

Agriculture, Food, and Natural Resources Career Cluster

The Agriculture, Food, and Natural Resources (AFNR) Career Cluster focuses on the essential elements of life - food, water, land, and air. This career cluster includes a diverse spectrum of occupations, ranging from farmer, rancher, and veterinarian to geologist, land conservationist, and florist. It also includes non-traditional agricultural occupations like wind energy, solar energy, and oil and gas production.

Plant Science Statewide Program of Study



The Plant Science program of study focuses on the science, research, and business of plants and other living organisms. It teaches students how to apply 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

- Principles of Agriculture, Food, and Natural Resources

Level 2

- Landscape Design and Management

Level 3

- Floral Design/Lab

Level 4

- Practicum in Agriculture, Food, and Natural Resources
- Advanced Plant and Soil Science
- Advanced Floral Design
- Project-Based Research

Postsecondary Opportunities

Associates Degrees

- Applied Horticulture/ Horticulture Operations, General
- Ornamental Horticulture
- Agricultural Business and Management, General
- Turf and Turfgrass Management

Bachelor's Degrees

- Applied Horticulture/ Horticulture Operations, General
- Agronomy and Crop Science
- Agricultural Business and Management, General
- Turf and Turfgrass Management

Master's, Doctoral, and Professional Degrees

- Applied Horticulture/ Horticulture Operations, General
- Agronomy and Crop Science
- Agricultural Business and Management, General
- Farm/Farm and Ranch Management

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
<ul style="list-style-type: none"> Participate in Texas FFA 	<ul style="list-style-type: none"> Work at a florist or landscaper business Participate in an FFA supervised agricultural experience

Industry-Based Certifications

- BASF Plant Science Certification (Adv. Plant & Soil Science)
- Principles of Floral Design Certification (Floral Design)
- Production Agriculture - Job Ready (Level 4 course)
- Texas State Florist's Association Knowledge Based Floral Certification (Floral Design)
- Texas State Florist's Association Level I Floral Certification (Advance Floral Design)
- Texas State Florist's Association Level II Floral Certification (Level 4 course)



Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Soil and Plant Scientists	\$54,662	116	21%
Tree Trimmers and Pruners	\$32,240	589	14%
Pesticide Handlers, Sprayers, and Applicators	\$36,733	196	22%
Landscaping Supervisors	\$44,408	807	19%
Biological Technicians	\$42,931	452	17%

Successful completion of the Plant Science program of study will fulfill requirements of a Business and Industry endorsement or STEM endorsement if the math and science requirements are met. Revised – August 2022

Plant Science Course information

	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
ENGLISH LANGUAGE ARTS (4 CREDITS)	English 1 (1 Credit)	English 2 (1 Credit)	English 3 (1 Credit)	Advanced English (1 Credit)
MATHEMATICS (4 CREDITS)	Algebra 1 (1 credit)	Geometry (1 credit)	Algebra 2 or Advanced Math Course (1 credit)	Advanced Math Course (1 credit)
SCIENCE (4 CREDITS)	Biology	Chemistry	Physics or Advanced Science (1 Credit)	Advanced Science (1 Credit)
SOCIAL STUDIES (4 CREDITS)	World History or World Geography (1 credit)	US History (1 credit)	Government (.5 credit) & Economics (.5 credit)	
LANGUAGES OTHER THAN ENGLISH- LOTE (2 CREDITS)	Spanish 1 (1 credit) or Computer Science 1 (1 credit)	Spanish 2 (2 credit) or computer Science 2 (1 credit)		
FINE ARTS (1 CREDIT)	Fine art (1 credit)			
PHYSICAL EDUCATION (1 CREDIT)	PE or Athletics (1 credit)			
PROGRAM OF STUDY	Principles of Agriculture (1 credit)	Floral Design (1 credit)	Advanced Floral Design (1 credit)	Advanced Plant and Soil Science (1 credit) Practicum in Ag (2 or 3 credits) Project Based Research (1 credit)

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Further nondiscrimination information can be found at [Notification of Nondiscrimination in Career and Technical Education Programs](#).