



CAREER PATHWAY

AGRIBUSINESS & PRODUCTION SYSTEMS

Animal Caretakers | Farmworkers & Laborers (Crop, Nursery, Greenhouse) | Water & Wastewater Treatment Plant & Systems Operator | Biological Technicians | Food Science Technicians | Buyers & Purchasing Agents | Veterinarians

CAREER TECHNICAL COURSES

- 7 | Animal & Plant Biotechnology
- 8 | Science & Technology of Food
- 9 | Agriculture, Food and Natural Resources
- 10 | Animal and Plant Science
- 11 | Livestock Selection, Nutrition and Management (11th or 12th)
Meat Science and Technology. (11th or 12th)
- 12 | Mechanical Principles (11th or 12th)
Business Management for Agricultural & Environmental Systems

INDUSTRY CREDENTIAL OPPORTUNITIES

- AMSA Meat Evaluation Certification - **6 Points**
- AMSA Food Safety & Science Certification - **6 Points**
- Elanco Fundamentals of Animal Science Certification - **6 Points**
- SoftSkills Pro - **1 Point**
- CSAW (Chainsaw Safety Awareness) Levels 1 & 2 - **3 Points**
- Ohio Driver's License - **1 Point**
- OSHA-10 - **1 Point**
- CPR First Aid - **1 Point**
- Leadership Excellence - Student - **3 Points**
- Lean Six Sigma Yellow Belt - **3 Points**
- Lean Six Sigma Green Belt - **6 Points**

COLLEGE CREDIT OPPORTUNITIES

Students who demonstrate proficiency in career tech courses in approved secondary programs can receive college credit for their approved coursework.

POTENTIAL PLACEMENT & INCOME -



**May 2022 State Occupational Employment and Wage Estimates for Ohio*

- Animal Caretakers | \$29,880
- Farmworkers & Laborers | \$35,820
Crop, Nursery & Greenhouse
- Water & Wastewater Treatment Plant & Systems Operator | \$53,450
- Biological Technicians | \$54,300
- Food Science Technicians | \$63,550
- Buyers & Purchasing Agents | \$71,290
- Veterinarians | \$109,490



AGRIBUSINESS & PRODUCTION SYSTEMS



SUBJECT
CODE

012010

ANIMAL & PLANT BIOTECHNOLOGY

Learners will apply principles of chemistry, microbiology and genetics to plant and animal research and product development. They will describe the importance of biotechnology in society and analyze the issues that have affected agricultural biotechnology. Students will apply genetic principals to determine genotypes and phenotypes. Students will describe the parts and functions of animal and plant cells and their importance in biochemistry.

SUBJECT
CODE

011010

SCIENCE & TECHNOLOGY OF FOOD

This first course in the pathway examines the research, marketing, processing and packaging techniques applied to the development of food products. Learners will examine principles of food preservation techniques and determine correlations to food sensory, shelf life and food stability. Learners will examine and develop food safety, sanitation, and quality assurance protocol. Government regulations and food legislation will be examined and the implications to food science and technology will be identified.

SUBJECT
CODE

010105

AGRICULTURE, FOOD & NATURAL RESOURCES

This first course in the career field is an introduction to Agricultural and Environmental Systems. Students will be introduced to the scope of the Agricultural and Environmental Systems career field. They will examine principles of food science, natural resource management, animal science & management, plant & horticultural science, power technology and bioscience. Students will examine the FFA organization and Supervised Agricultural Experience programs. Throughout the course, students will develop communication, leadership and business skills essential to the agriculture industry.

SUBJECT
CODE

010125

ANIMAL AND PLANT SCIENCE

Students will apply knowledge of animal and plant science to the agriculture industry. They will be introduced to the value of production animals relative to the agricultural marketplace. Students will engage in animal classification and selection, body systems, along with animal welfare and behavior in relation to the production of animals. Students will learn principles of plant anatomy and physiology, and the role of nutrition, deficiencies and growing environment on plant production. Throughout the course, business principles and professional skills will be examined.

SUBJECT
CODE

010920

LIVESTOCK SELECTION, NUTRITION & MANAGEMENT

Learners will apply principles of nutrition, health and reproduction to the management of animals, poultry and fish in production agriculture. Learners will demonstrate understanding of anatomy and physiology and apply genetic principles for improvement. Learners will apply knowledge of animal behavior, welfare, and husbandry principles. Learners will evaluate body/carcass composition and apply marketing principles to the sale and distribution of livestock products. Learners will employ communication, business, and management strategies appropriate for the industry.

SUBJECT
CODE

011020

MEAT SCIENCE AND TECHNOLOGY

Learners will apply food chemistry and microbiology to processing, preservation, packaging, storage and marketing of meat products. Learners will design and implement a quality assurance program that meets legal compliance. Learners will evaluate carcass composition, assign quality grades, and examine valued-added products. Learners will demonstrate knowledge of safety regulations and operate and maintain equipment and facilities. Learners will practice customer service and sales techniques while understanding the scope and importance of business regulations.

SUBJECT
CODE

010120

MECHANICAL PRINCIPLES

Students will engage in the mechanical principles utilized in animal and plant production systems. They will learn electrical theory, design, wiring, hydraulic and pneumatic theory, along with metallurgy in relation to hot and cold metals. Students will apply knowledge of sheet metal fabrication applicable to the agricultural industry along with identify, diagnose, and maintain small air-cooled engines. Throughout the course, students will learn critical components of site and personal safety as well as communication and leadership skills.

SUBJECT
CODE

010115

College Credit
CTAGP003
3 Credit Hours

BUSINESS MANAGEMENT FOR AGRICULTURAL & ENVIRONMENTAL SYSTEMS

Students will examine elements of business, identify organizational structures and apply management skills while developing business plans, financial reports and strategic goals for new ventures or existing businesses. Learners will use marketing concepts to evaluate the marketing environment and develop a marketing plan with marketing channels, product approaches, promotion and pricing strategies. Throughout the course, students will apply concepts of ethics and professionalism while implications of business regulations will be identified.