Instructor
Shawn Miller (smiller@biology.utah.edu)
Office hour: By appointment.

Teaching Assistants
TBD

Expected Learning Outcomes
Students will be able to apply the principles of evolution and natural selection to explain and understand the diversity of life that has arisen in both long-term and recent evolutionary time frames as they observe living and preserved organisms in weekly laboratory sessions.

Course Description
Evolution and Diversity Laboratory examines the diversity of life on earth using an evolutionary context and is designed to be complimentary to BIOL 2010, Evolution and Diversity of Life. In our exploration of life on earth we will examine living specimens, prepared microscopic slides and preserved specimens. It is important to remember that this class, BIOL 2015, is a separate class from BIOL 2010, which is why students register for this course independently. Naturally there will be significant overlap between the material covered in both courses because the topic is the same. However, this class may cover some organisms in a little more or a little less depth than the lecture class does. For this reason the assignments, activities and exams in this class will reflect the depth to which each organism is covered during our lectures and laboratory sessions.

Course Materials
Beginning next Monday the weekly handouts will be available for you to print from the course website, http://courses.biology.utah.edu/smiller/2015/handouts. Most of the information you will need to be successful in this course is contained in the weekly handouts. The handouts will vary from week to week but will usually contain both general and specific information on the organisms to be studied and the features or structures of the organisms you are expected to find and observe during lab. Some handouts will also contain photographs and/or diagrams, life cycles and other pertinent information where applicable. You are responsible for all the information contained in the lab handouts and for all the information the handouts direct you to observe. You will need to purchase a notebook for recording your observations during lab and maybe a few colored pencils.

Lecture and Lab Format
Lecture will be held during the hour prior to the first lab section each week. During the lecture pertinent information concerning the organisms you will be studying in lab will be presented. While you should just plan on being here for the full 50 minutes each week, there might be weeks where the lecture will be shorter. After lecture students will head over to their respective laboratory (in SB 170 or 180) where the specimens for the week will be set out at numbered stations. During the lab you should observe each organism, either at the numbered station where it is on display or by making a slide and taking it back to your work station. Using your lab handout, you should make notes of the salient information for each organism as well as a simple drawing of each organism observed in your lab notebook. Feel free to ask questions and discuss the material with the instructor.
and teaching assistants during the course of the lab. To make the most efficient use of time during lab we suggest that you work through each lab in groups of two.

**Question Sets, Exams, and Lab Notebook**

**Question Sets:** Selected labs will have a 5-10 point question set that you will work on during lab. The question sets are meant to stimulate critical thinking and are due by the end of the lab period in which they are given. I encourage discussion and suggest that you work on your question sets in small groups. Think of these like pop quizzes, if you are absent when one is handed out you will miss out on the points.

**Exams:** There will be a midterm practical exam (~40 points) and a final practical exam (~60 points) in this course. The practical exams are intended to test your ability to recognize and understand the organisms you have studied during each laboratory session. The exams may also evaluate your use and understanding of the tools and techniques you have used in the lab. While the final practical exam will strongly emphasize the material covered after the midterm practical exam, there will be a small comprehensive component to it. **Note:** The midterm and final practical exams must be taken on the day they are scheduled. There will be no exceptions to this policy.

**Lab Notebook:** This class provides you an opportunity to learn how to take useful, *hand-written* laboratory notes and to create useful drawings, *by hand*, of the organisms studied in each lab. To reinforce the importance of taking useful notes you **will be allowed to use your notebook on the practical exams**! I will be happy to take a look at your notebook after the first few lab sessions and offer suggestions that might make your notebooks more useful. Ultimately, the more complete your notebook is the better you will be able to do on the exams.

**Grades:**

The following scale will be used to assign grades for this class:

- 90.0—100% A
- 88.5—89.9% A-
- 86.5—88.4% B+
- 80.0—86.4% B
- 77.5—79.9% B-
- 73.0—77.4% C+
- 60.0—72.9% C
- 50.0—59.9% C-
- 45.0—49.9% D
- 0.00—44.9% E

There will be 2-3 extra credit assignments during the semester worth 5 points each. After the semester ends all grades are final. There will not be any additional extra credit opportunities nor will there be any opportunities to change your grade after you have completed the course. If you are scheduled to graduate or have been accepted into a professional program and your graduation or entry into the professional program depends on passing this course, then you must earn the necessary grade. Under no condition will make-up work or exam re-takes be given.

**Americans with Disabilities Act**

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability Services.

**Accommodations Policy**

We do not grant content accommodation requests as the course content fulfills legitimate pedagogical goals.
Additional Important Information

Addressing Sexual Misconduct
Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a dis- ability, veteran’s status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801- 581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585- 2677(COPS).

Wellness Statement
Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student’s ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at www.wellness.utah.edu or 801-581-7776.

Veterans Center
If you are a student veteran, the University of Utah has a Veterans Support Center located in Room 161 in the Olpin Union Building. Hours: M-F 8-5pm. Please visit their website for more information about what support they offer, a list of ongoing events and links to outside resources: http://veteranscenter.utah.edu/. Please also let me know if you need any additional support in this class for any reason.

LGBT Resource Center
If you are a member of the LGBT community, I want you to know that my classroom is a safe zone. Additionally, the University of Utah has an LGBT Resource Center on campus. They are located in Room 409 in the Oplin Union Building. Hours: M-F 8-5pm. You can visit their website to find more information about the support they can offer, a list of events through the center and links to additional resources: http://lgbt.utah.edu/. Please also let me know if there is any additional support you need in this class.

English as an Additional/Second Language
If you are an English language learner, please be aware of several resources on campus that will support you with your language and writing development. These resources include: the Writing Center (http://writingcenter.utah.edu/); the Writing Program (http://writing-program.utah.edu/); the English Language Institute (http://continue.utah.edu/eli/). Please let me know if there is any additional support you would like to discuss for this class.
## BIOL 2015 – EVOLUTION AND DIVERSITY OF LIFE LABORATORY

### Course Schedule

**Lecture:** Tuesday 12:55-1:45 PM in AEB 320  
**Lab sessions:** Tuesday, 2:00-5:00 in South Biology 170 and 180

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Jan. 8</td>
<td>Introduction, Light Microscopy</td>
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<tr>
<td>Jan. 15</td>
<td>Bacteria, Gram Staining, Cyanobacteria</td>
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<tr>
<td><strong>Jan. 22</strong></td>
<td><strong>NO LECTURE OR LAB</strong></td>
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<tr>
<td>Jan. 29</td>
<td>Protista 1 - Protozoa</td>
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<tr>
<td>Feb. 5</td>
<td>Protista 2 - Algae</td>
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<td>Feb. 12</td>
<td>Seedless plants</td>
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<tr>
<td>Feb. 19</td>
<td>Seed plants</td>
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<td><strong>Feb. 26</strong></td>
<td><strong>Midterm practical exam - In lab at 2:00, No lecture</strong></td>
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<td>Mar. 5</td>
<td>Fungi</td>
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<tr>
<td>Mar. 12</td>
<td>Spring Break - No Lab</td>
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<td>Mar. 19</td>
<td>Porifera, Cnidaria, Ctenophora</td>
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<td>Mar. 26</td>
<td>Lophotrochozoa I: Platyhelminthes, Rotifera, Lophophorata</td>
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<tr>
<td>Apr. 2</td>
<td>Lophotrochozoa II: Mollusca, Annelida</td>
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<td>Apr. 9</td>
<td>Ecdysozoans: Roundworms, Arthropoda</td>
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<td>Apr. 16</td>
<td>Deuterostomia: Echinodermata, Hemichordata, Chordata</td>
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<td><strong>Apr. 23</strong></td>
<td><strong>Final practical exam - In lab at 2:00, No lecture</strong></td>
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