineering Science (PLTW –POE) Digital Electronics (PLTW DE) Computer Integrated Manufacturing (PLTW) Aerospace Engineering (PLTW) Civil Engineering and Architecture (PLTW) Engineering Design and Development (PLTW)
Level 4	<ul style="list-style-type: none"> Career and Technical Education Project-Based Capstone Practicum in Science, Technology, Engineering, and Mathematics Career Preparation for Programs of Study Career Preparation for Programs of Study + Extended Career Preparation

Aligned Advanced Academic Courses

AP or IB	AP Calculus AB AP Computer Science A	AP Physics 1 AP Physics 2 AP Statistics
Dual Credit	UT OnRamps Physics	PLTW Dual Credit Opportunities

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	<ul style="list-style-type: none"> Intern at an engineering, robotics, or aerospace company. Visit an engineering firm and shadow multiple types of engineers.
Expanded Learning Opportunities	<ul style="list-style-type: none"> Participate in SkillsUSA or TSA Join a local engineering association and attend meetings.

Aligned Industry-Based Certifications

- Autodesk Associate (Certified User) AutoCAD
- Autodesk Associate (Certified User) Fusion 360
- Autodesk Associate (Certified User) Inventor for Mechanical Design
- Autodesk Associate (Certified User) Revit Architecture
- Autodesk Associate (Certified User) Revit for Electrical
- Autodesk Associate (Certified User) Revit for Structural Design
- Autodesk Certified Professional Fusion 360
- Autodesk Certified Professional in AutoCAD for Design and Drafting
- Autodesk Certified Professional in Civil 3D for Infrastructure Design
- Autodesk Certified Professional in Inventor for Mechanical Design
- Autodesk Certified Professional in Revit for Architectural Design
- Autodesk Certified Professional in Revit for Electrical Design
- Autodesk Certified Professional in Revit for Structural Design
- C-103 Certified Industry 4.0 Associate – Robot System Operations
- Certified SOLIDWORKS Associate (CSWA) – Academic
- Certified SOLIDWORKS Associate (CSWA) – Electrical
- Certified SOLIDWORKS Associate (CSWA) – Mechanical Design
- Certified SOLIDWORKS Associate (CSWA) – Simulation
- Certified SOLIDWORKS Associate (CSWA) – Sustainability
- Certified SOLIDWORKS (CSWP) – Academic
- Certified SOLIDWORKS Professional (CSWP) – Mechanical Design
- Certified SOLIDWORKS Professional (CSWP) – Model Based Definition
- Certified SOLIDWORKS Professional (CSWP) – Simulation
- Certified SOLIDWORKS Professional (CSWPA) – Drawing Tools
- Engineering Technology Foundations
- Pre-Engineering/Engineering Technology – Job Ready
- FANUC Robot Operator 1
- Certified Logistics Technician (CLT)
- Certified Production Technician (CPT) 4.0
- Lean Six Sigma Green Belt Certification



Example Postsecondary Opportunities

Apprenticeships

- Industrial Engineering Technician Apprenticeship

Associate Degrees

- Manufacturing Engineering Technology/Technician
- Robotics Technology/Technician

Bachelor's Degrees

- Electrical and Electronics Engineering
- Engineering, General

Master's, Doctoral, and Professional Degrees

- Electrical and Electronics Engineering
- Engineering, General

Additional Stackable IBCs/Licensures

- Professional Engineer (PE License)
- Engineer in Training Certification (EIT)



Example Aligned Occupations

Civil Engineering Technologists and Technicians

Median Wage: \$61,138

Annual Openings: 765

10-Year Growth: 11%

Aerospace Engineers

Median Wage: \$115,694

Annual Openings: 483

10-Year Growth: 18%

Mechanical Engineers

Median Wage: \$99,937

Annual Openings: 1,755

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>

Engineering Career Cluster



Statewide Program of Study: Engineering Foundations

Course Information









Level 1

Course	Prerequisites Corequisites	Career Clusters
5270W Introduction to Engineering Design (PLTW-IED)* N1303742 (1 credit)	Prerequisites: None Grades: 9-12	

Level 2

Course	Prerequisites Corequisites	Career Clusters
5272 Robotics I* 13037000 (1 credit)	Prerequisites: None Grades: 9-12	 

Level 3

Course	Prerequisites Corequisites	Career Clusters
5271 SystemsGo Rocketry -Engineering Design and Presentation I* 13036500 (1 credit)	Prerequisites: IED Corequisites: Algebra II Grades: 10-12	 
4900W Engineering Science* (PLTW-POE) 13037500 (1 credit)	Prerequisites: IED, Algebra I, Biology Recommended Prerequisites: Geometry and IPC, Chemistry, or Physics Grades: 10-12	
3605W Digital Electronics* (PLTW-DE) 13037600 (1 credit)	Prerequisites: IED, Geometry, and CEA or ES Grades: 11-12	  
5290W Aerospace Engineering (PLTW-AE)* N1303745 (1 credit)	Prerequisites: IED, Geometry, and CEA or ES Grades: 11-12	 

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

For additional information on the **Engineering** career cluster, contact cte@tea.texas.gov or visit <https://tea.texas.gov/cte>





Friendswood ISD 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: Lindsey Foley, Executive Director Human Resources, 302 Laurel Dr, Friendswood, TX 77546 (281-482-1267) lfoley@fisd12.net. Further nondiscrimination information can be found at [Notification of Nondiscrimination in Career and Technical Education Programs](#).

Engineering Career Cluster







































Statewide Program of Study: Engineering Foundations

Course Information

Level 3

Course	Prerequisites Corequisites	Career Clusters
5280W Civil Engineering and Architecture (PLTW-CEA)* N1303747 (1 credit)	Prerequisites: IED and Algebra I Grades: 10-12	 
5255W Computer Integrated Manufacturing (PLTW-CIM) N1303748 (1 credit)	Prerequisites: Engineering Science Grades: 11-12	
Engineering Design and Development (PLTW)* N1303749 (1 credit)	Prerequisites: IED Recommended Prerequisites: At least two courses in engineering with at least one being a Level 2 or higher course	

Level 4

Course	Prerequisites Corequisites	Career Clusters
5008 Career and Technical Education Project-Based Capstone* First Time Taken: 12701101 (1 credit)	Prerequisites: None Grades: 11-12	         
5085 Practicum in Science, Technology, Engineering, and Mathematics* First Time Taken: 13037400 (2 credits)	Prerequisites: Algebra I and Geometry Recommended Prerequisites: 1 Engineering course Level 3 or higher Grade: 12	   
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	           
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	           

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For additional information on the **Engineering** career cluster, contact cte@tea.texas.gov or visit <https://tea.texas.gov/cte>

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BIOMEDICAL
SCIENCE

HEALTHCARE
DIAGNOSTICS
AND
THERAPEUTICS



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: *Biomedical Science*

The Biomedical Science program of study focuses on occupational and educational opportunities associated with the study of biology and medicine. This program of study includes researching and diagnosing diseases, pre-existing conditions, and other determinants of health. Students will also practice patient care and communication.

Secondary Courses for High School Credit

Level 1	<ul style="list-style-type: none"> Principles of Health Science Principles of Biomedical Science (PLTW)
Level 2	<ul style="list-style-type: none"> Medical Terminology - FJH Human Body Systems (PLTW)
Level 3	<ul style="list-style-type: none"> Medical Interventions (PLTW)
Level 4	<ul style="list-style-type: none"> Biomedical Innovation (PLTW) Career and Technical Education Project-Based Capstone Practicum in Health Science Practicum in Science, Technology, Engineering, and Mathematics Career Preparation for Programs of Study Career Preparation for Programs of Study + Extended Career Preparation

Aligned Advanced Academic Courses

AP or IB	AP Biology	AP Chemistry
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Dual Credit	Dual credit Emergency Medical Technician
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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

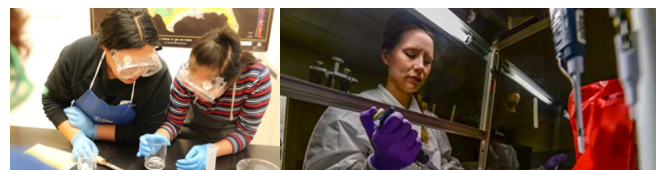
- Intern with a biological or medical scientist at a healthcare organization or health research company to learn scientific testing methods
- Shadow a clinical laboratory technician to observe laboratory testing processes

Expanded Learning Opportunities

- Participate in Health Occupations Students of America (HOSA)

Aligned Industry-Based Certifications

- Biotechnician Assistant Credentialing Exam (BACE)
- Medical Laboratory Assistant
- Medical Laboratory Technician



Example Postsecondary Opportunities

Apprenticeships

- Medical Laboratory Technician

Associate Degrees

- Biotechnology
- Biological Sciences

Bachelor's Degrees

- Biology
- Cellular and Molecular Biology

Master's, Doctoral, and Professional Degrees

- Forensic Science and Technology
- Biomedical Sciences

Additional Stackable IBCs/License

- Cytotechnologist



Example Aligned Occupations

Medical Equipment Preparers

Median Wage: \$38,827
Annual Openings: 519
10-Year Growth: 18%

Forensic Science Technicians

Median Wage: \$56,971
Annual Openings: 249
10-Year Growth: 22%

Biological Technicians

Median Wage: \$45,787
Annual Openings: 879
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>



Health Science Career Cluster

Statewide Program of Study: *Biomedical Science*

Course Information

Level 1

Course	Prerequisites Corequisites	Career Clusters
5430 Principles of Health Science* 13020200 (1 credit)	Prerequisites: None Grades: 9-12	
5410W Principles of Biomedical Science (PLTW - PBS) N1302092 (1 credit)	Prerequisites: None Grades: 9-12	

Level 2

Course	Prerequisites Corequisites	Career Clusters
5425W Human Body Systems (PLTW - HBS) 13020600 (1 credit)	Prerequisites: Biology Corequisites: Chemistry Recommended Prerequisites: One course from Biomedical or Health Science Grades: 10-12	

Level 3

Course	Prerequisites Corequisites	Career Clusters
5415W Medical Interventions (PLTW - MI) 13020800 (1 credit)	Prerequisites: Biology, Chemistry, and either PBS or HBS Grades: 11-12	

Level 4

Course	Prerequisites Corequisites	Career Clusters
5440W Biomedical Innovation (PLTW) N1302095 (1 credit)	Prerequisites: PBS or HBS, and Medical Interventions Grades: 12	

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* 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 or visit <https://tea.texas.gov/cte>



Health Science Career Cluster

Statewide Program of Study: *Biomedical Science*

Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
5008 Career and Technical Education Project-Based Capstone* First Time Taken: 12701101 (1 credit)	Prerequisites: None Grades: 11-12	
5435 Practicum in Health Science* - CCMA First Time Taken: 13020500 (2 credits)	Prerequisites: Health Science Theory and Biology Grades: 12	
5434 A/B Dual Credit Practicum in Health Science* - EMT Second Time Taken: 13020510 (2 credits)	Prerequisites: Health Science Theory and Biology Grades: 12	
5085 Practicum in Science, Technology, Engineering, and Mathematics* First Time Taken: 13037400 (2 credits)	Prerequisites: Algebra I and Geometry Corequisites: None Recommended Prerequisites: 1 Engineering course Level 3 or higher Grade: 12	
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	

* 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 or visit <https://tea.texas.gov/cte>



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

Level 1 • Principles of Health Science

Level 2 • Medical Terminology - FJH
• Pharmacy I
• Human Body Systems (PLTW HBS)

Level 3 • Emergency Medical Technician–Basic
• Health Science Theory
• Medical Interventions (PLTW MI)

Level 4 • Pharmacology
• Practicum in Health Science
• Career Preparation for Programs of Study
• Career Preparation for Programs of Study + Extended Career Preparation

Aligned Advanced Academic Courses

AP or IB

AP Biology

AP Chemistry

Dual Credit

Dual credit Emergency Medical Technician

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

- Intern with a medical assistant at a community clinic, hospital, assisted living, or long-term care facility
- Participate in job shadowing experiences such as Emergency Medical Services (EMS) ride along or hospital/clinical job

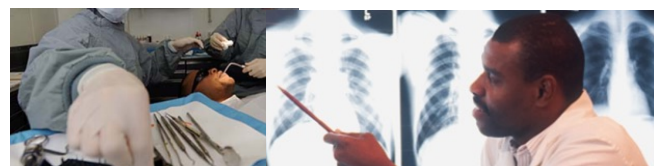
Expanded Learning Opportunities

- Participate in Health Occupation Students of America (HOSA) or SkillsUSA
- Participate in Advanced Medical Ambulance Bus (AMBUS) event or Community Emergency Response Team (CERT) event

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
- 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

Successful completion of the Diagnostic and Therapeutic Services program of study will fulfill requirements of the Public Services endorsement or the STEM endorsement if the math and science requirements are met.



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/License

- 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
5430 Principles of Health Science* 13020200 (1 credit)	Prerequisites: None Grades: 9-12	

Level 2

Course	Prerequisites Corequisites	Career Clusters
4835 Medical Terminology* 13020300 (1 credit)	Prerequisites: None Grades: 9-12	
5439 Pharmacy I 13021020 (1 credit)	Prerequisites: Biology and Chemistry Corequisites: Pharmacology Recommended Prerequisites: Principles of Health Science Grade: 12	
5425W Human Body Systems (PLTW - HBS) 13020600 (1 credit) Anatomy & Physiology	Prerequisites: Biology Corequisites: Chemistry Recommended Prerequisites: One course from Biomedical or Health Science Grades: 10-12	

Level 3

Course	Prerequisites Corequisites	Career Clusters
5405A/B Dual Credit Emergency Medical Technician–Basic N1303015 (2 credits)	Prerequisites: Biology and Principles of Law Corequisites: Human Body Systems (Students in the Health Science Career Cluster should take Practicum in Health Science – EMT) Grade: 12	
5431 Health Science Theory* 13020400 (1 credit)	Prerequisites: Biology and at least one credit in a course from the Health Science career cluster Grades: 11-12	

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* 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 or visit <https://tea.texas.gov/cte>










Health Science Career Cluster

Statewide Program of Study: *Diagnostic and Therapeutic Services*

Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
5415W Medical Interventions (PLTW - MI) 13020800 (1 credit) Pathophysiology	Prerequisites: Biology, Chemistry, and either PBS or HBS Grades: 11-12	
5432 Pharmacology* 13020950 (1 credit)	Prerequisites: Biology, Chemistry, and at least one credit in a Level 2 or higher course from the Health Science career cluster Corequisites: Pharmacy I Grade: 12	
5435 Practicum in Health Science* - CCMA First Time Taken: 13020500 (2 credits)	Prerequisites: Health Science Theory and Biology Grade: 12	
5434 A/B Dual Credit Practicum in Health Science* - EMT Second Time Taken: 13020510 (2 credits)	Prerequisites: Health Science Theory and Biology (Students in the Law and Public Service Career Cluster should take 5405 A/B Dual Credit EMT-Basic with HBS) Grade: 12	 
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	

* 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 or visit <https://tea.texas.gov/cte>



**HOSPITALITY
AND TOURISM**



CULINARY ARTS



Hospitality and Tourism Career Cluster

The Hospitality and Tourism career cluster focuses on the management, marketing, and operations of restaurants, lodging, attractions, recreation events, and travel-related services. This career cluster includes occupations ranging from reservation and transportation ticket agent to event planner and general manager.

Statewide Program of Study: Culinary Arts

The Culinary Arts program of study focuses on occupational and educational opportunities associated with the planning, directing, or coordinating activities of a food and beverage organization or department. This program of study includes opportunities involved in directing and participating in the preparation of food.



Secondary Courses for High School Credit

- | | |
|----------------|--|
| Level 1 | <ul style="list-style-type: none"> • Introduction to Culinary Arts |
| Level 2 | <ul style="list-style-type: none"> • Culinary Arts • Mustang INCubatoredu - Entrepreneurship I |
| Level 3 | |
| Level 4 | <ul style="list-style-type: none"> • Food Science • Practicum in Culinary Arts I and II • Practicum in Hospitality Services • Career Preparation for Programs of Study • Career Preparation for Programs of Study + Extended Career Preparation |

Aligned Advanced Academic Courses

AP or IB	AP Chemistry
Dual Credit	Dual credit Culinary Arts at FHS through College of the Mainland?

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	<ul style="list-style-type: none"> • Shadow a director of a non-profit that produces and delivers food for communities in need • Intern at a catering company and learn about food production for large-scale events • Work part-time in a restaurant as a line cook or chef
Expanded Learning Opportunities	<ul style="list-style-type: none"> • Participate in FCCLA • Participate in SkillsUSA • Participate in American Culinary Association or the Texas Restaurant Association

Aligned Industry-Based Certifications

- | | |
|---|--|
| <ul style="list-style-type: none"> • Certified Fundamentals Cook • Certified Fundamentals Pastry Cook • Certified Hospitality and Tourism Management Professional • Commercial Foods • Culinary Meat Selection and Cookery Certification | <ul style="list-style-type: none"> • Food Protection Manager Certification • Food Safety and Science Certification • ManageFirst Professional • Pre-Professional Certification in Culinary Arts • Pre-Professional Certification in Food Science Fundamentals • ServSafe Manager |
|---|--|

Successful completion of the Culinary Arts program of study will fulfill requirements of the Business and Industry endorsement.



Example Postsecondary Opportunities

Associate Degrees

- Culinary Arts
- Baking and Pastry Arts

Bachelor's Degrees

- Hotel/Motel Administration/Management
- Culinary Science

Master's, Doctoral, and Professional Degrees

- Organizational Leadership
- Foodservice Systems Administration/Management

Additional Stackable IBCs/License

- Food Manager License



Example Aligned Occupations

Bakers

Median Wage: \$29,466
Annual Openings: 2,942
10-Year Growth: 26%

Chefs and Head Cooks

Median Wage: \$44,761
Annual Openings: 950
10-Year Growth: 37%

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>



Hospitality and Tourism Career Cluster

Statewide Program of Study: Culinary Arts

Course Information

Level 1

Course Prerequisites | Corequisites Career Clusters

5338 Introduction to Culinary Arts*
13022550 (1 credit)

Prerequisites: None
Grades: 9-12



Level 2

Course Prerequisites | Corequisites Career Clusters

5340 Culinary Arts
13022600 (2 credits)

Prerequisites: Introduction to Culinary Arts
Grades: 10-12



5040 Mustang INCubatoredu - Entrepreneurship I*
13011101 (1 credit)

Recommended Prerequisites: Principles of Business, Marketing, and Finance
Grades: 11-12



Level 3

Course Prerequisites | Corequisites Career Clusters

Level 4

Course Prerequisites | Corequisites Career Clusters

5335 Food Science
13023000 (1 credit)

Prerequisites: Biology, Chemistry, and at least one credit in a Level 2 or higher course from the Hospitality and Tourism career cluster
Grades: 11-12



5350 Practicum in Culinary Arts I
First Time Taken:
13022700 (2 credits)

Prerequisites: Culinary Arts
Grades: 11-12



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

For additional information on the **Hospitality and Tourism** career cluster, contact cte@tea.texas.gov or visit <https://tea.texas.gov/cte>



Hospitality and Tourism Career Cluster

Statewide Program of Study: Culinary Arts

Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
5353 Practicum in Culinary Arts II Second Time Taken: 13022710 (2 credits)	Prerequisites: Practicum in Culinary Arts I Grade: 12	
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	

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

For additional information on the **Hospitality and Tourism** career cluster, contact cte@tea.texas.gov or visit <https://tea.texas.gov/cte>



**COSMETOLOGY
AND PERSONAL
CARE SERVICES**



Human Services Career Cluster

The Human Services career cluster focuses on preparing individuals for employment in career pathways that relate to families and human needs, such as counseling and mental health services, family and community services, personal care services, and consumer services. This career cluster includes occupations ranging from community health workers to cosmetologists and nutritionists.

Regional Program of Study: Cosmetology and Personal Care Services

Approved in ESC Regions 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, & 20

**The list of approved ESC regions is updated every school year. Be sure to check the CTE regional program of study website for updates.*

The Cosmetology and Personal Care Services regional program of study focuses on occupational and educational opportunities associated with providing beauty and personal care services. This program of study includes managing personal care facilities and coordinating or supervising personal service workers.

Secondary Courses for High School Credit

Level 1

Level 2

- Level 3**
- Cosmetology I + Cosmetology I Lab
 - Barbering I

- Level 4**
- Cosmetology II + Cosmetology II Lab
 - Barbering II



Example Postsecondary Opportunities

Apprenticeships

- Apprentice Stylist

Associate Degrees

- Cosmetology Operator
- Esthetics and Skin Care

Additional Stackable IBCs/License

- Class A Barber
- Eyelash Extension Specialist
- Hair Weaving Specialist



Aligned Advanced Academic Courses

Dual Credit

Dual credit Cosmetology through College of the Mainland

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

- Work part-time in a salon, spa, or barbershop
- Participate in an apprenticeship at a salon to become an apprentice stylist

Expanded Learning Opportunities

- Tour a salon, spa, or barbershop
- Participate in SkillsUSA

Aligned Industry-Based Certifications

- Barber Operator License
- Cosmetology Esthetician License
- Cosmetology Manicurist License
- Cosmetology Operator License



Example Aligned Occupations

Hairdressers, Hairstylists, and Cosmetologists

Median Wage: \$27,286
Annual Openings: 8,014
10-Year Growth: 25%

Skincare Specialists

Median Wage: \$35,112
Annual Openings: 778
10-Year Growth: 38%

First-Line Supervisors of Personal Service Workers

Median Wage: \$36,795
Annual Openings: 2,253
10-Year Growth: 29%

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>



Human Services Career Cluster

Regional Program of Study: Cosmetology and Personal Care Services

Course Information

Level 1

Course	Prerequisites Corequisites	Career Clusters
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Level 2

Course	Prerequisites Corequisites	Career Clusters
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Level 3

Course	Prerequisites Corequisites	Career Clusters
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**5562A/B Cosmetology I +
Cosmetology I Lab**
13025210 (3 credits)

Prerequisites: None
Grade: 11-12



5564A/B Barbering I
N1302534 (3 credits)

Prerequisites: None
Grade: 11-12



Level 4

Course	Prerequisites Corequisites	Career Clusters
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**5563A/B Cosmetology II +
Cosmetology II Lab**
13025310 (3 credits)

Prerequisites: Cosmetology I
Grade: 12



5565A/B Barbering II
N1302535 (3 credits)

Prerequisites: Barbering I
Grade: 12



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

For additional information on the **Human Services** career cluster,
contact cte@tea.texas.gov or visit <https://tea.texas.gov/cte>



CYBERSECURITY

**PROGRAMMING
AND SOFTWARE
DEVELOPMENT**



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

Level 1	<ul style="list-style-type: none"> Fundamentals of Computer Science - FJH
Level 2	<ul style="list-style-type: none"> Computer Science I AP Computer Science Principles
Level 3	<ul style="list-style-type: none"> AP Computer Science A AP Career Kickstart Cybersecurity 1: Networking Fundamentals AP Pilot Career Kickstart Cybersecurity 2: Cybersecurity Fundamentals
Level 4	<ul style="list-style-type: none"> Independent Study in Evolving/Emerging Technologies Career and Technical Education Project-Based Capstone Practicum in Science, Technology, Engineering, and Mathematics Career Preparation for Programs of Study Career Preparation for Programs of Study + Extended Career Preparation

Aligned Advanced Academic Courses

AP or IB	AP Computer Science Principles AP Computer Science A
Dual Credit	No Dual Credit options currently.

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

Aligned Industry-Based Certifications

- Cisco 100-490 RSTech Supporting Cisco Routing and Switching Network Devices
- Cisco 200-201 CBROPS - Understanding Cisco Cybersecurity Operations Fundamentals
- Cisco CCNA (200-301) Implementing and Administering Cisco Solutions
- CodeHS Cybersecurity Level 1 Certification
- CompTIA A+ Certification
- CompTIA IT Fundamentals+
- CompTIA Network+
- CompTIA Security+
- Computer Networking Fundamentals - Job Ready
- Cybersecurity Fundamentals
- Cybersecurity Fundamentals: An ISACA Certificate
- Information Technology Specialist: Networking
- Information Technology Specialist: Java
- Information Technology Specialist: JavaScript
- Microsoft 365 Fundamentals
- Microsoft Security, Compliance, and Identity Fundamentals
- Oracle Certified Associate Java SE 8 Programmer
- Cloud Essentials+
- CompTIA Linux+
- CompTIA Server+

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



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/License

- 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
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Level 2

Course	Prerequisites Corequisites	Career Clusters
0500 Computer Science I* 03580200 (1 credit)	Prerequisites: Algebra I Grades: 9-12	
0505 AP Computer Science Principles* A3580300 (1 credit)	Prerequisites: Algebra I Corequisites: for 9 th graders MAP Geometry or Algebra II Grades: 9-12	

Level 3

Course	Prerequisites Corequisites	Career Clusters
5203 Digital Forensics 03580360 (1 credit)	Prerequisites: Computer Science I and Geometry Recommended Prerequisites: Computer Science II Grades: 11-12	
0510 AP Computer Science A* A3580110 (1 math credit) A3580120 (1 LOTE credit)	Prerequisites: Computer Science II Grades: 11-12	
5208 AP Career Kickstart Cybersecurity 1: Networking Fundamentals (1 credit)	Prerequisites: AP Computer Science Principles Grades: 10-12	
5209 PILOT AP Career Kickstart Cybersecurity 2: Networking Fundamentals (1 credit)	Prerequisites: AP Computer Science Principles, AP Career Kickstart Cybersecurity 1: Networking Fundamentals Grades: 11-12	

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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 or visit <https://tea.texas.gov/cte>



Information Technology Career Cluster

Statewide Program of Study: Cybersecurity

Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
0610 Independent Study in Evolving/Emerging Technologies* First Time Taken: 03581500 (1 credit)	Prerequisites: AP Computer Science A Grades: 11-12	
5008 Career and Technical Education Project-Based Capstone* First Time Taken: 12701101 (1 credit)	Prerequisites: None Grades: 11-12	
5085 Practicum in Science, Technology, Engineering, and Mathematics* First Time Taken: 13037400 (2 credits)	Prerequisites: Algebra I and Geometry Recommended Prerequisites: 1 Computer Science course Level 3 or higher Grade: 12	
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	

* 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 or visit <https://tea.texas.gov/cte>



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: Programming and Software Development

The Programming and Software Development program of study focuses on occupational and educational opportunities associated with researching, designing, developing, testing, and operating systems-level software, compilers, and network distribution software for medical, industrial, military, communications, aerospace, business, scientific, and general computer applications. This program of study includes creating, modifying, and testing the codes, forms, and script that allow computer applications to run.



Secondary Courses for High School Credit

Level 1	<ul style="list-style-type: none"> Fundamentals of Computer Science – FJH
Level 2	<ul style="list-style-type: none"> Computer Science I AP Computer Science Principles Mustang INCubatoredu - Entrepreneurship I
Level 3	<ul style="list-style-type: none"> Computer Science II AP Computer Science A
Level 4	<ul style="list-style-type: none"> Computer Science III Independent Study in Evolving/Emerging Technologies Career and Technical Education Project-Based Capstone Practicum in Science, Technology, Engineering, and Mathematics Career Preparation for Programs of Study Career Preparation for Programs of Study + Extended Career Preparation



Example Postsecondary Opportunities

Apprenticeships

- Computer Programmer Apprenticeship

Associate Degrees

- Computer Programming
- Web Page, Digital/Multimedia and Information Resources Design

Bachelor's Degrees

- Data Science
- Computer Engineering

Master's, Doctoral, and Professional Degrees

- Management Science
- Computer Software Engineering

Additional Stackable IBCs/License

- AWS Certified Developer Associate



Aligned Advanced Academic Courses

AP or IB	AP Calculus AB AP Statistics
Dual Credit	No Dual Credit offerings currently.

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	<ul style="list-style-type: none"> Intern at a local IT company to develop skills in programming and coding Shadow a software developer to learn how they create and improve software to support efficient processes at their company
Expanded Learning Opportunities	<ul style="list-style-type: none"> Program and create a game Participate in SkillsUSA or TSA

Aligned Industry-Based Certifications

- Apple App Development with Swift
- C++ Certified Associate Programmer
- Certified Entry-Level Python Programmer (PCEP)
- Certified Professional Programmer
- Certified User: Programmer
- CodeHS Python Level 1 Certification
- CompTIA IT Fundamentals+
- CompTIA Linux+
- Information Technology Specialist: Java
- Information Technology Specialist: JavaScript
- Microsoft Azure AI Fundamentals
- Microsoft Azure Data Fundamentals
- Oracle Certified Associate Java SE 8 Programmer
- Oracle Database SQL Certified Associate
- CompTIA A+ Certification
- CompTIA Server+

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



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%

Computer Programmers

Median Wage: \$87,997
Annual Openings: 1,176
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>



Information Technology Career Cluster

Statewide Program of Study: Programming and Software Development

Course Information

Level 1

Course	Prerequisites Corequisites	Career Clusters
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Level 2

Course	Prerequisites Corequisites	Career Clusters
0500 Computer Science I* 03580200 (1 credit)	Prerequisites: Algebra I Grades: 9-12	
0505 AP Computer Science Principles* A3580300 (1 credit)	Prerequisites: Algebra I Corequisites: for 9 th graders – MAP Geometry or Algebra II Grades: 9-12	
5040 Mustang INCubatoredu - Entrepreneurship I* 13011101 (1 credit)	Recommended Prerequisites: Principles of Business, Marketing, and Finance Grades: 11-12	

Level 3

Course	Prerequisites Corequisites	Career Clusters
0530W Computer Science II 03580300 (1 credit)	Prerequisites: Geometry and Computer Science I or AP Computer Science Principles Grades: 10-12	
0510 AP Computer Science A* A3580110 (1 math credit) A3580120 (1 LOTE credit)	Prerequisites: Computer Science II Grades: 11-12	

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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 or visit <https://tea.texas.gov/cte>



Information Technology Career Cluster

Statewide Program of Study: Programming and Software Development

Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
0535 Computer Science III 03580350 (1 credit)	Prerequisites: AP Computer Science A, Grades: 11-12	
0610 Independent Study in Evolving/Emerging Technologies* First Time Taken: 03581500 (1 credit)	Prerequisites: AP Computer Science A Grades: 11-12	
5085 Practicum in Science, Technology, Engineering, and Mathematics* First Time Taken: 13037400 (2 credits)	Prerequisites: Algebra I and Geometry Corequisites: None Recommended Prerequisites: 1 Computer Science course Level 3 or higher Grade: 12	
5008 Career and Technical Education Project-Based Capstone* First Time Taken: 12701101 (1 credit)	Prerequisites: None Grades: 11-12	
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	

* 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 or visit <https://tea.texas.gov/cte>



**LAW
ENFORCEMENT**

**LEGAL
STUDIES**



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	<ul style="list-style-type: none"> Principles of Law, Public Safety, Corrections, and Security
Level 2	<ul style="list-style-type: none"> Law Enforcement I Criminal Investigation
Level 3	
Level 4	<ul style="list-style-type: none"> Forensic Science 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	No Dual Credit offerings currently.
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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: 5,461
10-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

Level 1

Course	Prerequisites Corequisites	Career Clusters
5700 Principles of Law, Public Safety, Corrections, and Security* 13029200 (1 credit)	Prerequisites: None Grades: 9-12	


Level 2

Course	Prerequisites Corequisites	Career Clusters
5705 Law Enforcement I 13029300 (1 credit)	Recommended Prerequisites: Principles of Law, Public Safety, Corrections, and Security Grades: 10-12	
5745 Criminal Investigation 13029550 (1 credit)	Recommended Prerequisites: Principles of Law, Public Safety, Corrections, and Security Grades: 10-12	

Level 3

Course	Prerequisites Corequisites	Career Clusters
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Level 4

Course	Prerequisites Corequisites	Career Clusters
4140 Forensic Science* 13029500 (1 credit)	Prerequisites: Biology and Chemistry, IPC, Tech Principles or Physics Recommended Prerequisites: Algebra II and one course from the Law Career Cluster Grades: 12	

Continued on next page

* 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 or visit <https://tea.texas.gov/cte>



Law and Public Service Career Cluster

Statewide Program of Study: Law Enforcement

Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
5740 Practicum in Law, Public Safety, Corrections, and Security* First Time Taken: 13030100 (2 credits)	Recommended Prerequisites: Principles of Law and 2 additional classes from the Law Career Cluster Grades: 11-12	
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	

* 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 or visit <https://tea.texas.gov/cte>



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: Legal Studies

The Legal Studies program of study focuses on topics such as legal research, legal writing, rules of procedure, case management, law office technology, and legal ethics. Areas of the legal system studied include aspects of family law, criminal law, and contract law.

Secondary Courses for High School Credit



- | | |
|----------------|---|
| Level 1 | <ul style="list-style-type: none"> Principles of Law, Public Safety, Corrections, and Security |
| Level 2 | <ul style="list-style-type: none"> Business Law Court Systems and Practices |
| Level 3 | |
| Level 4 | <ul style="list-style-type: none"> Forensic Science Career and Technical Education Project-Based Capstone 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	No Dual credit offerings currently.
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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 clerk in a courthouse to learn about civil litigation
- Intern at a law firm, working alongside a paralegal to produce and organize legal documents
- Work part-time as an administrative assistant at a local non-profit that provides legal aid

Expanded Learning Opportunities

- Participate in Mock Trial
- Participate in TSA or SkillsUSA

Aligned Industry-Based Certifications

- General Management
- Administrative Assisting



Example Postsecondary Opportunities

Apprenticeships

- Law Apprenticeship

Associate Degrees

- Paralegal Studies
- Court Reporting and Captioning

Bachelor's Degrees

- Legal Research
- Legal Studies

Master's, Doctoral, and Professional Degrees

- Juris Doctorate
- International and Comparative Law

Additional Stackable IBCs/Licensures

- Paralegal



Example Aligned Occupations

Court Reporters

Median Wage: \$51,177
Annual Openings: 174
10-Year Growth: 11%

Paralegals and Legal Assistants

Median Wage: \$56,310
Annual Openings: 4,046
10-Year Growth: 23%

Lawyers

Median Wage: \$134,158
Annual Openings: 3,915
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>



Law and Public Service Career Cluster

Statewide Program of Study: Legal Studies

Course Information

Level 1

Course	Prerequisites Corequisites	Career Clusters
5700 Principles of Law, Public Safety, Corrections, and Security* 13029200 (1 credit)	Prerequisites: None Grades: 9-12	

Level 2

Course	Prerequisites Corequisites	Career Clusters
5067 Business Law* 13011700 (1 credit)	Recommended Prerequisites: Principles of Business or Principles of Law Grades: 11-12	
5715 Court Systems and Practices 13029600 (1 credit)	Recommended Prerequisites: Criminal Justice - Law Enforcement I Grades: 10-12	

Level 3

Course	Prerequisites Corequisites	Career Clusters
4140 Forensic Science* 13029500 (1 credit)	Prerequisites: Biology, Chemistry, IPC, Tech Principles or Physics Recommended Prerequisites: Algebra II and one course from the Law Career Cluster Grades: 12	
5008 Career and Technical Education Project-Based Capstone* First Time Taken: 12701101 (1 credit)	Prerequisites: None Grades: 11-12	

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* 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 or visit <https://tea.texas.gov/cte>



Law and Public Service Career Cluster

Statewide Program of Study: Legal Studies

Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
5740 Practicum in Law, Public Safety, Corrections, and Security* First Time Taken: 13030100 (2 credits)	Recommended Prerequisites: Principles of Law and 2 additional classes from the Law Career Cluster Grades: 11-12	
5090/5091 Career Preparation I for Programs of Study/Extended* First Time Taken: 12701121 (2 credits) 12701141 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grades: 11-12	
5092/5093 Career Preparation II for Programs of Study/Extended* Second Time Taken: 12701122 (2 credits) 12701142 (3 credits)	Prerequisites: At least one Level 2 or higher CTE course Grade: 12	

* 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 or visit <https://tea.texas.gov/cte>



Local Implementation Considerations:

Students completing two or more courses for two or more credits within a program of study earn concentrator status for Perkins V federal accountability reporting.

Proposed Indicator: Students finishing three or more courses for four or more credits with one course from level 3 or 4 within a program of study earn completer status for federal accountability reporting.

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 the development and use of automatic and computer-controlled machines, tools, and robots that perform work on metal or plastic. CTE learners will learn 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

Level 1

Level 2

Level 3 • Welding I

Level 4 • Welding II + Welding II Lab

Aligned Advanced Academic Courses

Dual Credit Dual credit Welding through College of the Mainland.

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

- Job shadow a welder
- Intern for a local welding company

Expanded Learning Opportunities

- Tour a welding shop
- Participate in SkillsUSA or TSA
- Participate in a welding project that benefits the community

Aligned 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



Example 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
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Level 2

Course	Prerequisites Corequisites	Career Clusters
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Level 3

Course	Prerequisites Corequisites	Career Clusters
5755A/B Welding I 13032300 (2 credits)	Prerequisites: None Grade: 11	

Level 4

Course	Prerequisites Corequisites	Career Clusters
5756A/B Welding II + Welding II Lab 13032400 (3 credits)	Prerequisites: Welding I Grade: 12	

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

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



..... **MARITIME**



Transportation, Distribution, and Logistics Career Cluster

The Transportation, Distribution, and Logistics career cluster focuses on planning, management, and movement of people, materials, and goods by road, pipeline, air, rail, and water. It also includes transportation infrastructure planning and management, logistics services, and mobile equipment and facility maintenance. This career cluster includes occupations ranging from automotive mechanic, avionics technician, and automotive entrepreneur to pilots and logistics planning professionals.

Regional Program of Study: Maritime

Approved in ESC Regions 2, 4, and 5

*The list of approved ESC regions is updated every school year, be sure to check the CTE regional program of study website for updates.

The Maritime regional program of study focuses on educational and occupational opportunities associated with the operation of water vessels. This program of study includes maintenance procedures and operation of maritime navigational aids, maritime traffic controls, and communications equipment to ensure conformance with federal safety regulations.

Secondary Courses for High School Credit

Level 1

Level 2

- Level 3**
- Maritime Science I
 - Maritime Science II

- Level 4**
- Practicum in Distribution and Logistics + Extended Practicum in Distribution and Logistics

Aligned Advanced Academic Courses

Dual Credit

Dual credit Maritime through San Jacinto College
Maritime Technology Training Center

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 at a maritime port to learn about maritime traffic control
- Participate in a pre-apprenticeship with a government agency (such as U.S. Coast Guard) working closely with ship engineers

Expanded Learning Opportunities

- Participate in SkillsUSA
- Tour various maritime vessels

Aligned Industry-Based Certifications

- Certified Logistics Technician (CLT)



Example Postsecondary Opportunities

Apprenticeships

- Maritime Apprenticeship Program (MAP)

Associate Degrees

- Logistics
- Transportation and Mobility Management

Bachelor's Degrees

- Logistics and Supply Chain Management
- Maritime Transportation

Master's, Doctoral, and Professional Degrees

- Logistics
- Transportation and Mobility Management

Additional Stackable IBCs/License

- Limited Tonnage Workboat Mate



Example Aligned Occupations

Sailors and Marine Oilers

Median Wage: \$69,299
Annual Openings: 329
10-Year Growth: 10%

Motorboat Operators

Median Wage: \$40,223
Annual Openings: 83
10-Year Growth: 14%

Captains, Mates, and Pilots of Water Vessels

Median Wage: \$102,803
Annual Openings: 293
10-Year Growth: 13%

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>



Transportation, Distribution, and Logistics Career Cluster

Regional Program of Study: Maritime

Course Information

Level 1	Course	Prerequisites Corequisites	Career Clusters
Level 2	Course	Prerequisites Corequisites	Career Clusters
Level 3	Course	Prerequisites Corequisites	Career Clusters
	5914 Maritime Science I N1304662 (1 credit)	Prerequisites: None Grade: 11 - Fall	
	5915 Maritime Science II N1304663 (1 credit)	Prerequisites: Maritime Science I Grade: 11 - Spring	
Level 4	Course	Prerequisites Corequisites	Career Clusters
	5916 A/B Practicum in Distribution and Logistics + Extended Practicum in Distribution and Logistics* First Time Taken: 13040475 (3 credits)	Prerequisites: Maritime Science I and II Grade: 12	

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

For additional information on the **Transportation, Distribution, and Logistics** career cluster, contact cte@tea.texas.gov or visit <https://tea.texas.gov/cte>

TEA INDUSTRY BASED CERTIFICATIONS AT A GLANCE

CAREER CLUSTER	COURSE	CERTIFICATION
AGRICULTURE	PRACTICUM IN AG - VET ASSISTANT	Certified Veterinary Assistant, Level 1
	FLORL DESIGN	Benz Principles of Floral Design Certificat
ARTS, AV TECH	PRACTICUM IN AUDIO VIDO PRODUCTION I OR II	Adobe Certified Professional in Digital Vi Using Adobe Premiere Pro
BUSINESS	REAL ESTATE	Real Estate Sales Agent License
HEALTH SCIENCE	HEALTH SCIENCE THEORY	Patient Care Technician
	PRACTICUM IN HEALTH SCIENCE -EMT	Emergency Medical Responder
	PRACTICUM IN HEALTH SCIENCE -EMT	Emergency Medical Technician - Basic
	PRACTICUM IN HEALTH SCIENCE - CCMA	Certified Clinical Medical Assistant
	PRACTICUM IN HEALTH SCIENCE - CCMA	Certified EKG Technician
	PRACTICUM IN HELATH SCIENCE - PHARM TECH	Pharmacy Technician
CULINARY	PRACTICUM IN CULINARY ARTS II	ServSafe Manager
STEM	CYBERSECURITY	CompTIA Security+

Career and Technical Education Annual Public Notification of Nondiscrimination

Friendswood ISD offers career and technical education programs in Agriculture, Food & Natural Resources; Arts, AV Technology & Communication; Business Marketing, & Finance; Education & Training; Hospitality & Tourism; Health Science; Law & Public Service; and STEM. Admission to these programs is based on student interest and completion of prerequisites. It is the policy of Friendswood ISD not to discriminate on the basis of race, color, national origin, sex or handicap in its vocational programs, services or activities and provides equal access to the Boy Scouts and other designated youth groups as required by Title VI of the Civil Rights Act of 1964, as amended; Title IX of the Education Amendments of 1972; and Section 504 of the Rehabilitation Act of 1973, as amended. It is the policy of Friendswood ISD not to discriminate on the basis of race, color, national origin, sex, handicap, or age in its employment practices as required by Title VI of the Civil Rights Act of 1964, as amended; Title IX of the Education Amendments of 1972; the Age Discrimination Act of 1975, as amended; and Section 504 of the Rehabilitation Act of 1973, as amended. Friendswood ISD will take steps to assure that lack of English language skills will not be a barrier to admission and participation in all educational and vocational programs. For information about your rights or grievance procedures, contact the Title IX Coordinator, Lindsey Foley, at 281-482-1267 lfoley@fisdk12.net and/or the Section 504 Coordinator, Dahria Driskell, at 281-482-0687 ddriskell@fisdk12.net"

Career and Technical Education Annual Public Notification of Nondiscrimination FORMULARIO DE MUESTRA"

"(Notificación Publica de No Discriminación en Programas de Educación Técnica Vocacional)" "Friendswood ISD ofrece programas de educación profesional y técnica en agricultura, alimentos y recursos naturales; Artes, Tecnología AV y Comunicación; marketing empresarial y finanzas; educación y formación; Hospitalidad y turismo; Ciencia de la salud; derecho y servicio público; y STEM. La admisión a estos programas se basa en el interés del estudiante y el cumplimiento de los requisitos previos." "Es norma de Friendswood ISD no discriminar en sus programas, servicios o actividades vocacionales y brinda igualdad de acceso a los Boy Scouts y otros grupos juveniles designados por motivos de raza, color, origen nacional, sexo o impedimento, tal como lo requieren el Título VI de la Ley de Derechos Civiles de 1964, según enmienda; Título IX de las Enmiendas en la Educación de 1972, y la Sección 504 de la Ley de Rehabilitación de 1973, según enmienda."

"Es norma de Friendswood ISD no discriminar en sus procedimientos de empleo por motivos de raza, color, origen nacional, sexo, impedimento o edad, tal como lo requieren el Título VI de la Ley de Derechos Civiles de 1964, según enmienda; Título IX de las Enmiendas en la Educación, de 1972, la ley de Discriminación por Edad, de 1975, según enmienda; y la Sección 504 de la Ley de Rehabilitación de 1973, según enmienda." "Friendswood ISD tomará las medidas necesarias para asegurar que la falta de habilidad en el uso del inglés no sea un obstáculo para la admisión y participación en todos los programas educativos y vocacionales." "Para información sobre sus derechos o procedimientos de quejas, comuníquese con el Coordinador del Título IX Lindsey Foley, lfoley@fisdk12.net, 281-482-1267, y/o el Coordinador de la Sección 504, Dahria Driskell, ddriskell@fisdk12.net, 281-482-0687. r, Dahria Driskell, at 281-482-0687 ddriskell@fisdk12.net"

FRIENDSWOOD INDEPENDENT SCHOOL DISTRICT
302 LAUREL DR
FRIENDSWOOD, TX 77546

Friendswood ISD Leadership

Thad Roher

Superintendent

Friendswood Independent School District

Mark Griffon

Principal

Friendswood High School

Susan Kirkpatrick

Executive Director of Career and Technical Education

skirkpatrick@fisd12.net

281.996.6558

