



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: Food Science and Technology

The Food Science and Technology program of study focuses on the occupational and educational opportunities associated with the research, production, and processing of food from plants and animals. This program of study includes exploration of safety, processing, preserving, packaging, and storing food for human consumption.



Secondary Courses for High School Credit

- Level 1**
 - Principles of Agriculture, Food, and Natural Resources

- Level 2**
 - Food Technology and Safety
 - Food Technology and Safety + Agricultural Laboratory and Field Experience

- Level 3**
 - Food Processing
 - Food Processing + Agricultural Laboratory and Field Experience
 - Meat Processing + Agricultural Laboratory and Field Experience (TBD)

- Level 4**
 - Food Science
 - Practicum in Agriculture, Food, and Natural Resources
 - Practicum in Agriculture, Food, and Natural Resources + Extended Practicum in Agriculture, Food, and Natural Resources
 - Career Preparation for Programs of Study
 - Career Preparation for Programs of Study + Extended Career Preparation
 - Career and Technical Education Project-Based Capstone
 - Scientific Research and Design

Aligned Advanced Academic Courses

AP or IB	AP Biology AP Chemistry IB Chemistry SL IB Chemistry HL
Dual Credit	Dual credit offerings will vary by Local Education Agency

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

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> • Shadow employees at a food production company to learn about application of food science to production and quality control • Intern in a food science lab working alongside a food science technician to learn about safe and efficient processing of food products.
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

- Culinary Meat Selection and Cookery Certification
- Food Safety and Science Certification
- Pre-Professional Certification in Food Science Fundamentals

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



Example Postsecondary Opportunities

Apprenticeships

- Butcher

Associate Degrees

- Biology/Biological Sciences

Bachelor's Degrees

- Food Science and Technology
- Human Nutrition

Master's, Doctoral, and Professional Degrees

- Human Nutrition
- Food Science and Technology

Additional Stackable IBCs/Licensures

- National Meat Cutting and Processing Certification



Example Aligned Occupations

Butchers and Meat Cutters

Median Wage: \$35,554
Annual Openings: 2,044
10-Year Growth: 17%

Food Science Technicians

Median Wage: \$53,890
Annual Openings: 227
10-Year Growth: 18%

Agricultural Inspectors

Median Wage: \$50,690
Annual Openings: 181
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>



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Course Information

Level 1

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

Level 2

Course	Prerequisites Corequisites	Career Clusters
Food Technology and Safety 13001300 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Food Technology and Safety + Agricultural Laboratory and Field Experience 13001310 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

Level 3

Course	Prerequisites Corequisites	Career Clusters
Food Processing 13001400 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Food Technology and Safety Recommended Corequisites: None	
Food Processing + Agricultural Laboratory and Field Experience 13001410 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: Food Technology and Safety Recommended Corequisites: None	
Meat Processing + Agricultural Laboratory and Field Experience TBD (TBD credit)	Prerequisites: TBD Corequisites: TBD Recommended Prerequisites: TBD Recommended Corequisites: TBD	

Level 4

Course	Prerequisites Corequisites	Career Clusters
Food Science 13023000 (1 credit)	Prerequisites: one credit in Biology, one credit in Chemistry, and at least one credit in a Level 2 or higher course from the Hospitality and Tourism career cluster Corequisites: None Recommended Prerequisites: Principles of Hospitality and Tourism Recommended Corequisites: None	

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

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



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Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
Practicum in Agriculture, Food, and Natural Resources* First Time Taken: 13002500 (2 credits) Second Time Taken: 13002510 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: a minimum of one credit from the courses in the AFNR career cluster Recommended Corequisites: None	
Practicum in Agriculture, Food, and Natural Resources + Extended Practicum in Agriculture, Food, and Natural Resources* First Time Taken: 13002505 (3 credits) Second Time Taken: 13002515 (3 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: a minimum of one credit from the courses in the AFNR career cluster Recommended Corequisites: None	
Career Preparation for Programs of Study* First Time Taken: 12701121 (2 credits)	Prerequisites: at least one Level 2 or higher CTE course Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Career Preparation for Programs of Study + Extended Career Preparation* First Time Taken: 12701141 (3 credits)	Prerequisites: at least one Level 2 or higher CTE course Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Career and Technical Education Project-Based Capstone* First Time Taken: 12701101 (1 credit)	Prerequisites: Biology, Chemistry, Integrated Physics, Chemistry (IPC), or Physics Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Scientific Research and Design* 13037200 (1 credit)	Prerequisites: Biology, Chemistry, Integrated Physics, Chemistry (IPC), or Physics Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

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