BIOL 2336: General Ecology Laboratory, CULC 487

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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 instructors 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 355 points using the following scale:

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

Points will be based on the following:

- 4 Pre-lab Quizzes (10 pts each) \( 50 \)
- 2 Just-in-time Reading Checks (10 pts each) \( 20 \)
- 1 Plagiarism Exercise \( 15 \)
- 4 In-class/Take-home Assignments (15 pts each) \( 60 \)
- 4 Writing Samples
  - Cemetery Methods & Results \( 30 \)
  - Opt Foraging Methods & Results \( 30 \)
  - Competition Full Report \( 40 \)
  - Biogeography 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.

In the lab reports, you will complete the data analysis and write one or more sections of the lab report. There are four 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 15 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](http://www.deanofstudents.gatech.edu/integrity/policies/honor_code.php) and [http://www.deanofstudents.gatech.edu/codeofconduct](http://www.deanofstudents.gatech.edu/codeofconduct). While students will collaborate in performing the experiments and collecting the data, each student is expected to create their own figures and figure legends, and 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, 9, 10.

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! Invest in or borrow a rain jacket for the semester.

9. 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.

10. 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>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug 20-22</td>
<td>Introduction</td>
<td>Plagiarism exercise</td>
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<tr>
<td>3</td>
<td>Sept 3-5</td>
<td>Cemetery Demography ☼</td>
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<td>4</td>
<td>Sept 10-12</td>
<td>Tsquare quiz</td>
<td>Cemetery Data Analysis, Plant Competition Expt</td>
<td>Methods &amp; Results due Sep 17-19</td>
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<td>5</td>
<td>Sept 17-19</td>
<td>Plant Biodiversity Walk ☼</td>
<td>Community practicum (15 pt)</td>
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<td>6</td>
<td>Sept 24-26</td>
<td>Plant-Pollinator Syndromes ☼</td>
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<td>7</td>
<td>Oct 1-3</td>
<td>Tsquare reading</td>
<td>Optimal Foraging ☼</td>
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<td>8</td>
<td>Oct 8-10</td>
<td>Optimal Foraging II ☼</td>
<td>Methods &amp; Results due Oct 22-24</td>
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<td>9</td>
<td>Oct 15-17</td>
<td>No lab – Fall Break</td>
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<td>10</td>
<td>Oct 22-24</td>
<td>Crayfish Defense &amp; Communication</td>
<td>1-pg summary (15 pt)</td>
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<td>11</td>
<td>Oct 29-31</td>
<td>Tsquare quiz</td>
<td>Competition II: Data collection &amp; analysis</td>
<td>Full Report due Nov 5-7</td>
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<td>12</td>
<td>Nov 5-7</td>
<td>Streams I ☼</td>
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<td>13</td>
<td>Nov 12-14</td>
<td>Tsquare reading</td>
<td>Streams II ☼</td>
<td>1-pg summary (15 pt)</td>
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<tr>
<td>14</td>
<td>Nov 19-21</td>
<td>Tsquare quiz</td>
<td>Island Biogeography ☼</td>
<td>Full Report due Nov 27</td>
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<td>Nov 26-28</td>
<td>No lab – Thanksgiving Break</td>
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<td>15</td>
<td>Dec 3-5</td>
<td>Upload ppt to tsquare</td>
<td>Presentations (foraging, crayfish, plant, stream)</td>
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☼ denotes an outdoor lab