

Biology of Horticulture
BIOL 4010
Spring 2011

Instructor: Dr. Emily Cantonwine

Lecture 9:00-9:50 (BC 2022)
Lab 11:00-1:50 (BC 2040)
Office Hours M 2:30-4, W 2:30-4, F 10-11:30, or by appointment

Course Description: Introduction to the biological principles and practices of propagating and growing plants.

Course Objectives (Educational Outcomes): By the end of the semester, students will be able to

- start and maintain plants in a greenhouse (GEO 5; BEO 5)
- identify important horticultural plants and plant families (GEO 5; BEO 2,5)
- identify structural components of horticultural plants (GEO 5; BEO 3,5)
- explain how environmental factors affect plant growth (GEO 5; BEO 5)
- explain the biological principles behind the manipulation of plant growth for aesthetic and economic purposes (GEO 5; BEO 5)
- explain how plants, insects, and pathogens damage plants or affect plant value (GEO 5; BEO 2,5)
- present complex biological information in report, poster, and video-log format (GEO 3,4,7; BEO 1,5)

Required Text: Preece, J.E. & Read, P. E. 2005. The Biology of Horticulture, an introductory textbook. Second edition. John Wiley & Sons, Inc.

Students are required to bring the syllabus & lecture notes to lecture periods; The Biology of Horticulture text is recommended.

Students are required to bring the syllabus & lecture notes to each laboratory. The Biology of Horticulture text may be required occasionally.

Important information:

- A grade of C or higher is required in this course to count towards biology degree.
- Midterm, March 3, is the last day to withdraw from the course.
- If you have need for special arrangements to meet the requirements of this course, please contact the Access Office for Students with Disabilities in Nevins Hall, 245-2498. Please discuss this need with me as soon as possible.

<u>Assessment</u>	<u>#</u>	<u>points each</u>	<u>points total</u>		<u>SCALE</u>
Exams	5 of 6	100	500	A	90-100%
Poster	1	50	50	B	80-89.99%
Lab report	1	50	50	C	70-79.99%
<u>Service Project</u>			100	D	60-69.99%
Total			700	F	< 60%

Assessments:

- *Exams:* There are 5 exams and a cumulative final exam, each worth 100 points. Material on the exams will include both lecture and laboratory material. Students may drop their lowest exam score (or elect to not take the final). Students may not take exams late, and may not take exams early unless there is a documented university or religious excuse. In case of illness or family emergency, the exam you miss is the exam that will be dropped.
- *Poster:* Each student will research a horticultural topic (selected from a list or with the instructor's permission) and present their findings to the class in the form of a poster. Information and photographs on the poster must be cited appropriately. More information will be provided in lab.
- *Lab Report:* There will be one lab report based on data collected from a propagation experiment. More information will be provided in lab.
- *Service Project:* Students will participate in one of six service projects – 1) Pinevale Learning Center Garden Project, 2) VSU Whitehead Camellia Garden, 3) VSU Horticulture Club (foundation & fundraiser), 4) VSU Composting project, 5) Blazer gardens, or 6) VSU Campus grounds maintenance. Your grade will be based on participation (during and outside of assigned lab time) and the documentation of the project. More information will be provided in lab.

Department of Biology Educational Outcomes (BEO)

1. Develop and test hypotheses, collect and analyze data, and present the results and conclusions in both written and oral format used in peer-reviewed journals and at scientific meetings.
2. Describe the evolutionary process responsible for biological diversity, explain the phylogenetic relationships among the other taxa of life, and provide illustrative examples.
3. Demonstrate an understanding of the cellular basis of life.
4. Relate the structure and function of DNA/RNA to the development of form and function of the organism and to heredity
5. Interpret ecological data pertaining to the behavior of the individual organism in its natural environment; to the structure and function of populations, communities, and ecosystems; and to human impacts on these systems and the environment.

Valdosta State University General Educational Outcomes (GEO)

3. Students will use computer and information technology when appropriate. They will demonstrate knowledge of computer concepts and terminology. They will possess basic working knowledge of a computer operating system. They will be able to use at least two software tools, such as word processors, spreadsheets, database management systems, or statistical packages. They will be able to find information using computer searching tools.
4. Students will express themselves clearly, logically and precisely in writing and in speaking, and they will demonstrate competence in reading and listening. They will display the ability to write coherently in standard English; to speak well; to read, to understand, and to interpret the content of written materials in various disciplines; and to listen effectively and to understand different modes of communication.
5. Students will demonstrate knowledge of scientific and mathematical principles and proficiency in laboratory practices. They will understand the basic concepts and principles underlying scientific methodology and be able to collect, analyze, and interpret data. They will learn a body of scientific knowledge and be able to judge the merits of arguments about scientific issues. They will be able to perform basic algebraic manipulations and to use fundamental algebraic concepts to solve word problems and equations. They will be able to use basic knowledge of statistics to interpret and to analyze data. They will be able to evaluate arguments based on quantitative data.
7. Students will demonstrate the ability to analyze, to evaluate, and to make inferences from oral, written and visual materials. They will be skilled in inquiry, logical reasoning, and critical analysis. They will be able to acquire and evaluate relevant information, analyze arguments, synthesize facts and information, and offer logical arguments leading to creative solutions to problems.

Tentative Schedule:

Date	Lecture Topics	Reading Assignments (Chapters)	Lab
1/10	What are the features of horticultural plants? <i>(Introduction, Classification, Plant structure)</i> EXAM 1 - chapters 1-3 (1/31)	1,2	Service projects, Poster topics
1/17		3	MLK Day – no lab
1/24		3	Anatomy Lab
1/31		3	Begin plant propagation experiment (Lab Report - Due 3/7)
2/7	How is plant growth manipulated? <i>(Hormones, Chemical control of growth, Propagation, Pruning)</i> EXAM 2 - chapters 11-14 (2/28)	11	grafting, pruning, repotting, mulching
2/14		12	Tree planting; data collection
2/21		13	Service Project
2/28		14	Start plants for flower pots, develop planting plan
3/7	How does the ambient environment affect plant growth? <i>(Light, T°)</i> ----- Spring Break ----- EXAM 3 – chapters 5-6 (3/25)	5, 6	Service Project
3/14		---	Spring Break – no lab
3/21		6	Service Project
3/28	How does the rhizosphere environment affects plant growth? <i>(Water, Soils, Minerals, Mulch)</i> EXAM 4 – chapters 7-9 (4/15)	7	Soil Testing
4/4		7, 8	Service Project
4/11		8,9	Pests
4/18	How do plant pests damage plants & how are they controlled? <i>(Breeding, Pests)</i> EXAM 5 – chapters 4 & 16 (4/29)	4, 16	Plant flower pots
4/25		16	Service Project & Poster Presentations
5/2	FINAL EXAM (Thursday May 5, 8-10am)	cumulative	no lab