Elective Course Description	
Course Name	Plant systems and Greenhouse
Course Number	TBD
Length of Course	One Quarter
Grade Level	6-12
Credit Type	0.25 Elective per Quarter
Grading Scale	TBD
Course Prerequisite	N/A
Course Summary	This course is based on the Agriculture, Food and Natural Resources Cluster and Plant Systems Pathway from the Advance CTE standards recommended by the Alaska Department of Education and Early Development. People who work in the Plant Systems pathway study plants and their growth. This helps producers of food, feed and fiber crops continue to feed a growing population while conserving natural resources and maintaining the environment. Individuals in this pathway also develop ways to improve the nutritional value of crops and the quality of seeds. They use genetic engineering to develop crops resistant to pests and drought. Students in this course will learn these skills in order to prepare themselves for a career in agriculture/food production, but also in order to increase their subsistence skills to benefit themselves and the community.

Primary Materials	Computer, computer charger, writing utensil, paper, gloves, greenhouse supplies
Standards	

Professional/Industry	Technical Knowledge
Professional/Industry Standards AGC06.02 Assess and control types and sources of workplace hazards common to the AFNR industry in order to demonstrate a working understanding of key health and safety concerns AGC02.02 Employ the use of technical information effectively to maintain and communicate records and reporting procedures commonly used in the AFNR cluster AGC 09.02 Select, research and examine critical aspects of career opportunities in one or more AFNR career pathways in order to gain an understanding of the breadth of occupations within this cluster AGC05.02 Identify how key organizational systems affect organizational performance and the quality of products and services to demonstrate an understanding of how AFNR systems are managed and improved AGC 10.03 Compare and contrast issues affecting the AFNR industry including:	**Management and Production** AGPB01.01 Produce and manage plants in both domesticated and natural environments using application of principles of anatomy and physiology to enhance plant production AGP 01.03 Examine and apply fundamentals of production and harvesting when producing plants to demonstrate plant management and production techniques AGC 10.02 Use tools, equipment, machinery and technology to work in areas related to AFNR **Product Technical Knowledge** AGPB01.02 Examine and explain basic plant anatomy and physiology using taxonomic and other classifications to build a working understanding of functional differences among plant structures AGPE01.03.02 Examine biological and physical characteristics to identify and classify natural resources.

	biotechnology, employment, safety, environmental and animal welfare to demonstrate an understanding of the trends and issues important to careers in this industry AGC 09.01 Explain written organizational policies, rules and procedures common to the AFNR workplaces to ensure employees perform job functions effectively. AGC 06.03 Examine and summarize importance of health, safety, and environmental management systems in AFNR organizations to express their importance to organizational performance and regulatory compliance AGC02.01 Use oral and written communication skills in creating, expressing and interpreting information and ideas including technical terminology to communicate technical information within AFNR AGC06.01 Maintain safe and healthful working conditions and environment that adhere to employee rights and responsibilities and employer	AGPE01.05.03 Recognize symptoms of animal and plant diseases. AGPE01.05.04 Describe how to report observance of disease infestations. Use appropriate techniques and equipment when working with biohazards. Employ appropriate techniques to prevent the spread of animal and plant diseases. (Recognize insect types and available controls used to prevent insect infestation. Sample Indicators Identify and classify insects. Identify insect damage signs.) AGPE01.05.06 Describe how to report observance of insect infestation. Treat insect infestation using appropriate insecticides

	AGC08.01 Demonstrate workplace ethics specific to AFNR occupations in order to reflect effective stewardship of resources AGC03.01 Access and utilize suitable resources to identify and study public policies, issues and regulations impacting AFNR management AGC05.01 Examine and summarize roles within teams, work units, departments, organizations, interorganizational systems, and the larger environment to understand the nature and scope of AFNR organizations and the AFNR-industry	
Assessment	**Skills and Knowledge Based Assessments** Project 1: Research ways that the greenhouse can provide experience opportunities or give career advancements. Analyze the AFNR rules and regulations and compare how it can affect the community around the greenhouse. Research and describe how the AFNR rules and activities can affect the environment around it. Project 2: Describe the importance of the health and environmental rules and regulations. Research any hazards and safety concerns, and determine how these issues can be made safer. Students must maintain safe and healthy working conditions by following industry rules. Project 3:	

	Research ways that different tools could be helpful to the production of the plants and the advancement of the greenhouse. Analyze the differences between wild grown and farmed plants and practice harvesting techniques to maximize the production of the plants and profit. Project 4: Research plant biology and compare and contrast how biologies differ from plant to plant. Research and compare how different pests and diseases affect plants and the animals around them. Identify ways to get rid of pests and control diseases.

	Activities
Week 1	Create work schedules and charts, feed fish, water plants, make note of how many aphids are on the plants. Research soil types.
Week 2	Clean fish tank, feed fish, water plants, make note of how many aphids are on the plants, ph testing. Feed fish, water plants, make note of how many aphids are on the plants, drain excess water out of the beds, evaluate how students have contributed to the functioning the greenhouse.
Week 3	Find new plants to grow in the greenhouse, see how much the plants have grown, feed fish, water plants, make note of how many aphids are on the plants, and spray aphids. Research ways to improve the greenhouse, find ways to eliminate harmful insects in the greenhouse, feed fish, water plants, make note of how many aphids are on the plants, clean fish tank, sell plants
Week 4	Research ways to create funding for the greenhouse, clean green house, feed fish, water plants, make note of how many aphids are on the plants, drain excess water out of the beds.

	Make a plan to generate revenue/funding for the greenhouse and collaborate with the district and school board. Water and soil tests, feed fish, water plants, make note of how many aphids are on the plants, ph testing
Week 5	Group plants. One group that is outside, one that has un-treated soil, one that has treated soil. Chart the growth of these throughout the quarter, feed fish, water plants, make note of how many aphids are on the plants
Week 6	Find ways to make the plants healthier and increase the production, feed fish, water plants, make note of how many aphids are on the plants. Find what plants would grow better in what soil, learn the different parts of a plant and what each part does. Identify each part of a plant. Describe how each affects the growth of a plant. Explain what plants have what parts and how they are different from other plants
Week 7	Perform manual labor for the other greenhouse beds, feed fish, water plants, make note of how many aphids are on the plants
Week 8	Plant plants in the outdoor beds, ph testing
Week 9	Sell any excess plants that could not be used by the school. Clean the greenhouse, feed fish, water plants. End of quarter/semester assessment, harvest any plants that need to be harvested.