

Advanced Horticulture
 Aligns with LCC Hort 120
 Instructor Angela White CTE/Life Science
 Pleasant Hill High School
Awhite@pleasanthill.k12.or.us

Course Description

This class will focus on experiential learning in the garden on how to grow plants from seed to harvest (or to seed again) particularly those plant varieties that are regionally appropriate. We will develop an understanding of sustainable food systems, including growing edible plants at a variety of scales, methods of sustainable agriculture, and methods to improve regional food security. Planning, marketing, and operating a greenhouse sale at the end of the year employing cross training and specific job tasks, specialized equipment training, and using many different types of communication. We will also explore the impacts of industrial agriculture on ecosystems, human rights, and health.

Course Title	Horticulture (Hort 120- LCC College Now)
ANRF Cluster /Next Gen Standards Taught	Use oral and written communication skills in creating, expressing and interpreting agricultural information and ideas including technical terminology.
AG 02.01	
AG 03.01	Solve agriculture problems using critical thinking skills (e.g., analyze, synthesize and evaluate, independently and in teams).
AG 04.01	Use information technology tools to access, manage, integrate, create, and communicate agricultural information.
AG 07.01	Use leadership skills in collaborating with others to accomplish agriculture related organizational goals and objectives.
AG 08.01	Know and understand the importance of professional ethics and legal responsibilities in agricultural careers.
AG 09.01	Know and understand the importance of employability skills for agricultural careers.
AG 10.02	Use tools, equipment, machinery and technology to work in areas related to agriculture.
AG 11.01	Use economic principles to manage agriculture resources and produce products.
AG 11.01	Apply knowledge of plant classification, plant anatomy and plant physiology to the production and management of plants.

Ag- Plant 01.	Prepare a plant management plan that addresses the influence of environmental factors, nutrients and soil on plant growth.
Ag- Plant 02.	Propagate, culture and harvest plants.
Ag- Plant 03.	Employ elements of design to enhance an environment.
Ag- Plant 04.	Horticulture standards and skills specific to Oregon's horticulture industry. Key words (hort, nursery, landscape, ornamental, turfgrass, turf, garden, botanical, greenhouse, green industry, Xeriscape)
Ag- Plant 06.	

Instruction and Lab Materials Referenced	<p>ICEV https://www.icevonline.com/</p> <p>FFA.org https://www.ffa.org/my-toolbox/instruct</p> <p>Oregon Agriculture in the classroom- https://oregonaitc.org/ various lessons</p> <p>G-W Publishers Digital Access account 0009745500 Classroom Text, 1 teacher workbook</p> <p>Horticulture Today ISBN- 9781631262500</p> <p>Principles of Agriculture, Food, and Natural Resources ISBN-9781631262401</p> <p>Sustainable Gardening The Oregon-Washington Master Gardner Handbook 2008 https://catalog.extension.oregonstate.edu/em8742</p> <p>Various IPM guides, LCC college Now Text- varies</p> <p>Access to Google and other teacher plant ID apps</p> <p>Lab materials for Soil analysis, plant propagation, planting guides, MSDS sheets, water quality testing, measuring cups and tapes, calculators, hand tools, and other horticulture equipment.</p>
---	---

Course Outline

Unit (usually 2-3 weeks)	Course Topics
Unit 1	Class orientation, Intro to horticulture, FFA, AFNR Pathways, set up SAE
Unit 2	Basic plant physiology and soil science
Unit 3	Classification of families of edible plants and their life cycles including cultivation for consumption and seed preservation
Unit 4	Sustainable horticulture practices as applied to different stages of plant production at a variety of scales
Unit 5	Improving and maintaining soil tilth through soil and water management
Unit 6	Managing soil nutrients through a systems thinking and life cycle perspective
Unit 7	Ecosystems approach to gardening and cultivating ecosystem/plant climate resilience
Unit 8	Common garden pests and integrated pest management strategy (considering the risks/benefits)
Unit 9	Seasonality and bioregion specificity of food production and its impact on food security
Unit 10	Overview of global production and issues of malnutrition and food insecurity
Unit 11	Sustainable food systems as compared to industrial food systems Plant Sale planning, business concepts, job specific duties, marketing, and sales
Unit 12	Food sovereignty and justice and their relationship to environmental and human health.
Unit 13	Greenhouse Management, Landscaping, and floriculture concepts and design
Unit 14	Final project SAE and Landscape contractor/Subsistence farming projects share out or gallery walk

How will students demonstrate learning outcomes

Students who successfully complete this course will be able to:

1. Identify the basic parts of a plant, general characteristics of different families of edible plants, and describe the relationship between the plant and the soil, perform basic soil texture, chemical testing, and porosity analysis as applied to plant management.
2. Evaluate sustainable agriculture practices to maximize production while balancing improving soil health, managing pests, and water conservation. Students will research and design a variety of water systems including precision agriculture methods and traditional sustainable agriculture and recommend a Best Practices integrated pest management plan.
3. Relate basics of applied ecology in biological and elemental systems to the process of growing food. Students will analyze composting, water wise and edible landscapes, urban greenspaces, and community benefits of sustainable agriculture through a group project role playing different landowners and managers. Focus on nutrient, carbon, water, and rock cycles interaction will be prioritized.
4. Apply principles of horticulture towards growing edible plants, saving their seeds, and building personal/regional food security and understanding the difference between malnutrition and starvation. Looking at Native American population and success with early agriculture. Heirloom varieties of plants will be planted and harvested in on campus garden beds. Students will conduct peer surveys to gain a better understanding of local consumption of plant varieties and how local farmers markets and CSA play a role in food production and local supply.
5. Evaluate the role of biodiversity in edible plants, particularly related to climate resilience, indigenous foods, and ecosystem services. Students will have access to our discovery arboretum and campus grounds to collect data on plant biodiversity and growth patterns based on accredited publications. (Seed catalog and published plant encyclopedias)
6. Evaluate the importance of plant-human relationships in context to sustainable food systems, food sovereignty, and impacts of industrial agriculture on human rights and environmental health. Case studies on import and export topics that influence trade, price, and availability. Blights, dust bowl, and the role of the NRCS will be used.
7. Develop personal relationships with the land by creating a plan and taking action to make sustainable change through food production. A final project will be to develop a sustainable food farm focused on maximizing native plants, water wise selections, long and a term management plan for a family of 5. Students will deliver this in a class presentation.
8. Students will plan, coordinate, cross train on a multitude of tasks, specialize roll assignments, market, promote, and sell merchandise at the Annual Plant Sale in the spring. Our horticulture student team will also learn business skills in pricing, supply and demand management, signage, marketing, inventory management, invoicing, point of sale software, while engaged in a community service based project.

Types of formative and Summative Assessments

Formative or Summative	Grading and Assessments will include scale A-F for LCC Hort 120 P/NP
	<p>Class notes</p> <p>Floral sketch books</p> <p>Plant sale portfolio</p> <p>Google classroom assignments and warm up questions</p> <p>Daily review and Friday summaries</p> <p>AET- Science journal weekly- lists students list Standards and mastery</p> <p>Quizzes</p> <p>Tests</p> <p>ICEV pre assessment, vocabulary, worksheets, and matching (auto feedback)</p> <p>Labs</p> <p>Soils analysis and management</p> <p>Water systems and water wise plant selection</p> <p>Integrated pest management plan</p> <p>Lab notebook on growing and harvesting data</p> <p>Peer consumption survey</p> <p>FFA Career Development Events</p> <p>Industry Skills review</p> <p>Projects</p> <p>Land management Roll playing exercises</p> <p>Case study on local food markets and direct to customer business</p> <p>SAE- Student self selected year long project and presentation</p> <p>Plant Sale</p> <p>Planning, documenting, marketing, selling, profit loss analysis</p> <p>Final project present to class with map and research</p> <p>Subsistence Plot design focused on a production</p>