Date: May 2, 2012
Course Number: ERE 625
Course Title: Ecosystem Restoration Design

☐ New Course  OR  ☐ Changes in existing course (check all that apply):

☐ Prefix  ☐ Description  ☑ Shared Resources
☐ Number  ☐ Pre-requisite(s)  ☐ Course Format
☐ Credits  ☐ Co-requisite(s)  ☐ Content
☐ Title  ☐ Semester Offered

For new courses only, indicate if you would like approval as a course meeting the General Education standards in the following knowledge and skills area (check all that apply):

☐ American History  ☐ Humanities  ☐ Other World Civilizations
☐ The Arts  ☐ Mathematics  ☐ Social Sciences
☐ Basic Communication  ☐ Natural Sciences  ☐ Western Civilization

If changing an existing course, describe the change(s):
___________________________________________________________________________________
___________________________________________________________________________________

List any pre- or co-requisites here:__ One course in calculus, biology, and chemistry, and permission of instructor __________________________________________

Institutional Impact:

Anticipated Enrollment: 7 per semester
Technology and Classroom Resource Demands: Standard classroom with movable chairs and tables (flex space, e.g. Baker 432)
Computing Resources:
Transportation Requirements:
Forest Properties or Field Practicum Facilities Required:

Proposer Contact Information:
Name: __Stewart_Diemont_____________________  Department: _____ERE___________
Email: _____sdiemont@esf.edu___________  Phone: ______x-4707___________
Chair/Coordinator Signature:_____________________________________________________________
Health and Safety Considerations:

Conditions or situations present in association with the course?

1. **Will substances with any of the following properties be used during instruction?** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?  
   - No

2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).  
   - No

3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).  
   - No

4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).  
   - No

5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).  
   - No

6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).  
   - Yes

7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**  
   - No

8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)  
   - Yes

If the answer was “Yes” to any of the HEALTH AND SAFETY questions, please explain:

This course will include a field component in a developing country (e.g., Mexico, Belize, or Guatemala). In particular, intestinal infection (i.e., diarrhea) can be an issue in this part of the world. Diemont, the instructor has over 10 years experience successfully and safely guiding people and research in Mesoamerica. He has guided students during two prior offerings as a ERE 496-696.

Students will wear personal protective equipment that addresses safety concerns in the area. The will wear hats with brims to protect against the sun. During hikes and visits to the field sites, they will be expected to wear closed toed shoes and long pants to reduce the risk of harm from insect stings, thorns, and tripping and falling hazards. They will be advised to also wear long sleeve shirts.

Students also receive health instruction through the Syracuse Health Center or other International Travel Health professionals and fill out required paperwork through the ESF Office of International Education that verifies that they have completed this health screening. Through the Office of International Education and the course instructor students will be updated with any safety concerns and expected personal protective equipment that are particular for the particular yearly offering and field visits. This will be evaluated annually in consultation with the Chair of ERE to match safety precautions with safety risk.
A detailed course description must accompany the Course Proposal Form
DETAILED COURSE DESCRIPTION

COURSE: ERE 625 – Ecosystem Restoration Design

3 Credit Hours – Fall Semester plus 2 week field component in a less developed country during August
Prerequisite(s): One course in calculus, biology, and chemistry, upper division standing, and permission of instructor

SCOPE:

1. Level of Instruction:
   a. ERE 625 Ecosystem Restoration Design is a graduate level course.

2. Relation to curriculum or to other ESF or Syracuse University courses:
   a. ERE 625 Ecosystem Restoration Design is an elective graduate level course. It meets an “Ecosystem Restoration” course requirement for the Ecological Engineering option in ERE.
   b. ERE 625 Ecosystem Restoration Design satisfies a restoration course elective for the GPES Ecosystem Restoration concentration area
   c. Shared resource requirements: ERE 425

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Assess engineering and restoration ecology system elements for ecosystem restoration design in a variety of ecosystems.
2. Select and apply engineering tools (e.g., modeling, sustainability evaluation) in ecosystem restoration.
3. Choose among, use and compare ecosystem restoration strategies that are appropriate for given environmental and socioeconomic situations.
4. Evaluate and discuss the potential role of ecosystem restoration in global society
5. Choose the roles among multiple disciplines to enhance ecosystem restoration designs.
6. Select roles as team leader to effectively work on an interdisciplinary project.
7. Apply ecosystem restoration literature to developing a cogent research question and methodology.
8. Write a research proposal related to ecosystem restoration design.

MAJOR CONCEPTS OR METHODOLOGIES:

Students in this course will travel throughout a developing country (e.g. Mexico) with the course instructor(s). The international component of the course will examine degraded, restored and pristine wetland, streams, and/or forest, visit rural villages and meet with local experts on restoration. Students will travel on public transportation to integrate with the communities, and will stay in low cost accommodations (e.g. hostels) to keep costs down. Students will use contemporary problems as source material for their course projects. Restoration project designs and analysis initiated during the international trip will be developed during weekly meetings of this course after students return to Syracuse. In Syracuse, the course will explore restoration strategies in many different ecosystems, such as plains, mangroves, forests, brownfields, oceans, and/or beaches. Students will consider restoration needs in developing countries vs. developed countries, and how that shapes design and evaluation. Students will research the literature in order to understand current questions in ecosystem restoration. They will develop and write a research proposal. The course readings will pull from the peer-reviewed literature of ecosystem restoration, and will use a textbook, such as:

Students will develop and write a research proposal that is related to answering a contemporary question in ecosystem restoration design.

**CATALOG DESCRIPTION** (Please provide using the precise format to be included in the ESF catalog, please do not exceed 1000 characters)

ERE 625. Ecosystem Restoration Design (3)

A summer field course followed by a weekly seminar and workshop during the Fall. Will travel in a less developed country. Will examine degraded and restored ecosystems. Will travel on public transportation and stay in low-cost hostels. Will use contemporary problems as source material for course projects. Each student will work individually with the instructor to develop an approach to explore a novel research direction for ecosystem restoration. Continuation of restoration project designs and analysis from the field trip will be part of the coursework after returning to Syracuse. The course will explore restoration strategies in many different ecosystems. Will consider restoration needs in less developed countries, and how that shapes design and evaluation. Course fee. Fall.

Prerequisite(s): One course in calculus, biology, and chemistry, and permission of instructor

**COURSE HISTORY:**

In Fall 2009, this course was first offered as an ERE 496-596 without a Mexico field component. In Fall 2010 and 2011, this course was offered with the Mexico field component, but as a four credit option with a more extensive Syracuse component.