

## EVR 4323 - Restoration Ecology

Spring Term 2011

TuTh 11AM-12:15PM

Paul Cejas Architecture 167

Dr. Hong Liu

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Office Hours: Tu 1-4pm (or by appointment)

### Course Description

This course is an introduction to the concepts and practices of species and habitat restorations and their underlining ecological theories. Students will develop an applicable understanding of restoration theory and planning, endangered species reintroduction, disturbed land reclamation, invasive species control, community involvement in the restoration process, and related topics. We will use examples from around the world to illustrate the science-based restoration efforts.

### Required Texts and Materials

- 1) D. A. Falk, M. A. Palmer, and J. B. Zedler. 2006. Foundations of Restoration Ecology. Island Press. ISBN 13: 978-1-59726-017-6 and ISBN 10: 1-59726017-7
- 2) Additional readings and materials provided by instructor when needed.

### Recommended Textbooks:

- 1) A. F. Clewell and J. Aronson. 2007. Ecological Restoration: Principles, Values, and Structure of an Emerging Profession. Island Press. ISBN 978-1-59726-169-2
- 2) R. E. Ricklefs & G. Miller. 1999. Ecology. W. H. Freeman and Company. ISBN 0-7167-2077-9

### Web Access

Access to the FIU online Blackboard CE6 is required for this class. Students will use CE6 to obtain updates to the syllabus and assignments, to submit assignments, and review grades.

### Grading Criteria

Your grade in this course is a function of the following 5 components (proportions subject to change)

- |  |     |
|--|-----|
| 1. attendance, participation, homework and quizzes | 100 |
| 2. Exam 1  | 100 |
| 3. Exam 2  | 100 |

|   |       |
|---|-------|
| 4. Term projects (including presentation) | 100   |
| 5. Final exam (semi-comprehensive)        | 100   |
|   | ----- |
| Total points                              | 500   |

|                |                  |
|----------------|------------------|
| Grading scale: | $\geq 90\% = A$  |
|                | $\geq 88\% = B+$ |
|                | $\geq 80\% = B$  |
|                | $\geq 78\% = C+$ |
|                | $\geq 70\% = C$  |
|                | $\geq 68\% = D+$ |
|                | $\geq 60\% = D$  |
|                | $< 60\% = F$     |

#### Course requirements and policies

1. On-time attendance is required. Attendance will be taken at the start of the period, and you must attend the full period to receive credit. Unannounced short quizzes may be used to check attendance, as well as homework assignments.
2. **Reading of the assigned chapters from the textbook and additional readings prior to class is expected.** Come to class with your assigned reading completed and prepared to take notes, ask questions, and participate in class discussions.
3. **Each student has a chance to moderate one discussion/group (see your assigned date and topic below). I will explain in more detail how to moderate a discussion during the first class. from moderating the class discussion is an important source of the participation grade.**
4. All electronic devices must be turned off during class. Failure to comply with this rule, may result in the student being excused from class.
5. **There will be no make-up exams and assignments.** In case of exceptional conditions as defined in the Student Handbook, which require written evidence, one missing examine may
6. If absent from class, it is your responsibility to find out what you missed and obtain notes from your classmates. Being absent does not excuse you from anything that was discussed or due during class.
7. Late assignments will not be accepted, except under approved emergency circumstances as defined in the Student Handbook.
8. Any impropriety (e.g., cheating, plagiarism) on exams, quizzes, or written project will constitute grounds for failing the course.



Course schedule and topic outline (subject to change) for EVR 4323, Restoration Ecology, Spring Term 2011 (Day & Time: TuTh 11am-12:15pm, Dates: 1/10/2011 – 04/23/2011, Class Room: Paul Cejas Architecture 167)

| Wk | Date         | Topics  | Falk et al. | Notes  |
|----|--------------|---|-------------|--|
| 1  | 10-15 Jan    | Syllabus, class organization  |             | Video showing "hotspot"  |
|    |              | The concepts and needs of ecological restoration  | Chap 1      |  |
|    |              | Reading and discussion 1<br>Economic growth and ecosystem health (Ecological Society of America Position Statement on Economic Growth -- A Draft)                       |             | Online discussions and reactions to the Position Statement can be read on ( <a href="http://www.mail-archive.com/ecolog-l@listserv.umd.edu/msg14543.html">http://www.mail-archive.com/ecolog-l@listserv.umd.edu/msg14543.html</a> )<br><br>Moderator: Prof Liu |
| 2  | 17-22 Jan    | Single species restoration-population and metapopulation theories   | Chap 4      |  |
|    |              | Reading and discussion 2 & 3 (population and metapopulation dynamic models and restoration)   |             | Readings are posted on CE6<br><br>Student moderators (Saldana-Noa, Schultz, Tome, Vogel, Yoc Kim)  |
| 3  | 24-29 Jan    | Single species restoration-population genetics theory   | Chap 2      |  |
|    |              | Reading and discussion 4 (conservation genetics of an endemic orchid in Mexico), 5 (Case study of Florida Panther) & 6 (hybridization and evolution -- identity crisis) |             | Readings are posted on CE6<br><br><a href="http://www.conservationmagazine.org/articles/v9n2/identity-crisis/">http://www.conservationmagazine.org/articles/v9n2/identity-crisis/</a><br><br>Student moderators (Macavoy, Matos, Perry, Pollan, Rodriguez)     |
| 4  | 31 Jan-5 Feb | Connection between theory and practice-Ecophysiological constraints on restoration  | Chap 3      |  |
|    |              | Reading and discussion 7 (Ecophysiological constraints)   |             | Readings are posted on CE6<br>Student moderators (James, Jeria, Largaespada, Lopez, Luna)  |
| 5  | 7 – 12 Feb   | <b>Examine1 (Feb 8th)</b>   |             |  |
|    |              | Post examine review   |             |  |
| 6  | 14-19 Feb    | The greater Everglades restoration  |             |  |
|    |              | Reading and discussion 8 (The greater Everglades restoration)   |             | Readings are posted on CE6<br>Student moderators (Gonzalez, Graham, Haynes li, Herbella, Jacome)   |
| 7  | 21-26 Feb    | community restoration – community ecology – brief history and The role of regional processes and habitat  | Chap 5, 8   |  |

|    |                   |   |         |   |
|----|-------------------|---|---------|---|
|    |                   | characteristics   |         |   |
|    |                   | Reading and discussion 9 &10<br>(community restoration - the role of abiotic & biotic interactions) |         | Frank 2008; Bootsma et al. 2002<br>Readings are posted on CE6<br>Student moderators (Cordero, Freixa, Garcia, Germain F., Germain B.)   |
| 8  | 28 Feb –<br>5 Mar | The dynamic nature of ecological systems: multiple states and restoration trajectories              | Chap 9  | Chap 3, chap 5 in Clewell and Aronson (2007)  |
|    |                   | Reading and discussion 11<br>(restoration thresholds and trajectories)                              |         | Norton 2009 (Science 325:569-570);<br>Virtual field trip 8<br>Student moderators (Beotegui, Betancourt, Bilstein, Blackwell, Chavez)  |
| 9  | 7-12 Mar          | Climate Change and Paleoecology   | Chap 15 |   |
|    |                   | Reading and Discussion 12 &13<br>(Climate Change and implication to restoration)                    |         | Reading: website for “Between the Devil and the Deep Blue Sea” is posted on CE6.<br>Readings: website for “When Worlds collide”) are posted on CE6 ;<br>Reading: Richardson et al. 2009 (PNAS 106(24): 9721-9724)<br><br>Student moderators (Acevedo, Aking, Anderson, Arce, Batista) |
| 10 | 14-19 Mar         | Spring Break  |         |   |
| 11 | 21-26Mar          | <b>Examine 2 (March 22)</b>   |         |   |
|    |                   | Post examine review   |         |   |
| 12 | 28 Mar-<br>2 Apr  | Miami Dade county coastal wetland restoration   |         | Guest lecture by Gary Millano, a leading wetland restoration expert   |
|    |                   | Student presentations, 15 min each  |         | <b>Term paper due March 31</b><br>Acevedo, Aking, Anderson, Arce, Batista   |
| 13 | 4 – 9 Apr         | Student presentations, 15 min each  |         | Beotegui, Betancourt, Bilstein, Blackwell, Chavez   |
|    |                   | Student presentations, 15 min each  |         | Cordero, Freixa, Garcia, Germain F., Germain B.   |
| 14 | 11-16 Apr         | Student presentations, 15 min each  |         | Gonzalez, Graham, Haynes li, Herbella, Jacome   |
|    |                   | Student presentations, 15 min each  |         | James, Jeria, Largaespada, Lopez, Luna  |
| 15 | 18-23 Apr         | Student presentations, 15 min each  |         | Macavoy, Matos, Perry, Pollan, Rodriguez  |
|    |                   | Student presentations, 15 min each  |         | Saldana-Noa, Schultz, Tome, Vogel, Yoc Kim  |
| 16 | 25-30 Apr         | <b>Final exam</b>   |         |   |

