BIOL314 Evolutionary Ecology - Fall 2006
Syllabus

Instructor: Dr. Paul Stapp
Office: 207E McCarthy Hall; Hours: M10-11, T1-2, W10-12, 3-4 or by appt
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Lecture: MW 8:30-9:45 MH-287 (McCarthy Hall)

Learning Goals: This course builds on the basic concepts of evolution and ecology that you learned in your biology core courses, and serves as a gateway for upper-division coursework in ecology and organismal biology. As such, you will be expected to remember and apply information and skills for your core coursework (BIOL171, 274) to these more complex topics. This course is designed to allow students in the BEC and Marine Biology concentrations to develop the additional conceptual background and quantitative skills necessary for advanced ecology courses. **It is not recommended for students in other concentrations looking for a 3-unit, non-laboratory elective course unless they have a strong interest in ecology.** BIOL314 is a relatively quantitative course, where you will develop and explore simple models of evolutionary processes and ecological theory. You will review the basic elements of evolution, including basic models of population genetics, and learn how selection and other processes operate on phenotypic variation to produce adaptations in populations and taxa. You will learn approaches used to study the evolution of behavior, including foraging, patch selection, mating systems and sociality. You will use simple algebraic models to describe changes in population structure and growth over time, and to understand the roles of intraspecific competition, limiting resources and abiotic factors as regulating factors. You will learn how direct and indirect interactions among species affect the local dynamics of populations and as a consequence, patterns in ecological communities over space and time. Lastly, you will learn about the major patterns of biological diversity, and the key theories and conceptual models that have been generated to explain those patterns.

<table>
<thead>
<tr>
<th>Week</th>
<th>Tentative topics</th>
<th>Background</th>
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<tr>
<td>1 21 - 22 Aug</td>
<td>Introduction to evolutionary ecology Evolution and natural selection</td>
<td>Ch. 30</td>
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<tr>
<td>2 28 - 30 Aug</td>
<td>Population genetics 1</td>
<td>Ch. 30, 31</td>
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<tr>
<td>3 4 - 6 Sep</td>
<td>Population genetics 2 <em>(A01 due)</em></td>
<td>Ch. 31</td>
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<tr>
<td>4 11 - 13 Sep</td>
<td>Natural selection in wild populations Behavioral ecology 1 – foraging behavior <em>(A03 due)</em></td>
<td>Ch. 30, 31</td>
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5  18 - 20 Sep  Behavioral ecology 2 – anti-predator behavior  Ch. 33
   Behavioral ecology 3 – mating systems (A04 due)

6  25 - 27 Sep  Behavioral ecology 4 – sociality  Ch. 34
   EXAM 1

7  2 - 4 Oct  Population structure and demography  Ch. 14, 15
   Population growth 1

8  9 - 11 Oct  Population growth 2 (A05 due)  Ch. 15
   Population growth 3

9  16 - 18 Oct  Population regulation and cycles (A06 due)  Ch. 16, 18
   Metapopulations and landscape ecology  Ch. 17

10  23 - 25 Oct  Life-history evolution 1 (A07 due)  Ch. 32
    Species interactions 1

11  30 Oct - 1 Nov  Species interactions 2  Ch. 21, 22
    EXAM 2

12  6 - 8 Nov  Species interactions 3 (A08 due)  Ch. 23, 25
    Species interactions 4

13  13 - 15 Nov  Food webs and indirect effects  Ch. 26, 27
    Community ecology 1

14  20 - 22 Nov  Autumn Recess - No class

15  27 - 29 Nov  Community ecology 2 (A09 due)  Ch. 28, 29
    Community ecology 3

16  4 - 6 Dec  Community ecology 4 (A10 due)  Ch. 27, 29
    Conservation  Ch. 19

EXAM 3 - Wednesday, 13 Dec, 9:30-11:20 am

POINT DISTRIBUTION (ASSESSMENTS)
Exams (3 @ 100 each)  300 points
Assignments/homework (10 @ 20 each; drop lowest)  180
Participation/in-class activities    20
Total Points                    500
COURSE POLICIES

Course pre-requisites and expectations
Enrollment in BIOL314 is contingent upon satisfactory completion of all four core courses (BIOL171, 172, 273, 274) or the equivalent, as approved by me. You will be expected to have regular access to and be able to navigate the Internet, including using Blackboard and email to obtain course materials. Assignments will require proficiency in basic word-processing and data manipulation tasks using Excel spreadsheets; it is your responsibility to practice these skills outside of class hours if you are not familiar with basics of Excel. Course materials will be sent to your campus email account or made available through Blackboard on the web as Word, Excel or Adobe pdf files, so be sure to check them regularly and keep space available in your email account to receive messages.

You are expected to attend and participate in all lectures. If you miss part or all of a lecture, it is your responsibility to get the information you missed from fellow classmates, not from your lecturer.

Assessments
Your course grade will be based on your demonstrated mastery of the course material as evidenced by your scores on the exams, assignments and participation. There will be no opportunities for extra credit. If you want to refute points earned on a particular exam or assignment, you will have one week from the day the results were returned to you; after that date, the results will be final. Make-up exams will not be given unless you: (1) have a compelling reason for not taking the exam, and (2) you notify me in advance. Make-up exams may be written or oral, and may have different questions than the regular exam. All make-ups must be completed within one week of the regularly scheduled time. The date of the final exam cannot be changed under any circumstances.

Grades will assigned using a +/- grading system. Grades will be assigned based on the percentage of total points earned, as follows: ≥92%, A; 89-91%, A-; 86-88, B+; 82-85%, B; 79-81%, B-; 76-78%, C+; 70-75%, C; 60-69%, D; <60% F. Breakpoints between grades may be adjusted downward at my discretion, but will not be adjusted upward, i.e., you are assured of at least these scores. Note that no C- grades will be assigned because BIOL314 is a required course for BEC and Marine Biology concentrations and must be passed with a C or higher. Also, no +/- grades will be given for Ds and Fs. In my experience, <10% of students in any given semester earn outstanding marks (As) and <15% earn Bs, although, under a straight-percentage grading scheme such as this, everyone has the potential to earn an A.

Lecture exams will be based on lecture material, assigned readings and material associated with assignments/homework. Exams will test your knowledge and ability to apply course principles based on lectures, class discussions and assigned readings. Exams will consist of objective questions and problems, and short-answer/essay questions. Books and notes cannot be used during exams, but you should bring a calculator (cell-phone/pager calculators are not permitted however). One effective way to study for exams is to re-copy your lecture notes, and refer to your text for clarification.
and additional examples. You also should begin reviewing course materials and assignments at least one week before the exam.

Special accommodation can be made for exams for students with disabilities that have been identified by the university’s Office of Disabled Students Services. Please contact me in private about any special needs or concerns. If you suspect you might have a learning disability that has not been diagnosed, please contact the DSS office immediately for testing.

**University Policy on Withdrawals**

"Authorization to withdraw after the mini-census and prior to the last 20% of instruction shall be granted for only the most serious and compelling reasons. A serious and compelling reason is defined as a physical, medical, emotional or other condition, which has the effect of limiting the student’s full participation in the class. Such reasons must be documented by the student. Poor academic performance, e.g., lack of effort or poor attendance, is not evidence of a serious and compelling reason for withdrawal. Withdrawals shall not be permitted during the final twenty percent of instruction except in cases, appropriately documented, such as accident or serious illness where the assignment of an Incomplete is not practicable and the withdrawal is due to circumstances that are clearly beyond the student’s control." (CSUF University Policy 300.016).

No withdrawal slips will be signed after the mini-census without evidence of a serious or compelling reason, as described above. **Withdrawal with a 'W' grade will only be permitted with written evidence that you have withdrawn or will receive an "Incomplete" grade from all of your other courses during the term.**

**Academic Honesty**

By participating in this class, students agree that they are familiar with and will abide by the university's policies regarding cheating, plagiarism and academic dishonesty, and will follow all instructions honestly. The policy statement is reproduced in part below. Any student violating these policies will receive a minimum of an F grade on the assignment in question, with a possibility of an F in the course at my discretion, and referral to the Vice President for Student Services for disciplinary action.

“Academic dishonesty includes such things as cheating, inventing false information or citations, plagiarism, and helping someone else commit an act of academic dishonesty. It usually involves an attempt by a student to show a possession of a level of knowledge or skill, which he/she in fact does not possess.

**Cheating** is defined as the act of obtaining or attempting to obtain credit for work by the use of any dishonest, deceptive, fraudulent, or unauthorized means. Examples of cheating include, but are not limited to, the following: using notes or aides or the help of other students on tests and examinations in ways other than those expressly permitted by the instructor, plagiarism as defined below, tampering with the grading procedures, and collaborating with others on any assignment where such collaboration is expressly forbidden by an instructor. Violation of this prohibition of collaboration shall be deemed an offense for the person or persons collaborating on the work, in addition to the person submitting the work.
Plagiarism is defined as the act of taking the work of another and offering it as one’s own without giving credit to that source. When sources are used in a paper, acknowledgment of the original author or source must be made through appropriate references and, if directly quoted, quotation marks or indentations must be used.” (CSUF Policy 300.021, effective 6 May 2005).

Classroom Safety

In the event of an emergency such as earthquake or fire:

- Take all your personal belongings and leave the classroom (or lab). Use the stairways located at the east, west, or center of the building (locate at least two stairway exits).
- Do not use the elevator. They may not be working once the alarm sounds.
- For both lecture and laboratory, assemble at the South Lawn area near Nutwood Avenue. Stay with class members for further instruction.
- For additional information on exits, fire alarms and telephones, Building Evacuation Maps are located near each elevator. Familiarize yourself with these.
- Anyone who may have difficulty evacuating the building, please see me after class.
- Dial 911 on any campus phone, pay phone, or blue emergency phones to connect directly to University Police. Dialing 911 on your cell phone will connect with the Highway Patrol. Tell CHP dispatcher that CSUF Police are the responding agency. Stay on the line until asked to hang up.

If you want to bring visitors to the classroom, you must obtain permission from the instructor and Department Chair in advance and the visitor must sign a volunteer form.

State law prohibits smoking within 20 feet of every campus building. This includes the McCarthy Hall balconies and SLC balconies and breezeway.

Please turn off pagers and mobile phones at the start of class, and keep them off until the end of the period.