Colorado CTE Course – Scope and Sequence

Course Name	**Principles of Food Science**		**Course Details** **Course = 0.50 Carnegie Unit Credit**	**Level 2 Course following Introduction to Agriculture A & B**	
Course Description	Apply principles of nutrition, biology, chemistry and human behavior to the food we eat every day. Refine skills in measurement, following recipes, interpreting food labels and identifying safe storage and processing techniques.				
Note:	This is a suggested scope and sequence for the course content. The content will work with any textbook or instructional resource. If locally adapted, make sure all essential knowledge and skills are covered.				
SCED Identification #	**18305**	Schedule calculation based on 60 % of instructional time in semester. Scope and sequence allows for additional time for guest speakers, student presentations, field trips, remediation, or other content topics.			
Unit Number, Title and Brief Description	**Suggested % of Instructional Time**	**CTE or Academic Standard Alignment**	**Competency / Performance Indicator**	**Outcome / Measurement**	**CTSO Integration**
1 **Food Supply and Need, Value-Added Production Cycle**	5%	**FPP.04.** Explain the scope of the food industry and the historical and current developments of food product and processing.	**FPP.04.02.** Evaluate the significance and implications of changes and trends in the food products and processing industry in the local and global food systems.	**FPP.04.02.01.a.** Describe and explain the components of the food products and processing industry (e.g., processing, distribution, byproducts, etc.).	
2 **Careers in the Food Products and Processing Sector**	5%	**CS.05.** Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food & Natural Resources career pathways.	**CS.05.01.** Evaluate and implement the steps and requirements to pursue a career opportunity in each of the AFNR career pathways (e.g., goals, degrees, certifications, resumes, cover letter, portfolios, interviews, etc.).	**CS.05.01.01.b.** Create a personal plan outlining goals and steps to obtain a career in an AFNR pathway. **CS.05.01.02.b.** Analyze personal skillset and create a plan for obtaining the required education, training and experiences to obtain a career in an AFNR pathway. **CS.05.01.03.b.** Assess personal goals, experiences, education and skillsets and organize them to produce the appropriate tools and develop the skills to effectively communicate about	

			CS.05.02. Examine and choose career opportunities that are matched to personal skills, talents, and career goals in an AFNR pathway of interest.	one's qualifications for an AFNR career. **CS.05.02.02.a.** Research and describe careers in each of the AFNR pathways and choose potential careers connecting to personal interests and skills.	
3 **Food Preparation Procedures and Tools**	5%	**FPP.03.** Select and process food products for storage, distribution and consumption.	**FPP.03.02.** Design and apply techniques of food processing, preservation, packaging and presentation for distribution and consumption of food products.	**FPP.03.02.01.a**. Identify and explain English and metric measurements used in the food products and processing industry.	
4 **pH in Nutrition and Food**	3%	**FPP.03.** Select and process food products for storage, distribution and consumption.	**FPP.03.02.** Design and apply techniques of food processing, preservation, packaging and presentation for distribution and consumption of food products.	**FPP.03.02.03.b.** Analyze and document food preservation processes and methods on a variety of food products.	
5 **Food Chemistry: Study, lab and quiz on each nutrient (Carbohydrates, Lipids, Protein, Water, Vitamins & Minerals)**	21%	**FPP.02.** Apply principles of nutrition, biology, microbiology, chemistry and human behavior to the development of food products.	**FPP.02.02.** Apply principles of microbiology and chemistry to develop food products to provide a safe, wholesome and nutritious food supply for local and global food systems.	**FPP.02.02.01.a.** Examine and describe the basic chemical makeup of different types of food **FPP.02.02.01.b.** Explain how the chemical and physical properties of foods influence nutritional value and eating quality. **FPP.02.02.01.c.** Design and conduct experiments to determine the chemical and physical properties of food products.	
6	5%	**FPP.03.** Select and process food products for storage, distribution and	**FPP.03.02.** Design and apply techniques of food processing, preservation, packaging and	**FPP.03.02.03.a.** Identify methods of food preservation	

Food Preservation: dehydration, canning, pressure cooking		consumption.	presentation for distribution and consumption of food products.	and give examples of foods preserved by each method. **FPP.03.02.03.b.** Analyze and document food preservation processes and methods on a variety of food products.	
7 **Food Physics: Study of yeast, baking powder, soda, emulsions, maillard reaction.**	7%	**FPP.02**. Apply principles of nutrition, biology, microbiology, chemistry and human behavior to the development of food products.	**FPP.02.02** Apply principles of microbiology and chemistry to develop food products to provide a safe, wholesome and nutritious food supply for local and global food systems.	**FPP.02.02.01.b**. Explain how the chemical and physical properties of foods influence nutritional value and eating quality. **FPP.02.02.02.a.** Identify common food additives and identify their properties (e.g., preservatives, antioxidants, buffers, stabilizers, colors, flavors, etc.). **FPP.02.02.02.b.** Describe the purpose of common food additives and how they influence the chemistry of food.	
8 **Meat Science: Quality Grades, Retail Cuts**	5%	**FPP.03.** Select and process food products for storage, distribution and consumption.	**FPP.03.01**. Implement selection, evaluation and inspection techniques to ensure safe and quality food products.	**FPP.03.01.01.c.** Outline procedures to assign quality and yield grades to food products according to industry standards.	
9 **Food Safety & Bioterrorism**	5%	**FPP.01.** Develop and implement procedures to ensure safety, sanitation and quality in food product and processing facilities.	**FPP.01.02.** Apply food safety and sanitation procedures in the handling and processing of food products to ensure food quality.	**FPP.01.02.01.c.** Identify sources of contamination in food products and/or processing facilities and develop ways to eliminate contamination. **FPP.01.02.04.a.** Describe the effects foodborne pathogens have on food products and humans.	