Alabama CTE

Food Safety & Microbiology

Foundational Standards	1	Incorporate safety procedures in handling, operating, and maintaining tools and machinery; handling materials; utilizing personal protective equipment; maintaining a safe work area; and handling hazardous materials and forces. F.1
	2	Demonstrate effective workplace and employability skills, including communication, awareness of diversity, positive work ethic, problem-solving, time management, and teamwork. F.2
	3	Explore the range of careers available in the field and investigate their educational requirements, and demonstrate jobseeking skills including resume-writing and interviewing. F.3
	4	Demonstrate digital literacy by using digital and electronic tools appropriately, safely, and ethically. F.4
	5	Participate in a Career Technical Student Organization (CTSO) to increase knowledge and skills and to enhance leadership and teamwork. F.5
	6	Participate in Supervised Agricultural Experiences and/or work-based, experiential, and service learning F.6
Introduction to Microbes in Food	1	Compare and contrast early developments in food microbiology to current practices. 1
	2	Obtain, evaluate, and communicate information about the positive and negative effects of microorganisms on food products and their implications for the food processing industry. 2
	3	Formulate evidence-based solutions to American and global food safety concerns. 3
Food Virology and Microbial Spoilage of Foods	4	Obtain, evaluate, and communicate information to explain how bacteria, yeasts, and molds are classified, using taxonomic classification and scientific nomenclature. 4
	5	Using basic concepts of food virology, engage in an argument to justify the grouping of viruses in a category separate from living things. 5
		Use models to compare and contrast the structures of microorganisms in foods. 6

Skip to main content

	7 Identify types of viruses, bacteria, yeasts, and molds in food processing; compare and contrast their characteristics and behavior in a variety of food products. Examples: microbial spoilage of meat, eggs, milk, seafood, vegetables, fruits, and grains and products made from them 7
	8 Identify specific microorganisms which may cause food spoilage during preparation, processing, and storage. 8
	9 Formulate an evidence-based explanation of methods to control food- and water-borne microorganisms in high risk foods. 9
	10 Obtain, evaluate, and communicate information about how a host responds to food-borne viral and microbial infections. 10
	11 Classify foods based on their perishability and risk level to public health, considering their acidity and water activity. 11
	12 Use computer and mathematical modeling to estimate microbial growth in food products. 12
Food Fermentation	13 Use principles of fermentation to create fermented food products. 13
	14 Identify and analyze microorganisms in fermented foods. 14
Food Immunology	15 Formulate an explanation of the immunology of food-related allergies, intolerances, and hypersensitivities. 15
	16 Identify and communicate the role of foods in regulating host immune response, cancer immunology, and immunodeficiency diseases. 16
Control of Microorganisms in Foods	17 Select and use appropriate methods of sanitation, heat treatment, irradiation, modified atmosphere, antimicrobial preservative, and combinations of methods (hurdle concept) to control microbial growth in food products, explaining the principles underlying each method. 17
	18 Develop and use a Hazard Analysis and Critical Control Point (HACCP) plan. 18
Food Grading	19 Grade meat and produce according to guidelines published by the United States Department of Agriculture (USDA). 19
Microbiological Analysis	20 Apply the principles of sampling and sample preparation in microbiological analysis. 20
	21 Assess microbial activity in foods by qualitative and quantitative microbiological analyses. 21