Food Science

Course Description:

The curriculum for this second level course is developed from the Wisconsin Standards for Family and Consumer Sciences. This course is based on the ServSafe program by the National Restaurant Association on serving food safely to the public. Students will study the causes of food borne illnesses and ways to manage situations in public eating establishments when they occur. Students have the opportunity to take the ServSafe Test to become ServSafe certified. Units include food safety, poultry, the flow of food, meat, sanitary facilities, food safety regulations and yeast breads. Grades will include quizzes, tests and lab work.

Mastery Standards:

Summarize education and training requirements and opportunities for career paths in food production and services. (FPS1.a.8.h)

Use the Hazard Analysis Critical Control Point (HACCP) and crisis management principles and procedures during food handling processes to minimize the risks of food borne illnesses. (FPS1.b.22.h)

Use Occupational Safety and Health Administration's (OSHA) Right to Know Law and Materials Safety Data Sheets (MSDS) and explain their requirements in safe handling and storage of hazardous materials. (FPS1.b.26.h)

Unit	Description of Unit and Learning Targets
Unit Title: Providing Safe Food Essential Questions: • What behaviors are necessary for safe food preparation? • What populations are more at risk for a Food borne illness?	Students will……. Learning Targets: Providing Safe Food • Analyze evidence to determine the presence of foodborne-illness outbreaks. • Recognize risks associated with high-risk population.
Unit Title: The Microworld Essential Questions: • What behaviors demonstrate safe food handling practices that prevent cross contamination and food borne pathogens? • What are food borne illnesses and how do food borne pathogens harm the body?	Students will... Learning Targets: • Identify factors that affect the growth of foodborne bacteria (FAT TOM). • Identify characteristics of TCS food. • Identify methods for preventing viral, bacterial, parasitic and fungal contamination.
Unit Title: Contamination, Food Allergens and Food Borne Illness Essential Questions: • What precautions must be taken to avoid the transfer of contaminants and allergens?	Students will... Learning Targets: • Identify chemical and physical contaminants and methods of prevention. • Identify the most common allergens and methods to prevent allergic reactions.
Unit Title: The Safe Food Handler Essential Questions:	Students will... Learning Targets:

● How is personal hygiene connected to the safe production of food? ● What methods of cleanliness promote safe and sanitary food? ● What conditions must exist for an employee to be restricted or excluded from working with food?	● Identify personal behaviors that contaminate. ● Identify proper handwashing procedures. ● Identify the proper procedure for covering wounds and using gloves. ● Identify exemptions allowing for bare hand contact with ready-to-eat food. ● Identify criteria for excluding or restricting employees from working with or around food or serving high risk populations. ● Identify illnesses that must be reported to the health agency.
Unit Title: Poultry <u>Essential Questions:</u> ● What precautions must be taken when working with poultry to create a safe product? ● How do cooking methods affect the palatability of food?	Students will... <u>Learning Targets:</u> ● List tips for buying poultry. ● Describe how to properly store poultry to maintain its quality. ● Describe principles and methods for cooking poultry. ● Prepare poultry by moist and dry cooking methods.
Unit Title: Introduction to the Flow of Food <u>Essential Questions:</u> ● What methods of cleanliness promote safe and sanitary food? ● What method is best suited for temping the food you are preparing?	Students will... <u>Learning Targets:</u> ● Identify methods to prevent cross-contamination. ● Identify methods for preventing time-temperature abuse. ● Identify different types of temperature measuring devices and their uses. ● Calibrate different measuring devices.
Unit Title: Purchasing and Receiving <u>Essential Questions:</u> ● What factors should you consider before purchasing food? ● What things should be done when receiving your food inventory?	Students will... <u>Learning Targets:</u> ● Identify characteristics of an approved food source. ● Maintain required records for shellstock tags and parasite destruction. ● Identify accept or reject criteria for receiving refrigerated, frozen, dry, hot and nonfood items.
Unit Title: Storage <u>Essential Questions:</u> ● How can the storage of food play an important part in food safety? ● What guidelines need to be in place to guarantee that your food is safe?	Students will... <u>Learning Targets:</u> ● Store food to prevent contamination. ● Practice first-in-first out (FIFO) product rotation. ● Ensure food is properly labeled and dated. ● Store food in appropriate storage containers. ● Store refrigerated, frozen and dry food safely.
Unit Title: Preparation <u>Essential Questions:</u> ● What are the healthiest food preparation techniques? ● How can healthy preparation techniques and substitutions increase the nutritive value of food?	Students will... <u>Learning Targets:</u> ● Identify proper methods for thawing food. ● Identify minimum internal cooking time and temperature for TCS food. ● Identify the proper procedure for cooking TCS food in a microwave. ● Identify methods and time and temperature requirements for reheating cooked TCS food.
Unit Title: Meats	Students will...

Essential Questions: ● What should you consider when selecting an expensive protein such as red meat? ● How can the food preparation method guarantee a quality product?	Learning Targets: ● List factors affecting the selection of meats. ● Describe how to properly store meats to maintain their quality. ● Describe the principles and methods of cooking meat. ● Prepare meats by moist and dry cooking methods.
Unit Title: Service Essential Questions: ● What resources should you be aware of in planning, preparing and hosting an event? ● What equipment is necessary to keep food safe during the event? ● What precautions must be taken when food is served in outdoor events?	Students will... Learning Targets: ● Identify time and temperature for holding hot and cold TCS food. ● Identify procedures for preventing time-temperature abuse and cross-contamination when displaying and serving food. ● Identify the requirements for using time rather than temperature as the only method of control when holding ready-to-eat food. ● Implement methods for minimizing bare-hand contact with ready-to-eat food. ● Identify hazards associated with the transportation of food and methods for preventing them. ● Prevent customers from contaminating self-service areas. ● Prevent employees from contaminating food.
Unit Title: Food Safety Management Systems Essential Questions: ● Why are all foodservice industry operations regulated by Health Department regulations? ● How do on-sight health department inspections improve the overall sanitary conditions of foodservice industry operations?	Students will... Learning Targets: ● Identify how active managerial control can impact food safety. ● Identify HACCP principles for preventing foodborne illness. ● Identify when a HACCP is required. ● Implement a crisis-management system.
Unit Title: Yeast Breads Essential Questions: ● How do the fundamentals of baking impact the preparation and production of final baked products? ● How does bread baking relate to chemistry?	Students will... Learning Targets: ● Describe how to select and store baked goods. ● Identify the functions of ingredients in yeast breads. ● Prepare Yeast Breads.
Unit Title: Sanitary Facilities and Equipment Essential Questions: ● What organizations help to ensure that all food and equipment is safe for food preparation? ● What resources are available to ensure an adequate supply of food? ● What kitchen practices help to sustain our environment?	Students will... Learning Targets: ● Identify organizations that certify equipment that meets sanitation standards. ● Identify characteristics of an appropriate food-contact and nonfood-contact surface. ● Identify and prevent cross-connection and backflow. ● Identify the proper response to a wastewater overflow. ● Identify potable water sources and testing requirements. ● Identify methods for preventing lighting sources from contaminating food. ● Identify methods for preventing ventilations systems from

	contaminating food and food-contact surfaces. ● Identify requirements for storing indoor and outdoor waste. ● Identify proper methods for cleaning waste receptacles. ● Recognize the need for frequent waste removal to prevent odor and pest problems ● Identify characteristics of appropriate flooring. ● Identify requirements for dishwashing facilities.
Unit Title: Cleaning and Sanitizing Essential Questions: ● What kitchen practices help reduce the amount of waste created? ● How are cleaning practices related to the overall safety of our environment? ● What kitchen practices are considered recycling?	Students will... Learning Targets: ● Explain the difference between cleaning and sanitizing ● Identify appropriate cleaners for specific tasks. ● Identify factors affecting the efficiency of sanitizers. ● Follow the requirement for frequency of cleaning and sanitizing food-contact surfaces. ● Properly clean and sanitize items in a three-compart sink ● Properly clean and sanitize food-contact surfaces. ● Identify storage requirements for poisonous or toxic materials. ● Dispose of poisonous or toxic materials according to legal requirements. ● Properly store tools, equipment, and utensils that have been sanitized.
Unit Title: Integrated Pest Management Essential Questions: ● What methods can be used to control pest population and growth?	Students will... Learning Targets: ● Implement appropriate procedures for an integrated pest management program. ● Follow requirements for applying approved pesticides. ● Identify signs of pest infestation and activity. ● Identify how to correctly store pesticides and select a pest control operator (PCO)
Unit Title: Food Safety Regulation and Standards Essential Questions: ● What agencies oversee a food operation? ● Why are inspections a component strongly related to the food industry?	Students will... Learning Targets: ● Identify government agencies that regulate food operations. ● Understand the importance of regulatory inspections and self-inspections. ● Identify the key components of an inspection and corrective actions that must be taken when in violation of a regulation.
Unit Title: Staff Food Safety Training Essential Questions: ● What items should be considered when training your staff? ● How should training sessions be implemented?	Students will... Learning Targets: ● Identify staff duties and specific training needs for each duty. ● Identify different ways of training specific staff and their duties. ● Establish and maintain food safety training records. ● Implement that all staff are trained upon and after being hired.