Laboratory for Introductory Ecology & Evolution

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Office Hours: Wednesdays 1230-1400 h; or, by appointment.

Course Description – One semester hour, two hours of lab per week. Fundamental principles of biological inquiry, scientific analysis, and concepts in ecological and evolutionary biology.

Synopsis – This course allows students to explore two fundamental principles in the biological sciences: Ecology, which addresses how organisms interact with each other at different spatial scales, and Evolution, which addresses the relationships that exist among organisms at different temporal scales. Lab exercises will include material that touches on both of these principles, and require students to think critically about different types of data.

Co-requisite – Bio125 lecture
Note, that there is a laboratory fee associated with this course (appearing on your tuition bill). This fee is assessed to all students to defray expenses associated with course supplies.

Required Materials – lecture:  

– laboratory:  
Lab subscription to SimBio is required ($3600).

Attendance –  
This laboratory section meets on Mondays from 1500-1650 h. Attendance is mandatory for the lab exercises: more than two unexcused absences during the term will result in your receiving a failing grade (“F”) for the entire course. If you expect to miss a lab because of an official SFA-related function (consult policy #6.7), see me in advance of that week, because you will be responsible for the material taught during that time.

I would like to discourage distractions during our meeting times. Therefore, any student will be penalized ten (10) points if their pager/mobile telephone/tablet/etc. emits any audible noise during any class meeting.

Grading –  
Laboratory activities will include structured/guided inquiries in which students work through examples, questions, problems and case studies. Students will evaluate the content of primary literature and participate in group discussions. Some exercises will include the testing of hypotheses for which they collect data using online databases or field based methods, analyze
data using computer software, synthesize interpretations, and present conclusions using visual (graphical) &/or written communication (lab reports).

Participation will be evaluated during each lab meeting. You will get full credit for participation in each lab meeting as long as you work towards the completion the activity in the allotted time. Points will be deducted if you: (a) are absent for any reason; (b) show up late to lab; or (c) in some other way, disrupt the lab activities.

Lab reports will generally be due within the same week in which the exercise is completed in lab. This will enable the grading and the return of feedback to the students in a timely fashion. Further details about submitting and grading lab reports will be available on D2L.

Proper English counts! One point will be deducted from your exam total for every 5 spelling/grammar/context/syntax/punctuation errors on any submitted assignment.

So the point breakdown for the lab portion of the course looks like this:

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Participation (13 labs @ 5 pts ea.)</td>
<td>65</td>
</tr>
<tr>
<td>Lab write-ups (12 @ 30 pts. each)</td>
<td>360</td>
</tr>
<tr>
<td>TOTAL</td>
<td>425 points</td>
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Thus, your awarded grade for the lab will be based on a 425-point scale. At the end of the term, the percent score that you earn in this portion of the course is forwarded to the professor for your lecture section. You will then be assigned an overall grade for the combined lecture and lab portions of the course using the following formula:

\[
\text{Bio125 course grade} = \frac{[3 \cdot (\text{lecture grade %})] + \text{lab grade %}}{4} \cdot 100
\]

Further Assistance with course material -- If you suddenly find yourself with a question that is burning a hole in your brain, and cannot reach me, there are several ways of obtaining the answer. Here are some examples:

1. The authors of your lecture text have thoughtfully provided a variety of resources for you to follow up on presented material. The citations and websites are listed at the end of each chapter in the text.

2. For those labs having SimUText components, the authors of this software have several tutorials associated with each exercise. Other resources are available as web-based links off of the actual content of the exercise.

3. SFA provides the Academic Assistance and Resource Center (AARC) for all aspects of your academic achievement. To make an appointment, call 936.468.4108, or go to their office in the 1st floor of the Steen Library. The Supplemental Instructor (SI) for Bio125 is Hanna Gustafson (sessions on M,W from 1900-2000 h in AARC room E).

4. Help each other -- get to know your fellow students! Active learning through testing each other on the material is one of the most effective ways to learn where your weaknesses lie with this subject matter.
<table>
<thead>
<tr>
<th>Week : Date</th>
<th>Subject matter (tentative)</th>
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<tbody>
<tr>
<td>1 : 31 Aug.</td>
<td>No lab</td>
</tr>
<tr>
<td>2 : 4 Sept.</td>
<td>Introductory material &amp; Experimental Design (SimUText)</td>
</tr>
<tr>
<td>3 : 11 Sept.</td>
<td>Mendelian Genetics</td>
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<tr>
<td>4 : 18 Sept.</td>
<td>Hardy-Weinberg Principles</td>
</tr>
<tr>
<td>5 : 25 Sept.</td>
<td>Darwinian Snails (SimUText)</td>
</tr>
<tr>
<td>6 : 2 Oct.</td>
<td>How the Guppy got its spots (SimUText)</td>
</tr>
<tr>
<td>7 : 9 Oct.</td>
<td>Sickle-cell Alleles (SimUText)</td>
</tr>
<tr>
<td>8 : 16 Oct.</td>
<td>Species Concepts — Building Phylogenies</td>
</tr>
<tr>
<td>9 : 23 Oct.</td>
<td>Climate Change</td>
</tr>
<tr>
<td>10 : 30 Oct.</td>
<td>Anthromes</td>
</tr>
<tr>
<td>11 : 6 Nov.</td>
<td>Population Growth Models (SimUText)</td>
</tr>
<tr>
<td>12 : 13 Nov.</td>
<td>Keystone Predators (SimUText)</td>
</tr>
<tr>
<td>13 : 20 Nov.</td>
<td>Gobble, gobble! (no lab)</td>
</tr>
<tr>
<td>14 : 27 Nov.</td>
<td>Species Diversity</td>
</tr>
<tr>
<td>15 : 4 Dec.</td>
<td>Trophic Webs</td>
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</tbody>
</table>

Questions? Feel free to contact me at your convenience (936.468.3601 or sjmullin<at>sfasu.edu).
Academic Integrity (policy #10.4)
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

Students with Disabilities
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Withheld Grades Semester Grades Policy (policy #5.5)
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

Program Learning Outcomes:
- PLO 1. The student will demonstrate a good knowledge base in biological concepts. (SLOs 1, 5, 6)
- PLO 2. Clearly articulate scientific information in oral form. (SLOs 3-6)
- PLO 3. Clearly articulate scientific information in written form. (SLO 3-6)
- PLO 4. Be able to design, carry out, and analyze experiments to answer biological questions. (SLOs 1, 2)
- PLO 5. Demonstrate teamwork skills needed to coordinate diverse multidisciplinary teams to solve challenges in the biological world. (SLOs 2-4)

General Education Core Curriculum Objectives / Outcomes
Texas State Core Objectives and associated Student Learning Outcomes.
- CO 1. Critical Thinking: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information. (SLOs 1-6)
- CO 2. Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication. (SLOs 3-6).
- CO 3. Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions. (SLOs 1,2)
- CO 4. Teamwork: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal. (SLO 2-4)

Student Learning Outcomes:
- SLO 1. Demonstrate understanding of the process of science by distinguishing between science and non-science and designing experiments that address testable hypotheses.
- SLO 2. Use quantitative reasoning to interpret evolutionary and ecological data (tables, figures and graphs).
- SLO 3. Demonstrate understanding of the skills and attitudes necessary for effective teamwork in collaborative learning activities and a semester-long project.
- SLO 4. Critically assess the interrelationship of human dimensions and ecology/evolution and communicate resulting conclusions in oral, visual and written formats.
- SLO 5. Understand evolution as the unifying concept in biology.
- SLO 6. Understand the factors that govern interactions between organisms and their environments.