

Biology of Horticulture (BIOL 3630), Spring 2015

Instructor: Dr. Emily Cantonwine

Lecture M, W 2:00-3:15 (BC 2022)

Office Hours M 3:30-4:30, W 11-12, or by appointment

Lab Section A - R 9:00-11:50 (BC 2040)

Section B - R 1:00-3:50 (BC 2040)

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:

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 may be required occasionally.

Important information:

- A grade of C or higher is required in this course to count towards biology degree.
- Midterm, March 5th, 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>pt each</u>	<u>pt total</u>		<u>SCALE</u>
Exams	4 of 5	100	400	A	90-100%
Horticultural Plants Test	1	100	100	B	80-89.99%
<u>Service Project</u>	<u>1</u>	<u>100</u>	<u>100</u>	C	70-79.99%
Total			600	D	60-69.99%
				F	< 60%

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. Students may drop their lowest exam score, or elect to not take the final. If a student misses an exam for any reason, the missed exam is the exam that will be dropped. The only exceptions will be for University-related excuses.
- *Horticultural Plants Test:* Students will be tested on a selection of important horticultural plants presented in lab. The test will cover plant family, species, and common names, as well as, growth habits, environmental preferences, and horticultural uses.

- *Service Project:* Students will participate in at least 20 hours of community service related to horticulture, and keep a journal of the experiences. Each journal entry is called a learning log (LL). The project grade will be based on hours served (20pt for 20hr), and an average grade of the LLs (100% = 80pt). LLs are due no later than one week after a field experience or completion of an educational project. In cases where a field experience is repeated with no new information, students may add service dates and hours participated to an existing LL within a week of the work. No more than 10 hours may be recorded for a single activity/LL.
 - Field experiences are those where students participate in hands-on horticultural practices, i.e. starting seeds or transplanting seedlings for a plant sale, helping VSU grounds with planting, or providing physical work with the Valdosta City Schools Orchard/Garden Project.
 - Educational projects are those where students communicate horticultural knowledge or organize a horticultural experience for the community, i.e. reviewing and updating the VSU campus plants website, creating an educational activity for students with the website, preparing for and participating in Science Saturday, or advertising and selling plants on campus.

SOME RULES - Students are encouraged to discuss biological concepts related to horticultural practices with each other, BUT only those students who understand the biological explanation may include the explanation (in her/his own words) in his/her LL. WARNING, you may be asked to defend a written statement to confirm understanding. If more than one student participated in an experience, the same photograph may be used by all involved. In most cases, the method of creating & submitting LLs is flexible, as long as we both have a copy. I will be keeping my copy until the end of the semester, and will not make a copy for you after it is submitted.

Learning Log RUBRIC		Points
At least one photograph of the experience provided	Included and acceptable. Students may elect to post photographs to the Biology of Horticulture Service Learning Facebook page as long as the service date and student participants are posted with the photo.	2
Service Date and Hours Participated	Provided and accurate. Reported hours will be confirmed before this point is awarded.	1
Field Practice – a written description of the horticultural practice with biological explanations. If you there is no obvious biological connection, see me for guidance. For Educational service – the outcome must be provided.	Excellent <ul style="list-style-type: none"> - (Field practice) a detailed description of the horticultural practice (steps) is provided, with a very complete & accurate biological explanation supporting why important steps of the practice are critical. - (Educational service) outcome accurate and requiring no editing. 	7
	Good <ul style="list-style-type: none"> - (Field practice) a detailed description of the horticultural practice is provided, with accurate biological explanations that are not as complete, or biologically “deep”, as they could be. - (Educational service) outcome accurate requiring minor editing. 	6
	Acceptable <ul style="list-style-type: none"> - (Field practice) A complete description of the horticultural practice is provided, but no biological explanation provided, or explanation is not accurate. - (Educational service) outcome mostly accurate but requiring significant editing. 	5
	Not Acceptable <ul style="list-style-type: none"> - (Field practice) an incomplete or inaccurate description of the horticultural practice is provided, or the biological explanation is not written in your own words (copied from another student, website, book, or notes), or sharing of work is suspected and student cannot support statement via oral communication. - (Educational service) outcome with major inaccuracies. - Any service hour < 20hr not completed by May 4th @ 2:00. 	0
Possible deductions	Turned in later than one week after a field experience or completion of educational project. Spring Break will not be included in time tally.	- 2
Total points		10
Possible bonus points	Attempts at providing biological explanations for practices before they are covered in class (with citations provided), &/or a “deeper” explanation for a practice that was previously reported and found to be less than “Excellent”. Bonus attempts are due no later than May 4 th @ 2:00.	+1 each per LL

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
1/12	What are the features of horticultural plants? <i>(Introduction, Classification, Plant structure)</i>	1,2	Intro to Service Project, Campus walk – plant classifications
1/19		3	Anatomy Lab
1/26		3	Classification & Structure Lab
2/2		EXAM 1 - chapters 1-3 (2/2)	11
2/9	How is plant growth manipulated? <i>(Hormones, Chemical control of growth, Propagation, Pruning)</i>	12	Start seeds – flowers, herbs, vegetables (1 Service Hour)
2/16		13	Cuttings (1 Service Hour)
2/23		14	Tomato grafting & Air layering
3/2		EXAM 2 - chapters 11-14 (3/4)	14
3/9	How does the environment affect plant growth? ----- Spring Break -----	5, 6	Perennial peanut planting in school orchards (2.5 Service Hours)
3/16		6, 7	Important Horticultural Plants (House Plants)
3/23		--	No Lab
3/30		7, 8	Important Horticultural Plants (Flowers, Herbs, & Vegetables)
4/6		9	Important Horticultural Plants (Trees & Shrubs)
4/13		EXAM 3 – chapters 5-9 (4/13)	4
4/20	How do plant pests damage plants & how are they controlled? <i>(Breeding, Pests)</i>	4, 16	Plant Sale (up to 2 Service Hours)
4/27		16	Important Horticultural Plants Test
5/4		Exam 4 - Chapters 4 & 16 (5/4)	Exam 4
5/6	FINAL EXAM (12:30-2:30pm)	Cumulative	