2015

BIOL 125 Life Investigation Lab I

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Converser@xavier.edu

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Biology 125 Life Investigation Lab 1
Summer 2015
Credit Hours: 1
Meets: TR 8:10-10:00 Logan 206

Instructor: Richard Converse
E-mail: converser@xavier.edu
Office: Logan 100A
Phone: (513) 335-1150
Office hours: by appointment

Textbook: There is no formal laboratory manual for this course. Handouts for each lab will be provided by your instructor.

Course website: This is a Canvas Course. Our Canvas site will have periodic announcements and handouts essential for the class. You are encouraged to check Canvas daily. In addition, your assignments and paper will be submitted via Canvas. No hard copies or email attachments will be accepted. It is important to get acquainted with Canvas early in the session. If you are having problems, talk to me several days (not hours) before an assignment is due. Not understanding how to use Canvas is not a legitimate excuse for missing deadlines.

Course Description: Biology 125 Life Investigation Lab 1 is a non-biology majors course that is designed to explore the science of ecology using inquiry-based science, a process of learning through original experimentation and research. You will learn to think and plan like an ecologist by conducting several ecological studies and experiments.

This Life Lab does not go with a Life Lecture, so all of the course content will be learned during the lab. Therefore, I will provide you with enough background information for you to understand the lab.

Student Learning Outcomes:
You will:
1. Apply the scientific method to answer questions in ecology.
2. Understand basic methodology used by ecologists to answer scientific questions.
3. Differentiate various types of research studies (e.g., correlational versus causative, observational versus experimental)
4. Develop analytical and quantitative skills commonly used by scientists.
5. Learn how to properly analyze, interpret, and report ecological data.
6. Critically analyze and distinguish claims based on science from misinformation based on pseudoscience.
7. Understand how peer review protects the scientific process from bias.

Student Learning Assessment: You will be assessed with five non-comprehensive quizzes, several assignments, one paper, and one group presentation.

Quizzes: There will be five quizzes during this session. The purpose will be to assess your knowledge about information and techniques presented in lab. Quizzes will be given at the beginning of lab and will take approximately 15-20 minutes. DO NOT be late on quiz days. Being late will either reduce the amount of time you have to take the quiz or cause you to miss the quiz entirely.

Scientific Poster: Communication of research is critical to science. Scientists often will use poster presentations at scientific meetings to disseminate their research results. Thus, your lab table team will create one scientific poster using research results from one of your experiments or observational studies. You will design (but not print) your poster using PowerPoint.
**Assignments:** Assignments will help you to understand ecological concepts and the process of science. You should assume that assignments are due by the next lab except in cases where I specifically change the due date. Late assignments will be accepted up to one week beyond the due date, but will result in a 5% deduction for each day late. No assignments will be accepted beyond one week from the due date. Although you will work in groups during lab, you work individually when completing all assignments unless otherwise informed by me.

**Class participation:** PARTICIPATE! *Participation in this class is critical!* When you are actively engaged in learning, the course will be more fun for all. Ask me questions, discuss topics with fellow students, answer questions when they are asked, and complete in-class and out-of-class assignments. If you are actively engaged in the class through interacting with me during lab and with your classmates during lab activities, then you will easily earn you the full 10% for participation.

**Student Evaluation:**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Quizzes</td>
<td>35%</td>
</tr>
<tr>
<td>Team Poster</td>
<td>20%</td>
</tr>
<tr>
<td>Assignments</td>
<td>35%</td>
</tr>
<tr>
<td>Class participation</td>
<td>10%</td>
</tr>
</tbody>
</table>

Grades will be given according to the following scale:

- A: 93 - 100%
- A-: 90 - 92%
- B+: 87 - 89%
- B: 83 - 86%
- B-: 80 - 82%
- C+: 77 - 79%
- C: 73 - 76%
- C-: 70 - 72%
- D+: 67 - 69%
- D: 60 - 66%
- F: < 60%

**Lab Policies:**

**Attendance:** Attendance is mandatory. You must inform me in advance if you will miss class due to a university-approved function. If you have a major illness that requires hospitalization or a family emergency that requires you to go home, you or your family should notify the Dean of your college. S/he will send an official notification to all of your professors. You can arrange to make up the material when you are back on campus.

**Academic Misconduct:** The Xavier University Handbook states that “...violations of certain standards of ethical behavior will not be tolerated at Xavier University. These include theft, cheating, plagiarism, unauthorized assistance in assignments and tests, unauthorized copying of computer software, the falsification of results and material submitted in reports...”. The first incidence of academic misconduct will result in a zero for the assignment. The second incidence will result in failure of the course. When the misconduct involves two or more students, all students involved will receive a zero the first time and an F for the course the second time. It does not matter if you copied the work or allowed it to be copied. Both are academic misconduct, and will receive the same treatment.

**Electronics (cell phones, laptops, etc.):** Cell phones and other electronic messaging devices should be **turned off** during lab. I-pods, computer games, and other entertainment devices are **not acceptable** in lab. Using laptop computers in class for any purpose not directly related to lab is unacceptable. If you have a legitimate and urgent family or business matter that requires you to bring an electronic device into the classroom, I expect you to use the silencer function if possible and sit near the door so you can exit quickly and deal with your messages outside the classroom.
**Lab schedule** (Please note that the schedule is subject to change)

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/19/15</td>
<td>T</td>
<td>1</td>
<td>Introduction to science; Decomposition I</td>
</tr>
<tr>
<td>5/21/15</td>
<td>R</td>
<td>1</td>
<td><strong>Quiz 1;</strong> Plant Interactions I</td>
</tr>
<tr>
<td>5/26/15</td>
<td>T</td>
<td>2</td>
<td>Quantitative analysis in science;</td>
</tr>
<tr>
<td>5/28/15</td>
<td>R</td>
<td>2</td>
<td><strong>Quiz 2;</strong> Population Estimation, Understanding peer review in science</td>
</tr>
<tr>
<td>6/2/15</td>
<td>T</td>
<td>3</td>
<td>Population Dynamics</td>
</tr>
<tr>
<td>6/4/15</td>
<td>R</td>
<td>3</td>
<td><strong>Quiz 3;</strong> Decomposition II; Constructing a table and graph</td>
</tr>
<tr>
<td>6/9/15</td>
<td>T</td>
<td>4</td>
<td><strong>Invertebrate Diversity I;</strong> Using a dichotomous key to identify trees</td>
</tr>
<tr>
<td>6/11/15</td>
<td>R</td>
<td>4</td>
<td><strong>Quiz 4;</strong> Making a scientific poster; Plant “breathing”</td>
</tr>
<tr>
<td>6/16/15</td>
<td>T</td>
<td>5</td>
<td>Invertebrate diversity II</td>
</tr>
<tr>
<td>6/18/15</td>
<td>R</td>
<td>5</td>
<td><strong>Quiz 5;</strong> Plant Interactions II</td>
</tr>
<tr>
<td>6/23/15</td>
<td>T</td>
<td>6</td>
<td>Work on poster presentations</td>
</tr>
<tr>
<td>6/25/15</td>
<td>R</td>
<td>6</td>
<td>Movie: <em>Beavers – The Biggest Dam Movie You Ever Saw</em>; Poster due (Friday 6/19/15 by 11:59PM)</td>
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