

# Biology of Horticulture (BIOL 3630), Spring 2016

Instructor: Dr. Emily Cantonwine  
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Lecture M, W 2:00-3:15 (BC 2022)  
Lab Section A - M 3:30-6:20 (BC 2040)  
Section B – W 3:30-6:20 (BC 2040)  
Office Hours W 10:30-1 & R 1-3:30, or by appointment

Course Description: An introduction to the horticultural practices and biological principles 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)
- perform common horticultural practices, i.e. pruning & planting, and explain the biological basis of important steps (GEO 5; BEO 1,2,5)
- identify important horticultural plants and plant families (GEO 5; BEO 2,5)
- identify anatomical and 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)

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

Recommended Text: Brian Capon. 2010. Botany for Gardeners, Third edition. Timber Press.

***Students are required to bring the syllabus & lecture notes to lecture periods; Text is recommended.***

***Students are required to bring the syllabus & lecture notes to each laboratory. Text is occasionally required.***

Important information:

- A grade of C or higher is required in this course to count towards biology degree.
- March 10 is the last day to withdraw from the course with a W.
- 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.

### Assessments:

- *Exams:* There are four term exams and a cumulative final exam, each worth 100 points. The first two term exams will include both lecture and laboratory material, and all exams may include questions related to concepts taught during service learning activities. Make-up exams are an option for approved reasons, but may be more challenging than the original exam (i.e. essay questions).
- *Horticultural Plants Test:* Students will be tested on a selection of important horticultural plants presented in lab. More information will be provided in lab.
- *Self-Guided Campus Walking Tour Project:* Students or groups of students will conduct research and develop a presentation for one of VSU's special plants or landmarks related to horticulture. More information will be provided in class.
- *Service Project:* Students will participate in at least 20 hours of community service related to horticulture. Your grade will be based on the number of hours completed and an evaluation of your participation during these hours. More information will be provided in lab.

<u>Assessment</u>	<u>#</u>	<u>pt each</u>	<u>pt total</u>	<u>SCALE</u>	
Exams	5	100	500	A	90-100%
Horticultural Plants Test	1	50	50	B	80-89.99%
Walking Tour Project	1	50	50	C	70-79.99%
Service Project	1	100	100	D	60-69.99%
Total			700	F	<60%

### 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:

Week	Lecture Topics	Reading Assignments (Chapters)	Lab
1/11	What are the features of horticultural plants? <i>(Introduction, Classification, Plant structure)</i>  <b>EXAM 1 - chapters 1-3 (Monday, 2/8)</b>	1,2	Intro to Service Projects; Structure Lab *Text Required
1/18		3	No Lab
1/25		3	Anatomy Lab *Text Required
2/1		11	Flower, Fruit, Seed Lab *Text Required
2/8	How is plant growth manipulated? <i>(Hormones, Chemical control of growth, Propagation, Pruning)</i>  <b>EXAM 2 - chapters 11-14 (Monday 3/7)</b>	12	Start seeds – flowers, herbs, vegetables (1 Service Hour)
2/15		13	Cuttings (1 Service Hour)
2/22		14	TBA
2/29		14	Pruning (2 Service Hours)
3/7	How does the environment affect ----- <b>Spring Break</b> ----- -  plant growth?   <b>EXAM 3 – chapters 5-9 (Wednesday 4/13)</b>	5, 6	Plant Pollinator Gardens at Schools (2-3 Service Hours)
3/14		6, 7	No Lab
3/21		--	Important Horticultural Plants (House Plants)
3/28		7, 8	Important Horticultural Plants (Flowers, Herbs, & Vegetables)
4/4		9	Important Horticultural Plants (Trees & Shrubs)
4/11		4	Plant Sale (up to 2 Service Hours)
4/18	How do plant pests damage plants & how are they controlled? <i>(Breeding, Pests)</i>  <b>Exam 4 - Chapters 4 &amp; 16 (Monday 5/2)</b>	4, 16	Pest lab
4/25		16	<b>Horticultural Plants Test</b>
5/2		<b>Exam 4</b>	
5/4	<b>FINAL EXAM (2:45-4:45pm)</b>	<b>Cumulative</b>	