

## Food Science and Safety AAFCS Pre-PAC Certification in Food Science Fundamentals Alignment

	Unit 1 Introduction to Food Science	Unit 2 Food Chemistry	Unit 3 The Safety of Our Food	Unit 4 Processing and Preservation	Unit 5 Health and Security	Unit 6 Consumers	Unit 7 Food Product Dev.
<b>Careers</b>							
• 1A. Define the study of food science.	X						
• 1B. Understand the various careers in food science and list the educational requirements.	X						X
• 1C. Explain the roles, functions, and skills of individuals engaged in food science careers.	X	X	X	X	X	X	X
<b>Food Protection</b>							
• 2A. Analyze factors that contribute to foodborne illnesses.	X		X	X			X
• 2B. Analyze food safety and sanitation programs, including Hazard Analysis Critical Control Points (HACCP).	X		X				X
• 2C. Evaluate industry standards for documenting and investigating foodborne illnesses.			X				
• 2D. Identify government agencies and laws in the United States that regulate the safety of the food supply.	X		X				X
<b>Nutritional Composition of Foods</b>							
• 3A. Discuss the functionality of carbohydrates in food preparation and preservation.		X					
• 3B. Discuss the functionality of lipids in food preparations and preservation.		X					
• 3C. Discuss the functionality of proteins in food preparations and preservation.		X					
• 3D. Discuss the functionality of vitamins, minerals, and phytochemicals, and the impacts by food preparations and preservation on their quality/integrity.		X		X			
• 3E. Discuss the functionality of water activity and pH in food preparation and preservation.		X		X			
• 3F. Apply basic concepts of human nutrition.					X		
<b>Food Processing, Preservation, and Packaging</b>							
• 4A. Discuss the reasons for the use of food additives in processed food products.				X			
• 4B. Discuss units of operation in food preparation and preservation, including thermal energy.				X			
• 4C. Evaluate procedures that affect product quality performance.				X			
• 4D. Examine the principles of fermentation.				X			
• 4E. Implement food preparation, production, and testing systems.				X		X	X
• 4F. Analyze packaging materials with regards to types, functions, and environmental factors.						X	X

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<b>Product Development</b>							
• 5A. Describe the role of science and food science management in the development of new food products.		X		X			X
• 5B. Discuss the basic chemistry concepts and the food science applications.		X					
• 5C. Prepare food products for presentation and assessment.				X			X
• 5D. Explain the purpose of sensory evaluation panels and how to conduct a sensory panel using appropriate controls.						X	X
• 5E. Discuss factors affecting a person's food preference such as physical, psychological, cultural, and environmental influences.						X	
<b>Food Technology</b>							
• 6A. Describe the functions/operations and maintenance of test laboratory and related equipment and supplies.	X	X	X	X			
• 6B. Conduct testing for safety of food products, utilizing up-to-date technology.	X		X				
• 6C. Describe the benefits of various technological advances on the scientific study, processing, and preparation of food products.				X			
• 6D. Describe examples of emerging technologies that may impact careers in food science.				X			