

**HOS 6XXX Plant Materials for Conservation and Restoration  
Syllabus  
Offered Summer C (odd years only)**

**Course Description**

HOS 6XXX (3 credits); Understand how to protect, select, produce, and establish native plants for ecological restoration. Learn the scientific basis for guidelines on planning revegetation, selecting plant material, and formulating successful conservation and restoration plans for rare, threatened and endangered species.

**Pre-requisites** FOR 5157 Principles and Practices of Ecosystem Restoration or instructor approval

**Instructor Contact Information**

Dr. Carrie Reinhardt Adams	OFFICE	Environmental Horticulture, Bldg. 68, Room 107
Instructor	PHONE	352-273-4502
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Office Hours: I am available most easily via email for quick questions. Please email to arrange a phone conference for in-depth discussion. Also, please join me for the *Three week instructor check-in* (details below).

**Course Organization**

HOS 6xxx is a web-based course. The course will be managed through University of Florida's E-Learning system using the Canvas course management system (<http://elearning.ufl.edu/>).

**Learning Objectives**

By the end of the semester, students will be able to:

- Discern when active re-vegetation or when natural re-colonization can be relied upon for restoration.
- Explain ecological and horticultural implications of proper plant selection, production, and establishment for the purposes of restoration.
- Formulate and justify appropriate conservation and restoration plans for rare, threatened and endangered species.

## **Assessments & Grading**

Your grade will be based on:

40% Quizzes (4 each at 10% apiece)

25% Peer Teaching Project

Teach peers about a selected topic in an engaging and thought-provoking manner by producing a 10 minute VoiceThread presentation. These presentations will be combined for a (exam-worthy) unit for this course on current issues in Plant Materials for Conservation and Restoration. A detailed assignment description, including grading rubric, is available under "Assignments".

25% Weekly Discussion Posts

Discussion posts should be integrated into the discussion and will be graded as unsatisfactory (0/1 point), satisfactory (0.5/1 point), or excellent (1/1 point). See "Assignments" for detailed assignment description and grading rubric.

8% Student Led Discussion

In groups, students will lead the weekly discussion by posting a question, moderating the discussion, and summarizing insight from the discussion for the week. See "Assignments" for detailed assignment description.

2% Instructor Check-in

Regularly scheduled required synchronous group chats with the instructor and classmates will provide an opportunity to field questions and further develop our community of learning. Come prepared with questions and be ready to make connections.

**Grade breakdown:** Letter grades will be assigned as follows (note: 89.5 will be rounded to 90, 84.5 will be rounded to 85, etc):

94 – 100%	A
90- 93%	A-
87 - 89%	B+
84 - 86%	B
80- 83%	B-
77 - 79%	C+
74 - 76 %	C
70- 73%	C-
65 – 69%	D+
60 – 64%	D
Below 60%	E

More information on current UF grading policies for assigning grade points can be found at <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

**Make-up work:** Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

### **Required and Suggested Course Materials**

Required readings will be assigned for each weekly unit and are available from the course website.

Suggested readings for background and further reference:

Falk, D.A., C.I. Millar, and M. Olwell (eds). 1996. *Restoring diversity: Strategies for reintroduction of endangered plants*. Island Press, Washington, DC.

Center for Plant Conservation. 1995. *An Action Plan to Conserve the Native Plants of Florida*. Center for Plant Conservation, St. Louis, MO.

Guerrant, E.O., K. Havens, and M. Maunder (eds). 2004. *Ex situ plant conservation: Supporting species survival in the wild*. Island Press, Washington, DC.

### **Course Assessment:**

Students are expected to provide feedback on the quality of instruction in this course by completing a voluntary mid-semester course evaluation and a voluntary end-of-semester online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

Each online distance learning program has a process for, and will make every attempt to resolve, student complaints within its academic and administrative departments at the program level. For more details, see <http://distance.ufl.edu/student-complaints>.

### **Teaching Philosophy**

My teaching philosophy for this course is to create opportunities for students to experience concepts and practice their thinking within a discipline. Students need rigorous courses with clearly defined expectations and high standards to truly learn and retain concepts. Students also obtain valuable knowledge from sharing experiences with peers that relate to course material.

**Course Schedule**

WEEK	OBJECTIVES AND DUE DATES	READINGS
1	Course Introduction; Determine when re-vegetation is required	Galatowitsch, S.M. and van der Valk, A.G. 1996. The vegetation of restored and natural prairie wetlands. <i>Ecological Applications</i> 6: 102-112. Kettenring, K.M. and Galatowitsch, S.M., 2011. Seed rain of restored and natural prairie wetlands. <i>Wetlands</i> 31: 283-294. Kettenring, K. M. and C. Reinhardt Adams. 2011. Lessons learned from invasive plant control experiments: A systematic review and meta-analysis. <i>Journal of Applied Ecology</i> 48: 970-979.
2	Determine when re-vegetation is required	Wimp, G.M., Young, W.P., Woolbright, S.A., Martinsen, G.D., Keim, P. and Whitham, T.G. 2004. Conserving plant genetic diversity for dependent animal communities. <i>Ecology Letters</i> 7: 776-780. Galatowitsch, S.M. 2006. Restoring prairie pothole wetlands: does the species pool concept offer decision-making guidance for re-vegetation? <i>Applied Vegetation Science</i> 9: 261-270. Auestad, I., Austad, I. and Rydgren, K. 2015. Nature will have its way: local vegetation trumps restoration treatments in semi-natural grassland. <i>Applied Vegetation Science</i> 18: 190-196.
3	Select plants for restoration and conservation goals	Kettenring, K., K. Mercer, C. Reinhardt Adams, and J. Hines. 2014. Application of genetic diversity-ecosystem function research to ecological restoration. <i>Journal of Applied Ecology</i> 51: 339-348. Herget, M.E., Hufford, K.M., Mummey, D.L., Meador, B.A. and Shreading, L.N. 2015. Effects of competition with <i>Bromus tectorum</i> on early establishment of <i>Poa secunda</i> accessions: can seed source impact restoration success? <i>Restoration Ecology</i> 23: 277-283. Havens K., P. Vitt, S. Still, A.T. Kramer, J.B. Fant, and K. Schatz. 2015. Seed Sourcing for restoration in an era of climate change. <i>Natural Areas Journal</i> 35: 122-133.
4	<b>Quiz 1: Revegetation and Plant Selection;</b>	

WEEK	OBJECTIVES AND DUE DATES	READINGS
5	Produce plants for restoration and conservation goals; Peer Teaching Project Topic Options due	<p>Bischoff, A., Steinger, T. and Müller-Schärer, H. 2010. The importance of plant provenance and genotypic diversity of seed material used for ecological restoration. <i>Restoration Ecology</i>, 18: 338-348.</p> <p>Cruz-Cruz, C.A., González-Arno, M.T. and Engelmann, F. 2013. Biotechnology and conservation of plant biodiversity. <i>Resources</i> 2: 73-95.</p> <p>Wood, T.E., Doherty, K. and Padgett, W. 2015. Development of native plant materials for restoration and rehabilitation of Colorado Plateau ecosystems. <i>Natural Areas Journal</i> 35: 134-150.</p>
6	Produce plants for restoration and conservation goals Continued ; <b>Peer Teaching Topic Confirmation due</b>	<p>Schröder, R. and Prasse, R. 2013. Cultivation and hybridization alter the germination behavior of native plants used in revegetation and restoration. <i>Restoration Ecology</i> 21: 793-800.</p> <p>Basey A., J.B Fant, A.T. Kramer. 2015. Producing native plant materials for restoration: ten rules to collect and maintain genetic diversity. <i>Native Plants Journal</i> 16:37-53.</p> <p>Merritt, D.J. and Dixon, K.W. 2011. Restoration seed banks—a matter of scale. <i>Science</i> 332: 424-425.</p>
7	<b>Summer Break</b>	
8	<b>Quiz 2: Plant Production</b>	
9	Achieve plant establishment; Peer Teaching Project due	<p>Padilla, F.M. and Pugnaire, F.I. 2006. The role of nurse plants in the restoration of degraded environments. <i>Frontiers in Ecology and the Environment</i> 4: 196-202.</p> <p>Morzaria-Luna, H.N. and Zedler, J.B. 2007. Does seed availability limit plant establishment during salt marsh restoration? <i>Estuaries and Coasts</i> 30: 12-25.</p> <p>Burmeier, S., Eckstein, R.L., Otte, A. and Donath, T.W. 2011. Spatially-restricted plant material application creates colonization initials for flood-meadow restoration. <i>Biological Conservation</i> 144: 212-219.</p> <p>Kirmer, A., Baasch, A. and Tischew, S. 2012. Sowing of low and high diversity seed mixtures in ecological restoration of surface mined-land. <i>Applied Vegetation Science</i> 15: 198-207.</p>
10	<b>Quiz 3: Establishment Quiz due</b>	

WEEK	OBJECTIVES AND DUE DATES	READINGS
11	Manage for threatened and endangered species (also start viewing Peer Teaching Projects)	Smith, S.E. and Halbrook, K. 2004. A Plant Genetics Primer Basic Terminology. Native Plants Journal 5: 105-111. Houde, A.L.S., Garner, S.R. and Neff, B.D. 2015. Restoring species through reintroductions: strategies for source population selection. Restoration Ecology 23: 746-753. Benscoter, A.M., Reece, J.S., Noss, R.F., Brandt, L.A., Mazzotti, F.J., Romañach, S.S. and Watling, J.I. 2013. Threatened and endangered subspecies with vulnerable ecological traits also have high susceptibility to sea level rise and habitat fragmentation. PloS one 8(8): 70647.
12	Peer Teaching Project presentations	
13	<b>Final Exam</b>	

### **Online Course Evaluation Process**

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

### **Academic Honesty**

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity." You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

### **Software Use**

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

### **Services for Students with Disabilities**

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

0001 Reid Hall, 352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)

### **Campus Helping Resources**

Students experiencing crises or personal problems that interfere with their general wellbeing are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, [www.counseling.ufl.edu/cwc/](http://www.counseling.ufl.edu/cwc/)
  - Counseling Services
  - Groups and Workshops
  - Outreach and Consultation
  - Self-Help Library
  - Wellness Coaching
- U Matter We Care, [www.umatter.ufl.edu/](http://www.umatter.ufl.edu/)
- Career Resource Center, First Floor JWRU, 392-1601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)

**Student Complaints:**

<http://www.distance.ufl.edu/student-complaint-process>