

Syllabus, Maymester 2009 Restoration Ecology

BIOSC 413/613 Restoration Ecology Section 150
ENR 413/613 Restoration Ecology Section 150
Instructor: Gene Eidson, Ph.D.
Class Hours: Variable by week: 5/11 - 5/15/09 8:30 – 12:30pm. 229 Long Hall
Office Hours: 1:30 – 2:30pm, Room 144 Long Hall
Phone: 864.710.0882 before 6pm, email:geidson@clemson.edu

Goals: This course in restoration ecology is designed to introduce students to the concepts of ecological restoration and the connection to conservation biology and sustainable development. The course will feature ongoing restoration projects in South Carolina and Georgia as case studies. The objective is to provide the students with an overview of the history, science, ethics, and current practice of restoration ecology.

Evaluation: Grading will be based on class participation (10%), mid-term exam (20%), 1 case-study (10%), 1 paper/presentation (30%), and final exam (30%). Final grades will be assigned using the standard scale: 90-100 (A), 80-89 (B), 70-79 (C), 60-69 (D), less than 60 (F). Class participation is based on attendance and participation in class discussions. The case study will involve development of a scope of work for a hypothetical restoration project. Each student will research and write a 3-5 page paper on an approved topic in restoration ecology, present the paper to the class on 5/22, and lead a short discussion session on the topic. The final exam will be on Tuesday 5/26.

Textbook: Readings will be from Eric Higgs, Nature by Design, MIT Press and selected papers. Readings will be handouts and journal articles that are assigned throughout the course.

Site Visit(s): The class will visit Kennecott Ridgeway Gold Mine in Ridgeway, SC on Monday 5/18 and then travel to Aiken, SC where students will stay at Holiday Inn Express. (There will be 2 students to a room.) On 5/19, we will visit Hitchcock Woods and Hopelands Gardens in Aiken and Hammond's Ferry in North Augusta, SC. On 5/20, we will visit Phinizy Swamp in Augusta, GA and return to Clemson late afternoon on 5/20. Students must dress appropriately for field work, no sandals in field.

Attendance: Students are expected to attend each class and arrive promptly. Roll will be taken at the beginning of class, with an allowance of one absence on a non-test day. Students must have an acceptable excused absence if assigned test is missed. Make-up tests will be administered at the convenience of the professor. Students are to wait 15 minutes for the professor if he is late for class. The professor will not provide a make-up session for any missed material. No cell phones, emailing, etc. during class.

BIOSC and ENR 413 Topical Outline. Specific order subject to change. Chapters in text assigned during class period each day.

<u>Date</u>	<u>Topic</u>
5/11	Introduction to Restoration Ecology <ul style="list-style-type: none">• Tragedy of the Commons• SER Primer Overview• Restoration of Natural Capital, Restoration Ecology Vol. 8, No.1, 1• Defining the Limits of Restoration, Restoration Ecology, Vol. 8, No.1, 2-9• Problems with Natural Capital: Response, Restoration Ecology, Vol. 8, No.1, 211- 213• Restoration of Natural Capital: Pros and Problems, Restoration Ecology, Vol. 8, No.3, 214-216

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- Ecological Restoration: State of the Art or State of the Science? Restoration Ecology, Vol. 9, No. 2, 115-118

5/12 & 13 Introduction to Restoration Ecology and Ethics of Restoration Ecology

- Ecology 2000: An Essay on Future Directions in Ecology, Ecological Society of America Bulletin 73: (3): 165-170, 1992
- Restoration Ecology: The New Frontier (Chapter 1) Rehabilitating Damaged Ecosystems, Vol. 1. J. Cairns, Jr. (1998)
- Restoration Ecology: A Synthetic Approach to Ecological Research (Chapter 2) Rehabilitating Damaged Ecosystems. Vol 1. J. Cairns, Jr. (1998)
- What Is Good Ecological Restoration? Conservation Biology 11:338 –348 (1997)
- Towards a Conceptual Framework for Restoration Ecology, Restoration Ecology, Vol. 4, No. 2, 93-110
- Ecosocietal Restoration: Reestablishing Humanity's Relationship With Natural Systems. J. Cairns, Jr. Environment, June 1995 Vol. 37, No. 5, 4-14
- Putting Science in Its Place, Conservation Biology, Vol. 16, No. 4, 863-873
- Why Environmental Policy Nightmares Recur, Conservation Biology, Vol. 11, No. 2, 328-337
- Paying for Restoration, Restoration Ecology, Vol. 8, No.3, 260-267

**5/14 Disturbance and Recovery/ Abiotic and Biotic Factors
Discussion Session**

**5/15 Short Essay Quiz, Continuation of topics and Discussion
River and Stream Ecology**

Field Trip Segment**

5/18 The van leaves at 8:00am – *if you're not there, you will be left behind.*

5/18 Travel to Kennecott Ridgeway Gold Mine in Ridgeway, SC, then on to Aiken.

Lake Restoration at Ridgeway Mine

Visiting Lecture: Oscar Flite, Ph.D. Research Manager, Southeastern Natural Sciences Academy

Overnight stay in Aiken.

5/19 Van leaves hotel at 8:00am.

Visit Hitchcock Woods Sand River Ecological Restoration site and Hopelands Gardens constructed wetlands and downtown to discuss Green Infrastructure project. Overnight stay in Aiken.

5/20 Phinzy Swamp, Augusta, GA

Wetland Restoration / Mitigation Banking Concept / No Net Loss

Stream/River/Swamp Restoration

Travel to North Augusta, Hammond's Ferry

Leave for Clemson @ 3:30 pm, arrive back at Clemson @ 6:30pm

**** Field days will be flexible and site visit schedule may be modified to enhance field study.**

5/21 Restoration Ecology Wrap-up

Art or Science?

Basic or Applied?

Role of Restoration Ecologist?

5/22 CLASS PRESENTATIONS – class will continue until all students have presented and students will stay throughout the presentations

5/26 FINAL EXAM: Short Answer Essay (2 hours)

Case Study Due: no extension or exceptions

Class Paper Due: no extension or exceptions

5/30 Grades in system