



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

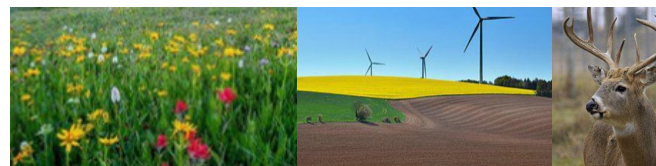
- | | |
|----------------|---|
| Level 1 | <ul style="list-style-type: none"> Principles of Agriculture, Food, and Natural Resources |
| Level 2 | <ul style="list-style-type: none"> Beekeeping and Honey Processing Wildlife, Fisheries, and Ecology Management Wildlife, Fisheries, and Ecology Management + Agricultural Laboratory and Field Experience Forestry and Woodland Ecosystems Forestry and Woodland Ecosystems + Agricultural Laboratory and Field Experience |
| Level 3 | <ul style="list-style-type: none"> Energy and Natural Resource Technology Energy and Natural Resource Technology + Agricultural Laboratory and Field Experience Range Ecology and Management Range Ecology and Management + Agricultural Laboratory and Field Experience |
| Level 4 | <ul style="list-style-type: none"> Advanced Energy and Natural Resource Technology Advanced Energy and Natural Resource Technology + Agricultural Laboratory and Field Experience Career and Technical Education Project-Based Capstone 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 Scientific Research and Design |

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	- 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	- 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
- Forest Worker Credential
- 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: \$53,997
Annual Openings: 79
10-Year Growth: 18%

Environmental Scientists and Specialists

Median Wage: \$79,386
Annual Openings: 407
10-Year Growth: 25%

Environmental Engineers

Median Wage: \$114,899
Annual Openings: 228
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/afnr-environmental-and-natural-resources-extended.pdf>



Agriculture, Food, and Natural Resources Career Cluster

Statewide Program of Study: *Environmental and Natural Resources*

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
Beekeeping and Honey Processing 13002110 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Agriculture, Food, and Natural Resources Recommended Corequisites: None	
Wildlife, Fisheries, and Ecology Management 13001500 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Wildlife, Fisheries, and Ecology Management + Agricultural Laboratory and Field Experience 13001510 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Forestry and Woodland Ecosystems 13001700 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Forestry and Woodland Ecosystems + Agricultural Laboratory and Field Experience 13001710 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

Level 3

Course	Prerequisites Corequisites	Career Clusters
Energy and Natural Resource Technology 13001100 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: A minimum of one credit from the courses in the Agriculture, Food, and Natural Resources career cluster Recommended Corequisites: None	

Continued on next page

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

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: *Environmental and Natural Resources*

Course Information

Level 3

Course	Prerequisites Corequisites	Career Clusters
Energy and Natural Resource Technology + Agricultural Laboratory and Field Experience 13001110 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: A minimum of one credit from the courses in the Agriculture, Food, and Natural Resources career cluster Recommended Corequisites: None	 
Range Ecology and Management 13001600 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Range Ecology and Management + Agricultural Laboratory and Field Experience 13001610 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

Level 4

Course	Prerequisites Corequisites	Career Clusters
Advanced Energy and Natural Resource Technology 13001200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: A minimum of one credit from the courses in the Agriculture, Food, and Natural Resources career cluster and Energy and Natural Resource Technology Recommended Corequisites: None	
Advanced Energy and Natural Resource Technology + Agricultural Laboratory and Field Experience 13001210 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: A minimum of one credit from the courses in the Agriculture, Food, and Natural Resources career cluster and Energy and Natural Resource Technology Recommended Corequisites: None	

Continued on next page

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

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: *Environmental and Natural Resources*

Course Information

Level 4

Course	Prerequisites Corequisites	Career Clusters
Career and Technical Education Project-Based Capstone* First Time Taken: 12701101 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	         
Practicum in Agriculture, Food, and Natural Resources* First Time Taken: 13002500 (2 credits) 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 Agriculture, Food, and Natural Resources career cluster Corequisites: None Recommended Prerequisites: None 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: A minimum of two credits with at least one course in a Level 2 or higher course from the Agriculture, Food, and Natural Resources career cluster Corequisites: None Recommended Prerequisites: None 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	           
Scientific Research and Design* 13037200 (1 credit)	Prerequisites: Biology, and one credit of the following: Physics for Engineering, chemistry, Integrated Physics and Chemistry (IPC), or physics Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	     

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

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