Food Science

Career Cluster	Agriculture, Food and Natural Resources
Course Code	18305
Prerequisite(s)	Recommended: Introduction to AFNR
Credit	0.5 or 1.0 credit
Program of Study and Sequence	Cluster Course – Food Science – Ag Processing (Food and Fiber) - Capstone Course
Student Organization	National FFA Organization
Coordinating Work-Based Learning	Job shadowing, mentoring, internships, entrepreneurships, service learning, workplace tours, apprenticeship, school-based enterprises, Supervised Agricultural Experience (SAE)
Industry Certifications	OSHA 10 Hour Safety Certification (General Industry), National Career Readiness Certificate (NCRC), ServeSafe Food Manager, ServeSafe Food Handler, State Food Safety Food Handler Card
Dual Credit or Dual Enrollment	https://sdmylife.com/images/Approved-CTE-Dual-Credit.pdf
Teacher Certification	Agriculture Food and Natural Resources Cluster Endorsement; Food Products and Processing Pathway Endorsement; *Agriculture Education
Resources	

Course Description

The state of South Dakota is diverse in the agriculture products it produces and the value-added food products available to the consumer. Food Science is a course designed to provide students with an overview of food science, food safety, and its importance to producers and consumers. Classroom and laboratory content may be enhanced by utilizing appropriate equipment and technology. Mathematics, science, English and human relations skills will be reinforced in the course. Work-based learning strategies appropriate for this course are school-based enterprises, field trips and internships. Opportunities for application of clinical and leadership skills are provided by participation in FFA through activities, conferences and skills competitions such as Career Development Event (CDE), Leadership Development Events and Agriscience Fair Research Projects. Each student will be expected to maintain a Supervised Agricultural Experience (SAE).

Program of Study Application

Food Science is a first pathway course in the Agriculture, Food and Natural Resources cluster, Food Product and Processing Systems pathway. Food Science would follow a cluster course and would prepare a student to participate in Ag Processing Technology (Food and Fiber).

Course Standards

FS 1: Understand and use safe practices.

Webb Level	*Sub-indicator*
Two Skill/Concept	FS 1.1 Demonstrate safe use and knowledge of tools and equipment used in this area.
Two Skill/Concept	FS 1.2 Demonstrate workplace/worksite safety procedures and protocols.

FS 2: Examine the makeup of the food industry.

Webb Level	*Sub-indicator*
Two Skill/Concept	FS 2.1 Investigate the local, national, and global food supply chain and market. advancements in food science techniques.
Two Skill/Concept	FS 2.2 Identify government organizations, producer organizations, companies, and other stakeholders their impact on the food industry.

FS 3: Apply safety and sanitation procedures for food production.

Webb Level	*Sub-indicator*
One Recall	FS 3.1 Identify origins of food borne pathogens and contaminants and effective prevention and control methods.
One Recall	FS 3.2 Describe proper safety and sanitation practices when working with food products.
Two Skill/Concept	FS 3.3 Demonstrate safe use and knowledge of tools, equipment and associated PPE.
Two Skill/Concept	FS 3.4 Apply safety and sanitation practices used in the food industry.

FS 4: Apply principles of science for producing safe, wholesome and nutritious food products.

Webb Level	*Sub-indicator*
Two Skill/Concept	FS 4.1 Apply fundamental chemistry to food science.
Two Skill/Concept	FS 4.2 Differentiate the makeup of food products.
Three Strategic Thinking	FS 4.3 Develop a food product that meets the standards of regulatory agencies.

FS 5: Develop employability skills related to the Food Product and Processing Systems.

Webb Level	*Sub-indicator*
Two Skill/Concept	FS 5.1 Develop soft skills to enhance employability.

FS 6: Implement an individual project for career development through a Supervised Agriculture Experience/Work based Experience.

Webb Level	Sub-indicator
Two Skill/Concept	FS 6.1 Develop an individual project plan with goals and timeline.
Two Skill/Concept	FS 6.2 Explore opportunities within AFNR industries.
Three Strategic Thinking	FS 6.3 Apply concepts of financial management appropriate to agricultural projects and personal finances.
Three Strategic Thinking	FS 6.4 Develop and document knowledge and skills to ensure workplace safety regarding personal health and environmental management.
Four Extended Thinking	FS 6.5 Research and analyze how public policy, laws, and advocacy impact agricultural systems and agricultural literacy.