



Fundamental Plant Science

Career Cluster	Agriculture, Food and Natural Resources
Course Code	18051
Prerequisite(s)	Recommended: Introduction to AFNR
Credit	0.5 credit
Program of Study and Sequence	Cluster Course – Fundamental Plant Science – Advanced Plant Science (Agronomy) or Advanced Horticulture - Capstone
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), Commercial Pesticide Applicator Certification, Private Pesticide Applicator Certification
Dual Credit or Dual Enrollment	https://sdmylife.com/images/Approved-CTE-Dual-Credit.pdf
Teacher Certification	Agriculture Food and Natural Resources Cluster Endorsement; Plant Systems Pathway Endorsement; *Agriculture Education
Resources	

Course Description

The plant science industry is a large part of the economic structure in South Dakota, from crop and forage production to horticulture and forestry. Every corner of South Dakota is involved in the plant science field. In this course, students develop the necessary knowledge, skills, habits and attitudes for both entry-level employment and advancement in areas such as production agriculture, research, and horticulture, including the soft skills necessary to be successful. Topics covered in this course include plant anatomy and physiology, environmental impacts and plant growth, production and harvesting, and employability skills. Classroom and laboratory content may be enhanced by utilizing appropriate equipment and technology. Algebra, biology, English and human relations skills will be reinforced in the course. Fundamental Plant Science is reinforced through the FFA and Supervised Agricultural Experience (SAE) activities such as the Agronomy Career Development Event and related Proficiency Awards. Each student will be expected to maintain a SAE.

Program of Study Application

Fundamental Plant Science is a first pathway course in the Agriculture, Food and Natural Resources Program of Study, Plant Systems pathway. Fundamental Plant Science is preceded by a Cluster course and would be followed by Advanced Plant Science (Agronomy) or Advanced Horticulture.

Course Standards

PS 1: Understand and use safe practices.

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

PS 2: Explain principles of anatomy and physiology in plants.

<i>Webb Level</i>	<i>Sub-indicator</i>
One Recall	PS 2.1 Describe functional differences in plant structures including roots, stems, flowers, leaves, and fruits.
One Recall	PS 2.2 Classify and identify plants.

PS 3: Manipulate the environment to promote optimal growth in plants.

<i>Webb Level</i>	<i>Sub-indicator</i>
Two Skill/Concept	PS 3.1 Determine nutritional requirements for optimal plant growth.
Two Skill/Concept	PS 3.2 Examine data to evaluate and manage soil/media and nutrients.

PS 4: Evaluate fundamentals of production and harvesting of plants.

<i>Webb Level</i>	<i>Sub-indicator</i>
Two Skill/Concept	PS 4.1 Analyze a production plan for optimal plant production.
Three Strategic Thinking	PS 4.2 Examine the basic methods for reproducing and propagating plants.
Three Strategic Thinking	PS 4.3 Examine fundamentals to harvest, handle, store, and market crops.

PS 5: Explore employability skills within the plant science industry.

<i>Webb Level</i>	<i>Sub-indicator</i>
Two Skill/Concept	PS 5.1 Develop soft skills to enhance employability.

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

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