BIOL 2336: General Ecology Laboratory

Instructors:
Dr. Linda Green
Office: 474C CULC
Office Hours: By appointment
Phone: 404-385-6517
Email: linda.green@biology.gatech.edu

Tu 3:05, sec B Drew Sieg & Deanna Beatty
Wed 3:05, sec C Kaitlin Esson & Brittiany Hailey
Th 12:05, sec D Brittiany Hailey & Kaitlin Esson
Th 3:05, sec E Deanna Beatty & Drew Sieg

Classroom: 487 CULC

TA contacts:
Deanna Beatty, Office hours F 9-11 in ES&T 2174, dbeatty3@gatech.edu
Kaitlin Esson, Office hours W 9-11 in CE 218A, kesson3@gatech.edu
Brittiany Hailey, Office hours M 3-4, T 10-11 in CULC 487, bhailey3@gatech.edu
Drew Sieg, Office hours M 12-1, T 1-2 in ES&T 2162, drew.sieg@gatech.edu

Course Description: This lab is intended to accompany your experience in BIOL 2335. We will talk about populations (natural selection, population growth), about communities (how individuals compete for resources, how populations are tied together by exploitative interactions), and about ecosystems (why does soil, air, and water quality matter; how do ecologists study landscapes; how do humans interact with the global ecosystem). We will discuss the scientific method, its application to ecological principles, and hone your skills in scientific communication. While this laboratory is the companion to BIOL 2335, your grade in each course is independently earned.

Course Goals: By the end of this course, you will be able to:
(1) Identify and interpret basic ecological concepts through observation, experimentation, and modeled simulation,
(2) Design experiments and use basic statistics to analyze data,
(3) Write lab reports in the style accepted by Ecological scientific journals.

Required Textbooks and Materials:
Lab Manual: Available in the first week of the semester at the GT Barnes & Noble bookstore.
Additional materials: calculator, access to Tsquare, and appropriate clothing for outdoor field trips.

Attendance: 100% attendance is expected. Given that you are working with others to perform experiments and collect data, making up a lab is very difficult. If you must miss a laboratory, you need to contact Dr. Green and your lab instructor as soon as possible. If possible, we will arrange for you to attend a different section. There will be no make-up laboratories. Vacation, work commitments, and social events are not acceptable reasons to miss lab. Examples of legitimate reasons to miss a lab include serious illness, illness or death in your immediate family, and participation in official university activities. You will be required to provide documentation for excused absences. You will not be permitted to make up work for unexcused absences. Persistent tardiness will result in loss of points from your participation grade.

Learning Accommodations: If needed, we will make classroom accommodations for students with disabilities. These accommodations must be arranged in advance and in accordance with the ADAPTS office (http://www.adapts.gatech.edu).
Evaluation: Your grade will be calculated out of 340 points using the following scale:

A = 90-100%   B = 80-89.5%   C = 70-79.5%   D = 60-69.5%   F = 0-59.5%

Points will be based on the following:

- 6 Quizzes (5 pre-lab & 1 practicum, 10 pts each) = 60
- 1 Plagiarism Exercise = 15
- 5 In-class Lab Assignments (15 pts each) = 75
- 4 Writing Samples
  - Plant Competition Methods = 15
  - Crayfish Methods & Results = 25
  - Competition Full Report = 40
  - Streams Full Report = 50
- Participation = 10
- Final Presentation = 50

Quizzes, Reports, and Presentation: Five T-square quizzes will be due prior to lab (by 10 am on the day you have lab) and will concentrate on the current day’s material. Late submissions may be accepted with penalty, at the discretion of Dr. Green. If you miss a quiz due to an unexcused absence from lab, you will receive a zero for that quiz. One additional quiz will be given during lab in the week of Apr 2-4 on the material presented in the Plant Biodiversity Walk. You may be asked to identify a specimen or use a taxonomic key for a given species.

In the lab reports, you will complete the data analysis and write one or more sections of the lab report. There are three assignments, each one increasing in length compared to the previous, in order to facilitate your development as a scientific writer.

At the end of the semester, each group will give a 20 minute PowerPoint presentation on the results of one of your lab projects. The presentation should include general background on the question, explicit hypotheses that were tested, the techniques used to test your hypotheses, and a discussion of the results.

Late assignments will be reduced one letter grade (10%) for each day it is late. In-class lab assignments will typically be due at the end of the laboratory session; whereas, lab reports will be due at the start of lab and may be submitted electronically to your TAs. Please proofread! All submitted work will be evaluated for proper grammar and spelling.

Academic Integrity: Academic dishonesty will not be tolerated. This includes cheating, lying about course matters, plagiarism, stealing class materials, or helping others commit a violation of the Honor Code. Students are reminded of the obligations and expectations associated with the Georgia Tech Academic Honor Code and Student Code of Conduct, available online at: http://www.deanofstudents.gatech.edu/integrity/policies/honor_code.php and http://www.deanofstudents.gatech.edu/codeofconduct. While students will collaborate in performing the experiments and collecting the data, each student is expected to write their own lab reports and data analysis assignments. Plagiarism includes reprinting the words of others without both the use of quotation marks and citation. As direct quotes are seldom used in scientific writing, you are expected to rephrase the words of others, without quotation marks, and provide the citation. If this is unclear, please ask your TA for help before turning in your assignment.
Lab Rules and Safety Precautions

1. You are required to wear closed-toe, full-heel shoes at all times. If you do not wear the appropriate footwear, you will be sent home to change. Lab coats are **not** required for stats-only or outdoor labs. You DO need to wear a lab coat when we are holding lab in the classroom: Weeks 2, 4, 7, 9.

2. Eating and drinking ARE NOT permitted in the lab. If you carry a water bottle you must keep it tucked away in your bag.

3. You are responsible for cleaning up your work area and returning all materials to their proper place before leaving.

4. Please ask if you do not know how to operate lab equipment.

5. Notify your TAs immediately if you are injured or lab equipment has been damaged.

6. The use of cell phones, blackberries, etc. is not permitted during lab – including the calculator function. **Please bring an actual calculator to each lab.**

7. Personal laptops are not allowed in the wet lab.

8. Always be prepared for inclement weather when we have an outdoor lab scheduled – bring rain gear, hat, layers, etc. as necessary. When raining, you will be expected to do activities that involve your hands – merely bringing an umbrella will make it difficult to conduct the lab and stay dry!

9. We will probably get wet and/or dirty during field trips, so please consider your footwear and clothing choices prior to arriving at lab.

10. We recommend you bring a water bottle, use sunscreen, wear a hat, and wash your hands after handling organisms. Watch for poison ivy and check for ticks after field trips.

11. Failure to comply with these rules may result in loss of points from your participation grade.
Tentative Lab Schedule, Biol 2336

Prior to each week’s lab, you should read the appropriate section in the lab manual as well as any relevant text from your lecture textbook.

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Pre-lab Activity</th>
<th>Lab Exercise</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 8-10</td>
<td>Introduction</td>
<td></td>
<td>Plagiarism exercise</td>
</tr>
<tr>
<td>2</td>
<td>Jan 15-17</td>
<td><strong>Tsquare quiz</strong></td>
<td>Estimating Population Size ☀</td>
<td>In-class worksheet</td>
</tr>
<tr>
<td>3</td>
<td>Jan 22-24</td>
<td>p. 12-14 in manual</td>
<td>Cemetery Demography ☀</td>
<td>See wk 5</td>
</tr>
<tr>
<td>4</td>
<td>Jan 29-31</td>
<td>Wasp &amp; Plant Competition experiments</td>
<td></td>
<td><strong>Plant Methods due Feb 5-7</strong></td>
</tr>
<tr>
<td>5</td>
<td>Feb 5-7</td>
<td><strong>Tsquare quiz</strong></td>
<td>Predator-Prey Simulation</td>
<td>In-class worksheet</td>
</tr>
<tr>
<td>6</td>
<td>Feb 12-14</td>
<td>Optimal Foraging ☀</td>
<td></td>
<td>In-class worksheet</td>
</tr>
<tr>
<td>7</td>
<td>Feb 19-21</td>
<td><strong>Tsquare quiz</strong></td>
<td>Crayfish Defense &amp; Communication</td>
<td><strong>Methods &amp; Results due Feb 26-28</strong></td>
</tr>
<tr>
<td>8</td>
<td>Feb 26-28</td>
<td>Stream Biodiversity and Function ☀</td>
<td></td>
<td>See wk 13</td>
</tr>
<tr>
<td>9</td>
<td>Mar 5-7</td>
<td><strong>Tsquare quiz</strong></td>
<td>Competition II: Data Collection</td>
<td>See wk 10</td>
</tr>
<tr>
<td>10</td>
<td>Mar 12-14</td>
<td>Competition III: Analysis</td>
<td></td>
<td><strong>Full Report due Mar 26-28</strong></td>
</tr>
<tr>
<td>11</td>
<td>Mar 19-21</td>
<td>No lab – Spring Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Mar 26-28</td>
<td>Plant Biodiversity Walk ☀</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>Apr 2-4</td>
<td><strong>Plant Biodiversity Quiz</strong></td>
<td>Island Biogeography ☀</td>
<td>In-class worksheet</td>
</tr>
<tr>
<td>14</td>
<td>Apr 9-11</td>
<td>Streams II ☀</td>
<td></td>
<td><strong>Full Report due Apr 16-18</strong></td>
</tr>
<tr>
<td>15</td>
<td>Apr 16-18</td>
<td><strong>Tsquare quiz</strong></td>
<td>Plant-Pollinator Syndromes ☀</td>
<td>In-class worksheet</td>
</tr>
<tr>
<td>16</td>
<td>Apr 23-25</td>
<td>Upload ppt to tsquare</td>
<td>Presentations (wasp, plant, stream, pollinator)</td>
<td></td>
</tr>
</tbody>
</table>

☀ denotes an outdoor lab