



Advanced Plant Science

Career Cluster	Agriculture, Food and Natural Resources
Course Code	18057
Prerequisite(s)	Fundamental Plant Science AND/OR Fundamental Horticulture, Recommended: Introduction to AFNR,
Credit	.5
Graduation Requirement	N
Program of Study and Sequence	Fundamental Plant Science – Advanced Plant Science – Ag Biotechnology
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	
Teacher Certification	Agriculture Education
Resources	

Course Description:

The plant science industry is a large part of the economic structure in South Dakota, especially crop and forage production. Every corner of South Dakota is involved in the plant science field. In Advanced Plant Science, students develop the necessary knowledge, skills, habits and attitudes for both entry-level employment and advancement within agronomy and related plant science occupations. Topics include plant anatomy, physiology, and classification, sustainability in agronomic operations, pest management, 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. Advanced 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

Advanced Plant Science is a second pathway course in the Agriculture, Food and Natural Resources Program of Study, Plant Systems pathway. Advanced Plant Science is preceded by a Fundamental Plant Science and would be followed by Ag Biotechnology.

Course Standards

ADPS 1 Recognize principles of plant anatomy, classification, and physiology for the production and management of agronomic plants.

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
One Recall	ADPS 1.1 Classify plants according to taxonomy, life cycles, and plant use.	<ul style="list-style-type: none"> • Compare range, crop, and horticultural plants • Differentiate between major economic crops
Two Skill/Concept	ADPS 1.2 Compare the benefits and risks of genetically modified plants (GMO).	
Two Skill/Concept	ADPS 1.3 Apply knowledge of seed, fruit, and vegetative parts optimal for plant reproduction.	

Notes

ADPS 2 Employ the principles and practices of sustainable agriculture in a plant-based operation.

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
Two Skill/Concept	ADPS 2.1 Incorporate the fundamentals of plant management and sustainable agriculture.	
Three Strategic Thinking	ADPS 2.2 Evaluate a fertilizer plan for specific plants or crops.	
Three Strategic Thinking	ADPS 2.3 Evaluate data to manage range and pastures.	
Three Strategic Thinking	ADPS 2.4 Examine growth of a plant to determine when and how a crop should be harvested and stored.	
Three Strategic Thinking	ADPS 2.5 Evaluate crop and harvest success for future planning.	

Notes

ADPS 3 Analyze a pest management system.

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
Two Skill/Concept	ADPS 3.1 Identify pest chemicals by formulation and use.	
Three Strategic Thinking	ADPS 3.2 Develop integrated pest management strategies to manage pest populations.	
Two Skill/Concept	ADPS 3.3 Understand the safe handling, mixing and application of chemicals.	

Notes

ADPS 4 Develop employability skills related to the Plant Systems Pathway.

<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
Two Develop	ADPS 4.1 Develop soft skills to enhance employability.	

Notes