

**COURSE TITLE: ECOL596A**  
**Evolutionary Ecology**  
**Spring 2012**  
**Tuesday & Thursday 8:00-9:30AM**

**Instructor:** Dr. Katrina Dlugosch  
BSW 424; 621-6058  
kdlugosch@email.arizona.edu  
Office Hours: Fri 10am-12pm

**Course Objectives and Learning Outcomes:** This seminar-style graduate-level course will explore standing questions at the interface of ecology and evolution, with an emphasis on how evolutionary processes affect the ecology that we observe in natural populations. Underlying concepts will be reviewed briefly in lectures by the instructor, but the majority of class time will be spent discussing current literature and major questions in the field. Students will develop knowledge of key hypotheses and findings in evolutionary ecology, and hone their skills in dissecting primary literature and identifying unexplored research avenues.

**Course Structure and Grading:** Students will be responsible for leading (at least) one discussion and will prepare a 2 page mini-review of one of their topics ahead of time (along the lines of an Introduction section in a scientific paper). They will also prepare a 3 page post-discussion mini-review of a different topic, including points raised during discussion and future research avenues (along the lines of a scientific paper Discussion).

Grading will be determined by points for the following course components:

Discussion leadership (familiarity with readings and facilitation of group discussion)	25
Pre-discussion Mini-review	25
Post-discussion Mini-review	25
Participation in discussions	25
<hr/> TOTAL	<hr/> 100

Grading scale:

A: 90 - 100

B: 80 - 89

C: 70 - 79

D: 60 - 69

E (fail): 0-59

**Absence policies:** Students are expected to attend every class session. All holidays or special events observed by organized religions will be honored for those students who show affiliation with that particular religion, and absences pre-approved by the UA Dean of Students (or Dean's designee) will be honored.

**Required texts:** None, Readings will be made available by instructor

## Lecture and Discussion Topic Outline

Week	Topic
Jan 12	Organizational meeting and Topic assignments

### Section 1: Individual variation

Jan 17, 19	Trade-offs and life history strategies
Jan 24, 26	Genetic constraints and covariance
Jan 31, Feb 2	Plasticity, epigenetics, and evolution under environmental variation
Feb 7, 9	Scale (granularity) of environmental variation and adaptation

### Section 2: Population Size and Reproduction

Feb 14, 16	Effective population size in natural populations
Feb 21, 23	Bottlenecks and founding events, inbreeding
Feb 28, Mar 1	Co-Evolution (Feb 28 Scott Nuismer guest lecture)
Mar 6, 8	Mating systems or Social interactions
Mar 20, 22	Feedbacks between demography and evolution

### Section 3: Migration/Dispersal

Mar 27, 29	Gene flow and phylogeography
Apr 3, 5	Fragmentation and isolation
Apr 10, 12	Hybridization, heterosis, and hybrid incompatibilities
Apr 17, 19	Local adaptation, range boundaries, and climate change
Apr 24, 26	Assisted migration / Species introductions

### Putting evolutionary ecology in perspective

May 1	Ecological vs. evolutionary timescales
-------	--

**Policy on Expected Classroom Behavior:** Student in the course are expected to participate to the best of their abilities in each class session. No electronic communication devices should be used during the class session.

**Policies against Plagiarism**, etc., within Student Code of Academic Integrity can be found here: <http://deanofstudents.arizona.edu/codeofacademicintegrity>. All students are expected to submit work that is entirely their own.

**Policies against Threatening Behavior** by students can be found here <http://deanofstudents.arizona.edu/policiesandcodes/studentcodeofconduct>. All students are expected to treat one another and the instructor with respect at all times.

**Students with Disabilities:** If you anticipate barriers related to the format or requirements of this course, please meet with me so that we can discuss ways to ensure your full participation in the course. If you determine that disability-related accommodations are necessary, please register with Disability Resources (621-3268; [drc.arizona.edu](http://drc.arizona.edu)) and notify me of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations.

**Notice:** The information contained in the course syllabus, other than the grade and absence policies, may be subject to change with reasonable advance notice, as deemed appropriate by the instructor.