Course title and number  HORT 201  
Term  Fall 2013  
Meeting times and location  Tuesday and Thursday, 11:10-12:25, KLEB 115  

Instructor Information  
Name  David Wm. Reed  
Work: 979-458-0710  
Telephone numbers  Cell: 979-777-2750  
Home: 979-690-0401  
Email address  dwreed@tamu.edu  
Office hours  Anytime as arranged with student  
Office location  AGLS 515W and HFSB 408  

COURSE DESCRIPTION AND PREREQUISITES  
Survey of the basic biology of plants (anatomy, morphology, physiology, life cycle), environmental sciences (water, light, temperature, soil, atmosphere, nutrient elements) and biotic factors (pests) that impact the growth, development, productivity and aesthetic value of horticultural crops, e.g. fruits, vegetables and ornamental crops. Each topic begins with fundamental scientific basics, then progresses to the impacts on plants and/or the environment, then the practical applications on horticultural crops.  
Prerequisites: none  

LEARNING OUTCOMES AND COURSE OBJECTIVES  
Subject Matter Based  
• Students will recognize plant "architecture" or "structure" as determined by outer morphology and internal anatomy.  
• Students will develop a basic knowledge of plant "function", with a focus on the fundamental principles of photosynthesis, respiration and hormones.  
• Students will master fundamental physical and chemical basis of the environmental variables of light, temperature, water, soil, atmosphere, mineral nutrition and how these effect plant growth.  
• Students will develop practical skills to "orchestrate" plant growth with hormones, pruning, nutrition, irrigation, manipulation of atmospheric gases and soil modification.  

Required Elements  
• Critical Thinking: Students will develop critical thinking skills through integration of “structure-function” relationships, “cellular physiology-whole plant relationships”, “environment-plant” interactions, or deduction of causal effects from symptomology.  
• Empirical and Quantitative Skills: Students will develop basic empirical and quantitative skills in areas such as heat of vaporization and environmental cooling, photosynthetically active radiation (PAR) and plant acclimation to low light, fertilizer analysis and computation of most economical costs, etc.  
• Communication Skills: Students will be given “Food for Thought” questions at the end of most lectures, and will verbalize answers/solutions at the beginning of the next lecture, and students will express their understanding of the course concepts in writing.  
• Teamwork: Students will participate as groups in “active learning” exercises, such as using students to act-out electron and light capture by chlorophyll and resultant ATP synthesis in the electron transport chain of the light reaction of photosynthesis. “Think-Pair Share” or “Think-Group Share”
will be used for active class participation on many topics.

- Personal Responsibility: Some “Food for Thought” questions posed during lecture or at the end of each lecture will be on topics such that effect individual’s philosophy, decisions and/or actions, such as ethical views of genetic engineering and GMOs, and cloning of animals versus cloning of plants; one's carbon footprint relative to climate change and the greenhouse effect; diminishing water supplies and one's reaction to water restriction, etc. Students will be asked to contemplate their personal responsibility relative to these issues.

- Social Responsibility: Some “Food for Thought” questions posed during lecture or at the end of each lecture will be on topics such as climate change and our social responsibility, society's acceptance GMOs and the economic consequences, etc., and contemplate one's social and political responsibilities relative to these controversial topics.

TEXTBOOK AND RESOURCE MATERIAL
Web site: hort201.tamu.edu

GRADING
Exams and weights
100 points Exam 1 (inclusive)
100 points Exam 2 (inclusive)
100 points Exam 3 (inclusive)
100 points Exam 4 (inclusive)
100 points Final Exam (comprehensive)

Grading Scale
10 point scale: A = 90-100, B = 80-89, C = 70-79, D = 60-69, F <=59

Grade Calculation
- Drop lowest grade of the five (5) exams
- Therefore, your grade is based on a total of 400 points
- Numerical grade: mathematical average of highest 4 exam grades, rounded to next whole number
- Letter grade: letter grade equivalent (see Grading Scale) of your mathematical average; there is no curve on final grades or outside/extra work for extra credit.

EXAM DATES: Exam Dates are posted on the course web site.

MAKE-UP EXAMS:
All absences and make-up polices are based on Student Rules (http://student-rules.tamu.edu/). Make-up exams will be given only for acceptable University excuses as per Student Rule: "The student is responsible for providing satisfactory evidence to the instructor to substantiate the reason for absence", which requires some type of written and approved excuse. And, "to be excused the student must notify his or her instructor in writing (acknowledged e-mail message is acceptable) prior to the date of absence if such notification is feasible. In cases where advance notification is not feasible (e.g. accident, or emergency) the student must provide notification by the end of the second working day after the absence. This notification should include an explanation of why notice could not be sent prior to the class." Email is sufficient for notification of an absence, but it is strongly advised that you talk to me directly (in person or a phone call) to inform me of the absence - Why? So I can confirm the validity of the absence and explain your options relative to timing of the make-up exam. If possible, the make-up exam will be tentatively scheduled at the time I verify the excused absence. Arrangements for make-up exams must be done directly (in person or a phone call) - I do not discuss arranging make-up exams via email, texting, leaving voice mails, or other electronic means, unless it is an extraordinary situation. Student Rules require that the make-up is "to be completed within 30 calendar days form the last day of the absence". However, the exact time allowed
for the make-up depends on the nature of the excused absence. My guidelines are: The student is given the number of days to make-up the exam equal to the number of days of the excused absence, starting with the day of the exam, and the make-up exam must be taken by the end of the next working day. For example, if the student has an illness and an excused absence for 2 days (the day of the exam plus the next day), then the student is allowed two (2) calendar days, and the make-up exam must be taken by the end of the 3rd day (or next working day, if the 3rd day falls on a weekend or holiday). If the excused absence includes days before the exam such that lectures were missed, then see the instructor for a case-by-case decision to allow sufficient time to view the videos of the missed lectures. If the excused absence is for a planned event, such as sponsored activity, and no lectures are missed, then the student may take the exam before departure if feasible, or a proctored exam may be administered on the trip, or the exam is taken by the end of the day after return; if the absence causes lectures to be missed, an appropriate amount of time will be allowed for the student to view the video tapes of the lectures missed, plus study time - this is arranged on a case-by-case basis. Notification of missing an exam must by the timeline stated above, but written documentation of the excused absence can be turned-in at the time of the make-up exam. If the make-up exam is taken after the graded exams have been returned in class, then a different, but comparable, make-up exam will be given. Any exam missed without following the Student Rules will result in a grade of 0 (unless there are extraordinary extenuating circumstances, and in such cases you must appeal directly to the instructor). If this is your first 0, then it will automatically be used as your drop grade. If you have already used your drop grade, then the 0 will be averaged as a grade. If all this seems confusing, that is why I want you to call me so I can verify your excuse and explain to you the make-up options.

OTHER PERTINENT COURSE INFORMATION

VIDEO TAPE OF LECTURES:
Every lecture will be digitally videotaped. DVDs of each lecture are placed on 2-hour reserve in the West Campus Library Reserve Desk. The DVDs can be viewed on any computer in any of the student computer labs. The Library may post lectures on Media Matrix.

LATE ARRIVALS AND DEPARTURES:
Lecture: I realize A&M is a very large campus. Therefore, late arrivals and early departures will be tolerated within reason (a few minutes). Enter/exit quietly and sit towards the back of the class. However, lecture will start and end on time.
Exams: Late arrivals are not tolerated for exams; after the first student finishes and leaves the room then no other students are allowed in the room to take the exam, unless there is a reasonable and extraordinary reason for arriving late and it can be verified.

CELLULAR PHONES:
If your cell phone or beeper rings during class repeatedly or if you answer a phone that was on vibrate, you may be asked to leave the classroom.

ATTENDANCE:
I do not take roll, but please make an effort to attend all lectures.

Course Topics, Calendar of Activities, Major Assignment Dates

<table>
<thead>
<tr>
<th>Number Lectures</th>
<th>Horticulture Science and Practices, Reed</th>
<th>The Biology of Horticulture, Preece and Read</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>PART I - BASICS OF HORTICULTURE</td>
</tr>
<tr>
<td>1</td>
<td>pages 1-2</td>
<td>Chapter 1</td>
<td>Introduction and Definition of Horticulture</td>
</tr>
<tr>
<td>3</td>
<td>pages 3-20</td>
<td>Chapter 3</td>
<td>Plant Anatomy, Morphology &amp; Development</td>
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<td></td>
<td></td>
<td></td>
<td>Vegetative &amp; Reproductive</td>
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</tbody>
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<thead>
<tr>
<th>3</th>
<th>pages 21-29</th>
<th>Chapter 5</th>
<th>Plant Metabolism and Functioning</th>
<th>Reactions of Photosynthesis &amp; Respiration; Manipulation with light, gases and temperature; Light Saturation Point, Controlled Atmosphere Storage, Fruit Senescence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st EXAM</strong></td>
<td><strong>PART II - ENVIRONMENT IN HORTICULTURE</strong></td>
<td></td>
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<tr>
<td>2</td>
<td>pages 30-32</td>
<td>Chapter 11 &amp; 12</td>
<td>Hormones and Growth Substances</td>
<td>Natural and synthetic hormones (growth substances), sites of synthesis, translocation, Manipulating plant growth and development with hormones; practical applications.</td>
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<tr>
<td>2</td>
<td>pages 33-49</td>
<td>Chapter 6</td>
<td>Temperature</td>
<td>Physical Chemistry of heat and temperature relations, Greenhouse Effect, Global Warming, Climate Change, Climatic Zones, Cardinal Temperatures, Chilling &amp; Freezing Damage &amp; Prevention, Stratification, Vernalization, Temperature induced Dormancy</td>
</tr>
<tr>
<td>2</td>
<td>pages 50-59</td>
<td>Chapter 5</td>
<td>Light</td>
<td>Properties of radiation, Photosynthetically Active Radiation (PAR), Effects of Light Quantity &amp; Quality on plants, Light Measurement, Light Compensation Point, Photoperiodic, Light Acclimatization</td>
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<td><strong>2nd EXAM</strong></td>
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<tr>
<td>2</td>
<td>pages 60-66</td>
<td>Chapter 7</td>
<td>Water</td>
<td>Properties of water, Humidity, Precipitation, Soil Water, Irrigation Systems, Absorption, Translocation, and Transpiration</td>
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<tr>
<td>2</td>
<td>pages 67-73</td>
<td>Chapter 8 &amp; 10</td>
<td>Soil &amp; Growing Medium</td>
<td>Soil Types and Components, Chemistry and Physical Properties, Artificial Soil; Growing Medium amendments and Recipes</td>
</tr>
<tr>
<td>2</td>
<td>pages 74-80</td>
<td>Chapter 9</td>
<td>Nutrition and Fertilizers</td>
<td>Essential Elements, Functions, Deficiency Symptoms, Fertilizer Analysis, Calculation of fertilizer rates and costs, Fertilizer Sources</td>
</tr>
<tr>
<td><strong>3rd EXAM</strong></td>
<td><strong>PART III - HORTICULTURAL PRINCIPLES AND PRACTICES</strong></td>
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<tr>
<td>2-3</td>
<td>pages 81-93</td>
<td>Chapter 4 &amp; 14</td>
<td>Propagation</td>
<td>Sexual propagation by Seeds; Life Cycle of Plants, Asexual reproduction (cloning) by Cuttings, Layering, and Grafting; Chimeras</td>
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<tr>
<td>1</td>
<td>pages 94-96</td>
<td>Chapter 13</td>
<td>Growth Control</td>
<td>Pruning, wound healing, Pruning Methods and Terminology, Chemical Pruning, Timing of Pruning</td>
</tr>
<tr>
<td>1</td>
<td>pages 97-100</td>
<td>Chapter 16</td>
<td>Pest and Pest Control</td>
<td>Pest Control, Integrated Pest Management (IPM), Biological Control, Pest Types -Insects, Mites, Disease Causing Microbes, Weeds</td>
</tr>
<tr>
<td><strong>4th EXAM</strong></td>
<td><strong>FINAL EXAM - COMPREHENSIVE</strong></td>
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**Americans with Disabilities Act (ADA)**
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit [http://disability.tamu.edu](http://disability.tamu.edu)

**Academic Integrity**
For additional information please visit: [http://aggiehonor.tamu.edu](http://aggiehonor.tamu.edu)

"An Aggie does not lie, cheat, or steal, or tolerate those who do."