

GRADE LEVEL

9 – 11

PERIODS PER WEEK

5 or Block Scheduling

COURSE LENGTH

1 School Year

CREDIT(S)

1 (single period format – ½ class for content/ ½ class for application)

2 (double period format – 1 period for content/1 period for application)

Course Description

Horticulture Science/Greenhouse Management I an introductory course designed to teach students about the world of the Horticultural Sciences. The course covers a diverse range of topics and skills spanning the field of Horticulture/Greenhouse Management. Students will complete units on plant growth and development, plant anatomy and physiology, plant reproduction and plant identification, floriculture (including floral design and greenhouse management), as well as units on careers and the National FFA Organization. We will utilize our classroom and greenhouse extensively to demonstrate scientific principles of plants. Management is a challenging and diverse topic best explored utilizing a variety of different instructional tools. These tools include but are not limited to: investigations of plant physiology and plant biology, hands-on application of fruit, vegetable and flower production, quantitative analysis of various growing systems, introductory landscape design and greenhouse management.

Careers in Plant Systems

- Landscape Design/Construction
- Arboriculture
- Landscape architect
- Urban planner
- Botanist
- Greenhouse Manager
- Entrepreneur
- Florist/Floral Designer

Internships/Job Shadow Opportunities

- Business and Private Industry
- Environmental Consulting Agencies
- Federal Government (NPS, USGS, EPA, USFS, USFWS)
- Local Watershed Districts
- Non-Profit Organizations
- State Departments of Natural Resources and Protection (DNR, MPCA)

Colleges and Universities with Agriculture and Environmental Service Systems Majors/ Minors/ and Certifications

- University of Wisconsin- Madison
- Milwaukee School of Flower Design
- Penn State University
- Iowa State University
- Kansas State University
- University of Illinois at Urbana- Champaign
- Auburn University
- Colorado State University

Career Development/FFA

- Floriculture
- Nursery/Landscape
- Public Speaking
- Forestry

GOALS

- To expose students to scientific concepts, diverse skills and career connections in the larger Horticultural field.
- To engage students in learning, discovery, and problem solving through hands-on problem based learning.
- To prepare students for college and careers by exposing them to problem solving strategies.
- To provide opportunities for students to share their understanding and expertise with community partners, industry professionals and other educational institutions

Disclaimer: This course syllabus has been adapted from various educational curriculum medium.

All content has been reformatted selected and approved for instructional purposes by n-gAged Learning, LLC consultants.

OBJECTIVES

- Students will be able to demonstrate both an understanding of, and ability to apply:
 - Horticultural concepts, skills and problem-solving strategies
 - Investigative methods and techniques for collecting, quantifying and analyzing data related to plant growth
- Students will be able to demonstrate an ability to construct, analyze, and evaluate:
 - Hypotheses, research questions, and predictions
 - Plant taxonomy and classification
 - Production and management of food and ornamental crops
 - Research of controversial topics in the Horticultural field.

Topics of Instruction

Introduction to Horticulture

- *During this unit students will describe the Horticultural field, careers and concepts related to Horticulture*
- What is Horticulture & why should I care about it?
- What do Horticulturalists do?

Plant Classification and Identification

- *During this unit students will be able to identify characteristics, parts and qualities of plants*
- How can I tell the difference between these plants?
- How can I identify plants in the wild?

Growth and Development

- *During this unit students will be able to explain how plants grow and develop from seed to maturation*
- What causes a seed to grow?
- Which microgreen is the best to grow?
- Can plants grow without seeds?

Plant Anatomy and Physiology

- *During this unit students will be able to illustrate how the anatomy and physiology of plants help them grow and develop*
- How does a plant grow?
- What does a plant need to grow healthy?

Growing Systems

- *During this unit students will be able to discuss and recognize horticultural growing systems, such as in-ground cultivation, hydroponic growing, aquaponic growing and other production managements*
- What are soils and how do they influence plant growth?
- What are other ways of growing plants outside of soils?

Edible Plant Systems

- *During this unit students will be able to give examples of different edible plant systems and how they influence plant growth and development*
- What are edible plants and how many are there?
- When, where & how can we grow edible plants?

Garden Planning and Design

- *During this unit students will be able to sketch and design a fruit/vegetable/flower garden plan*
- What do I need to plant a garden?
- Is this a good garden design?

Greenhouse Management and Production

- *During this unit students will be able to employ greenhouse safety procedures, pest-management practices and horticulture practice techniques*
- What are greenhouses and how do we work within them?
- What are pests and how do we control them?

Landscape Management and Maintenance

- *During this unit students will design and set up a landscape management and maintenance plan*
- How do plants work in landscapes?
- How can we design landscape plans?
- How can we grow & install plants in landscapes?

Fruit/Vegetable/Flower Production

- *During this unit students will be able to create and justify the design, preparation and installation of a fruit/vegetable/flower garden*
- What are the different fruits, vegetables and flowers that we can grow in Wisconsin?
- How do I install a fruit/vegetable/flower garden?

INSTRUCTIONAL METHODS

- Specialized Learning
 - Differentiated Learning
 - Cooperative Learning
 - Scientific Inquiry Based Learning
 - Experiential Learning
- Project Based Learning Activities
 - Designing/Installing Gardens
 - Community Gardens – Urban
 - Hydroponics/Aquaculture
 - Research/solving Food Deserts- Urban
 - Weddings
 - Beekeeping
 - Designing/upkeep - Aquaponic gardens
- Cross-Curricula Learning Activities
 - Thanksgiving Dinner
 - Farm Stand operation
 - Creation of Children Gardens
- Discussion of current issues and trends in Horticulture
- Field Trips
- Resource Speakers

Supplemental Material

- Horticulture Today
Jodi Songer Riedel and Elizabeth Driscoll (*Authors*)
- ThinkCERCA
Personalized computer literacy curriculum and platform empowers teachers to grow students' critical thinking skills, while increasing literacy.
- <https://www.teachingchannel.org/videos/differentiating-instruction>
- Differentiated Learning – Differentiating the Process – PP - Pepper Skodack
- World Food Prize – Global Challenge