

**Dallas High School
Home of the Dragons**



**Plant Science
2022-2023**

Instructor: Danielle Bull

Telephone: (503) 623-8336

Email: danielle.bull@dsd2.org

Office Hours: by appointment

Course Description:

Provides a broad view of the horticulture industry, with emphasis on greenhouse and nursery production. Introduces the basic requirements for plant growth. Explores environmental and social aspects of horticulture.

Course Objectives:

As a result of taking this course the student will be able to:

1. discuss the key operational features of the following industry segments
 1. nursery and greenhouse
 2. landscaping/turf management
2. Identify and evaluate soil based on its components (texture/structure) and be able to describe how those soil qualities affect viable use options.
3. Identify advantages and disadvantages of soilless planting medium and describe proper sterilization techniques and equipment.
4. Discuss soil chemistry to include CEC, pH, and electrical conductivity and the effects on plant nutrition and growth.
5. Identify common anatomical structures of seeds and plants.
6. Explain the life processes involved in plant growth and reproduction to include nutrient uptake and the effects of deficiencies.

7. List plant hormones, their functions, and effects on plant growth.
8. List and describe common soil amendments and fertilizers and their effects on the soil and plant production.
9. Describe fertilizer recommendations for various horticultural crops and differentiate organic vs synthetic fertilizers.
10. Discuss a current horticulture industry topic of concern.
11. Schedule / create a cropping calendar for selected crops.
12. List and describe common greenhouse structures and equipment to include heating, cooling, watering, and fertilizing equipment as well as greenhouse framing and covering materials.
13. Identify common greenhouse plant containers.
14. Demonstrate proper grafting and budding techniques commonly used in the horticulture industry.
15. Demonstrate asexual propagation methods commonly used in the horticulture industry.
16. Create a greenhouse sanitation protocol.
17. Explain the components of binomial nomenclature and its importance.
18. Identify plants using a key based on leaf, stem, bud, and flower characteristics.
19. Describe management options for weeds, diseases, and insects to include a proper scouting program and the advantages and disadvantages of those control methods (biological, chemical, etc.)
20. Describe safety precautions, equipment, attitude, etc. involved in chemical application.
21. Properly demonstrate equipment safety in the use of agricultural equipment (tractors, chemical application equipment, etc.)
22. Discuss the aspects of a greenhouse watering system to include: materials, flow rates/pressure, fertilizer injection, etc.
23. Discuss various aspects of marketing a greenhouse crop.
24. Exhibit the proper industry safety attributes while working in a greenhouse setting.

Course Content/Assignment Outline:

Week 1 & 2	Introduction to class, introduction to Oregon nursery industry (Assignment – nursery career exploration)
Week 3	Soil components, texture, structure, and features Assignments: soil texture bottle, texture – lab activity Stoniness/rockiness estimation lab activity, unit 4 pages 35-49 and review questions.
Week 4	Media preparation and components Assignments – media component identification (lab)

	Quiz – media components
Week 5	Soil evaluation and land use classification Assignment – practice pits – 2 OSU soils judging cards, review sheet
Week 6	Soil evaluation and land use classification Assignment judging 4 soils pits – OSU soils judging cards
Week 7	Plant Anatomy and Physiology Leaf dissection lab, root dissection Unit 3 pages 24 to 33 and unit review
Week 8 & 9	Plant Anatomy and Physiology cont... Leaf and root review, seed parts lab activity, Stem structures, Plant anatomy and physiology test
Week 10	Turf management and careers Unit 35, 36, 37 pages 377 through 400 Sports field study and management lab, test
Week 11	Introduction to issues in agriculture/horticulture Research paper
Week 12	Issues in horticulture Research paper / rough draft
Week 13	Issues in horticulture Presentations / notes
Week 14	Crop scheduling Unit 5 pages 50 to 60, Unit 6 pages 61-72 / cropping calendar, Final
Week 15 & 16	Greenhouse structure and materials Texas A&M packet Models and presentations Quiz
Week 17	Plant propagation – seeds and seeding Seeding lab

Week 18, 19, & 20	Sexual propagation – layering, budding, grafting Grafting video – OSU extension units 7 & 8 pages 73 –90 all unit review questions Video demonstration unit 10, 11, & 12 pgs 99 – 121 all unit review questions, test
Week 21 & 22	Greenhouse sanitation Sanitation code
Week 23 & 24	Binomial nomenclature / Plant Identification Unit 2 page 15 to 19 Plant collection
Week 25 & 26	Integrated pest Management Unit 16 pgs 150-161,unit review. Disease identification/chemical safety Unit 17 pages 163 to 170
Week 27 & 28	Disease identification and Chemical safety Unit 18, 19, & 20 pages 171 through 194 all unit review questions quiz
Week 29 & 30	Introduction to floral designs & corsages and boutonnieres Units 49 and 50 pages 528 to 542 unit review questions Boutonnieres and center pieces, quiz
Week 31 & 32	Equipment Safety Accidents and why they happen, equipment maintenance and parts labeling lab Operational controls lab, safety lecture notes, Quiz
Week 33 & 34	Equipment Safety Tractor driving – trailering lab activity Test
Week 35 & 36	Crop Marketing, advertising and sales Timing, marketing scenario, and Advertisement Sales tips and techniques, sales scenario, plant sale

Grading and Assessment:

The following grading scales will be used to calculate a student's course grades and grade point average:

Course Grades will be calculated using the following scale:	Grade Point Averages (GPAs) will be calculated using the following scale:	GPAs for Advanced Placement courses will be calculated using the following scale:
A 90-100%	A (4.0)	A (5.0)
B 80-89%	B (3.0)	B (4.0)
C 70-79%	C (2.0)	C (3.0)
D 60-69%	D (1.0)	D (2.0)
F 0-59%	F (0)	F (0)

Academic Integrity

The faculty and administration of Dallas High School believe that honesty and integrity are personal attributes worth nurturing in our students. Because we value the educational and skill development opportunities provided by classroom assignments, research projects, tests, and credit recovery, we expect students to express academic integrity by doing their own work and properly documenting information gathered from other sources. Congruous with this belief is our resolve to handle those who violate the principles of academic integrity with stringent consequences as outlined in the K-12 Code of Conduct.

Student Behavior and Expectations:

Students are expected to demonstrate appropriate behavior in the classroom and contribute to a safe, positive, caring learning environment by cooperating; doing their best to achieve academic excellence; respecting themselves, others, and the environment; and conducting themselves in a safe manner at all times. Clearly defined behavioral expectations are consistent school-wide through the Dragon **PRIDE** acronym. We strive to teach our students to take **PRIDE** in themselves and the school by demonstrating:

Purpose, Respect, Integrity, Determination, and Empathy at all times. For more information, please see the Student/Parent Handbook.

Student Electronic Devices at Dallas High School:

Students are allowed to possess personal electronic devices at school and at school-sponsored activities provided such devices are not used in any manner that may disrupt the learning environment, school-sponsored activities or violate Board policies, administrative regulations, school or classroom rules, or state and federal laws. Cell phone usage is **only** permitted during scheduled passing periods and lunch times. Students are not allowed to be on their phones in the hallways and other common areas during class time and cell phone usage in the bathrooms and locker rooms is prohibited **at all times**. Students must use a Chromebook or laptop to complete and submit coursework. Cell phones cannot be used for this purpose and can only be used during class time with express advance permission from the teacher.

Diversity

Dallas School District #2 recognizes the diversity and worth of all individuals and groups and their roles in society. It is the policy for the Dallas School District #2 Board of Education that there will be no discrimination or harassment of individuals or groups on the grounds of age, color, creed, disability, marital status, national origin, race, religion, sex or sexual orientation in any educational programs, activities or employment.

Gender

Dallas High School will be proactive in creating a school culture that respects and values all students and fosters understanding of gender identity within the school community. Such guidelines are intended to ensure a safe learning environment free of discrimination and harassment, and to promote the educational and social integration of transgender students. They do not anticipate every situation that may occur and the needs of each student will be assessed on a case-by-case basis.

DHS AGRICULTURE DEPARTMENT SAFETY AGREEMENT

I, _____ (printed name) the undersigned, a student in the Dallas High School Career and Technical Education Center, agree to follow all safety rules and procedures and agree to the statements below. I will:

- Successfully complete the Safety Orientation Unit.
- Have lab policies and procedures explained to me.
- Received demonstrations on all labs.
- Be instructed to ask for help on any machine/tool/animal with which I am not familiar.
- refrain from using any machine/tool/animal without such instruction.
- Receive a pair of safety glasses.
- Be responsible for wearing eye protection at all times during lab activities.

I understand that there are certain risks associated with the use of this equipment and if I have any questions or think that a piece of equipment is not functioning properly, I will ask the person in charge.

Additionally, I know that I must:

- dress appropriately for the shop and lab areas. (closed toed shoes, eye protection, etc.)
- Follow school policy regarding any and all other regulations to include: use of tobacco, foul language, etc.

Student Signature:

_____ Date: _____

Parent or Guardian

Name (Print) _____ Signature _____

Below please indicate the best method of contact as well as the best time to contact. (email, phone, etc.)

With the passage of senate bill 2444 all students enrolled in agricultural education course at Dallas High School will have paid membership in the National FFA Organization. Students have access to and are encouraged to participate at the level with which they feel comfortable. The FFA is a youth leadership organization that is dedicated to making a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education. If you have any questions please ask.