Syllabus
HCS 2201
Ecology of Managed Plant Systems
4 units (3 hr lecture, one 2 hr lab)

General Information
Instructor:  Dr David Barker (barker.169@osu.edu)
            226 Kottman Hall, 247-6258

Office Hours:  MWF 1-3pm (or Email to confirm appointment)

Teaching Assistant:  Dominic Petrella (petrella.21@buckeyemail.osu.edu)
                    Srimathi Bogamuwa (bogamuwa.1@osu.edu)

Lecture:  MWF Howlett 164
Lab:  Tue, Thur, Fri Howlett Hall Greenhouse Room 117
Prerequisite:  None
Exclusions:  None
Course Text:  (optional)
              Plant Science – Growth Development and Utilization of Cultivated Plants

Course Description:  Origin, diversification, and biogeography of plants inhabiting managed landscapes

GEC Goals & Objectives:  Courses in the Natural Sciences foster an understanding of the principles, theories and methods of modern science, the relationship between science and technology and the effects of science and technology on the environment.

GEC Learning Objectives:
1. Students understand the basic facts, principles, theories and methods of modern science.
2. Students learn key events in the history of science.
3. Students provide examples of the inter-dependence of scientific and technological developments.
4. Students discuss social and philosophical implications of scientific discoveries and understand the potential of science and technology to address problems of the contemporary world.

How the course addresses the GEC objectives:  Students enrolled in HCS 2201 meet the GEC Natural Science Learning Objectives in multiple ways. This course, in conjunction with HCS 2202, provides an integrated introduction to the complex interaction of plant structure, physiology, and the environment. Students gain an understanding of the foundations of modern plant science by studying plant diversity, ecological relationships within and among species, and the evolutionary forces that shape plant form and function. Laboratory activities reinforce the biological concepts introduced in lecture, but also learn scientific reasoning and methods. Students enrolled in HCS 2201 learn details of the interrelationship between technology and scientific methods in modern plant science, and gain an appreciation of the social and
philosophical ramifications of the knowledge of biology through the study of the history of key discoveries in plant science.

Course Learning Objectives: Upon successfully completing HCS 2201, students will
1. Be able to recognize the characteristics of representative families and genera found in croplands, forests, and urban/suburban landscapes.
2. Be familiar with the basic principles and major concepts of taxonomy, phylogeny, evolution and speciation as they relate to crops, ornamental plants, and weeds.
3. Comprehend how and why biodiversity in managed ecosystems changes over space and time and the consequences of those changes.
4. Understand the ecological basis for sustainable practices in managed ecosystems.

How the course learning objectives address departmental learning objectives: H&CS 2201 integrates fundamentals of physical and biological sciences in the context of sustainable plant systems (Dept. Objective 2), introduces concepts in translational plant science (Dept. Objective 3), introduces students to the ecological basis of sustainability and sustainable practices (Dept. Objective 4), and instills appreciation for the necessity of life-long learning and using evaluation and synthesizing skills (Dept. Objective 7).

Evaluation Policy

• Examinations (50%). One half of your final grade will be based on two exams. One of these exams will be 55 minutes long and will be held during the 7th week of the semester. This exam will be worth 20% of your final grade. The second exam will be a comprehensive final that will be held during scheduled final time. The second exam is worth 30% of your final grade. Exam questions will be short answer and essays and will be derived from lectures and the reading material. Make-up exams will be given only for a reasonable excuse. Accepted excuses are limited to personal illness, death in the family, or other problems beyond your control.

• Labs (50%). The other half of your final grade will be based on laboratory exercises. The lab emphasizes learning representative families and genera of conifers and flowering plants. There are three components to your laboratory grade:
1. Plant collection (15%) - An original collection of 15 dried, pressed and identified plant specimens is required from each student. These plants must represent at least 8 plant families. The collection is due at the last lab of the semester. The TA will grade the collection on the basis of correctness of identification, preparation of material, and labeling. More detailed information will be provided to you at the first lab.
2. Laboratory worksheets (20%) – Most laboratory sessions will have a worksheet to complete. These must be submitted at the end of each laboratory to receive your grade. Late submission will only be accepted by permission of the instructor. Each sheet is worth 2 points.
3. Research Report (15%) – One of the three greenhouse projects should be prepared as a report in scientific format (Introduction, Methods, Results and Discussion). Additional detail will be provided in labs. This will be due at the last day of class.
The laboratory exercises are designed to reinforce concepts presented in lecture, and so they form an important component of your learning experience. As such, attendance to the laboratories is mandatory and students will be unable to make up missed activities. If an emergency arises that necessitates missing a lab, timely notification must be provided to me (not the TA!). Accepted excuses must be verifiable and are limited to personal illness, death in the family, or other problems beyond your control.

- **Grading Scale:**

  - 87 - 90% = B+  
  - 77 - 80% = C+  
  - 67 - 70% = D+

  - 93 - 100% = A  
  - 83 - 87% = B  
  - 73 - 77% = C  
  - 60 - 55% = D

  - 90 - 93% = A-  
  - 80 - 83% = B-  
  - 70 - 73% = C-  
  - <60% = F

- **Participation/discretionary points:** Neither the exams nor the final grade will be curved. However, at my discretion, up to two percentage points may be added to your final grade depending on my perception of your attitude, participation, and attendance.

- **Statement of Ethics:** You will be trusted to act in good faith by performing your own work. Plagiarism and cheating in connection with exams and assignments will not be tolerated. Any case in which a student is suspected of violating the Code of Student Conduct will be reported to the Committee on Academic Misconduct. You can find further information on the subjects of academic misconduct and its repercussions in the Code of Student Conduct (http://studentaffairs.osu.edu/resource_csc.asp) and the procedures of the Committee on Academic Misconduct (http://oaa.osu.edu/coam/ourlocation.html).

**Other Pertinent Information**

- **Class Format:** The lectures will be PowerPoint-based. For your convenience, I will post the slides on Carmen (http://carmen.osu.edu) 24 hours before lecture in both PowerPoint and pdf formats. Most students find it extremely useful to print out the slides ahead of time.

- **Classroom Etiquette:** Interruptions from either unrelated idle conversations during class or from incoming cell phone calls are distracting to learning and inconsiderate to fellow classmates and the instructors. Please keep cell phones OFF or in Etiquette Mode during class. Exceptions will be granted only for extreme circumstances and with my prior consent.

- **Disability Accommodations:** Students with chronic disabilities are encouraged to inform me before or immediately at the start of the term. I will work with you and the Office of Disability Services to provide appropriate accommodations. No special accommodations will be made for students who do not inform me in a timely fashion, or who do not involve the Office of Disability Services. Temporary disabilities will be accommodated at my discretion.
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<td>Unit II: Basic Genetics &amp; Breeding</td>
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<td>Unit III: Population Genetics &amp; Evolution</td>
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<td>Unit IV: Origins &amp; Evolution of Domesticated Plants</td>
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<td>Unit V: Preservation of Genetic Diversity</td>
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<td><strong>Abiotic Factors</strong></td>
<td>Unit VI: Climate and Weather</td>
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<td>Unit VII: Climate Change &amp; Its Impact on Managed Ecosystems</td>
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<td>Unit VIII: Nutrients &amp; Soil</td>
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<td><strong>Biotic Factors</strong></td>
<td>Unit IX: Interactions Between Organisms in Managed Ecosystems (competition, weeds &amp; pests)</td>
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<td>Unit X: Invasive Species</td>
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<td><strong>Production Systems</strong></td>
<td>Unit XI: Structure of Managed Ecosystems</td>
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