



**Biology 269: Ecology Field-Based Laboratory**  
**2 credits: 1 credit lab, 1 credit discussion**  
**The University of Tennessee, Spring 2018**



**Lab/Discussion:** One three-hour lab and one-hour discussion per week

**Course Coordinator:** Dr. Orou Gaoue, Biology 260 Lecturer, [ogaoue@utk.edu](mailto:ogaoue@utk.edu)

**Lab/Discussion Instructor:** Rachel Wooliver: Head TA, [rwoolive@vols.utk.edu](mailto:rwoolive@vols.utk.edu)  
- Tuesday 8 AM–12:05 PM, Section 001, Hesler 302  
Anna Peterson: [apeter53@vols.utk.edu](mailto:apeter53@vols.utk.edu)  
- Wednesday 8 AM–12:05 PM, Section 002, Hesler 302  
- Wednesday 12:10 PM–4:15 PM, Section 004, Hesler 302

**Course Learning Goals:** By the end of this course, you'll understand major ecological patterns in nature and the factors that potentially cause them. Your writing skills, analytical and quantitative abilities, and fieldwork skills will be reinforced, and you will have learned the basics about being a practicing ecologist and an ecologically-aware citizen.

The aim of this course is to learn how ecologists do ecology, reinforce principles learned in lecture, and learn to think creatively, critically, and quantitatively by identifying and understanding ecological patterns in the field. Please keep in mind:

- The Lab will always meet! If there is bad weather (i.e. thunderstorm or snow), we will rearrange topics, so make sure to meet at H302 regardless!
- Please be prepared! Many of the labs will be spent in the field (with mud, rain, cold/high temperatures, biting insects, etc.). Bring water, some snacks, and bug spray if necessary and DO NOT wear open-toed shoes or shorts. Weather can change quickly in the field, so rain gear and an extra layer are strongly recommended.
- Do not miss labs. If you have to miss a lab for a good reason, make sure you let your instructor know in advance so that we can discuss alternative arrangements.

**Course Learning Objectives:** By the end of the course, you will be proficient in the following scientific practices:

1. Distinguish between, and develop your own, scientifically-appropriate hypotheses and predictions
2. Find and use scientific literature to frame your experimental designs
3. Organize, analyze, and interpret your scientific data
4. Communicate your scientific results in written and verbal forms (including creation of figures and tables)
5. Design and carry out your own scientific investigations

*Please read this syllabus in its entirety and keep a copy in your lab notebook or computer for reference throughout the semester!*

## COURSE SYLLABUS

Week	Agenda	Where?
1. Jan. 10 – 12	Classes begin (NO LAB/DISCUSSION)	–
2. Jan. 15 – 19	Go over syllabus Toolkit Lab 1: R Tutorial	H302
3. Jan. 22 – 26	Quiz 1 Danby <i>et al.</i> 2011: Four decades of plant community change Toolkit Lab 2: Plant community sampling	H302 & Field (Meads Quarry)
4. Jan. 29 – Feb. 2	Quiz 2 Voigts 1976: Aquatic invertebrate abundance Toolkit Lab 3: Stream and soil invertebrates sampling	H302 & Field (Walker Spring Park)
5. Feb. 5 – 9	Quiz 3 Weiner 1995: On the practice of ecology Rapid Ecological Study (RES) 1: Generating hypotheses	H302 & Field (House Mtn)
6. Feb. 12 – 16	Quiz 4 RES 2: Addressing hypotheses	H302 & Field (House Mtn)
7. Feb. 19 – 23	RES 3 & 4: Analyzing data and writing a scientific paper	H302
8. Feb. 26 – Mar. 2	<b>RES paper (ONE PER STUDENT) due by beginning of class!</b> Quiz 5 Pipistrelle bat populations (Sendor & Simon 2003) Toolkit Lab 4: Population demographics and survivorship curves	H302 & Field (Old Gray Cemetery)
9. Mar. 5 – 9	Initiation of final project	H302
10. Mar. 12 – 16	Spring break (NO LAB/DISCUSSION)	–
11. Mar. 19 – 23	Final project workday	–
12. Mar. 26 – 30	Final project workday	–
13. Apr. 2 – 6	Final project workday ( <i>TA will schedule a meeting time with each group to track progress on final project</i> )	H302
14. Apr. 9 – 13	Final project workday	–
15. Apr. 16 – 20	Final project presentations	H302
16. Apr. 23 – 27	<b>Final project paper (ONE PER GROUP) and peer evaluation due Wednesday, Apr. 25<sup>th</sup> by 5pm</b>	–

**Final group project:** On the 9<sup>th</sup> week of ecology lab, you and two or three other students will decide on an ecological study for a final project. During weeks 11-14, groups will use lab time to collect and analyze data and write a final project paper. We are happy to review plans, statistical analyses, figures, and drafts of your group paper at any time, but each group will be required to meet with the TA during the 13<sup>th</sup> week of lab to touch base on your progress on the final project. During lab on week 15, each group will present their final project to the class. After that, each student will fill out a ‘peer evaluation’, in which you will provide us with feedback on the participation of each of your group members in the final project from start to finish. The final project paper and peer evaluation are due on Wednesday, Apr. 25th by 5pm. More instructions on this final project will be provided in lab.

**Extra credit:** Write a one-page summary of two of the five following scientific articles (available on Canvas) and email it to your TA with “Biology 269 section (your section number)” in the subject line. Due dates for each of these summaries are listed below. You may receive up to 2 bonus points for each summary – one point for accuracy of content and one point for a description of what *you* think about the study.

1. Callaway et al. 2004: Soil biota and exotic plant invasion – due Friday, Feb. 23
2. Hampe and Petit 2005: Conserving biodiversity under climate change – due Friday, March 9
3. Reich *et al.* 2001: Plant diversity enhances ecosystem responses to elevated CO2 and nitrogen deposition – due Friday, March 23
4. Loreau *et al.* 2001: Biodiversity and Ecosystem Functioning – due Friday, April 6
5. Hobbie 1992: Effect of plant species on nutrient cycling – due Friday, April 20

### ASSESSMENT OF LEARNING

Quizzes (based on assigned reading) .....	<b>50</b> points (5 x 10 points)
Toolkit Lab Homeworks .....	<b>40</b> points (4 x 10 points)
Rapid Ecological Study Paper (individual paper) .....	<b>50</b> points
Final project peer evaluation .....	<b>25</b> points
Final project presentation (present with group members) .....	<b>35</b> points
Group project paper (group paper) .....	<b>100</b> points
Extra Credit .....	<b>4</b> points

**304 points possible out of 300 total points**

### Final Grades

Final letter grades will be determined by the total percentage of points accumulated as follows:

A	93 – 100%	C	73 – 76%
A-	90 – 92%	C-	70 – 72%
B+	87 – 89%	D+	67 – 69%
B	83 – 86%	D	63 – 66%
B-	80 – 82%	D-	60 – 62%
C+	77 – 79%	F	<60%

### Communication

- If you have any questions related to lab/discussion, please e-mail your TA using your UTK e-mail with “Biology 269 section (your section number)” in the subject line.
- **Please allow up to 24 hours for responses to your e-mails.** E-mails will likely not be answered after the workday is over (5 PM) or on the weekends.

### **Lab Safety:**

- You must clean and dispose of laboratory materials as directed by your instructor before leaving lab. Leaving your lab bench and field supplies dirty will result in deducted points.
- Although we encourage you to bring water and snacks to the field, we do not allow food or drinks to be consumed in the lab. We do not allow tobacco products to be used at any time.
- Please stow personal items under the lab bench. We encourage you to leave personal items in the lab when going to the field (the lab door will be locked).

### **Class Policies:**

- You should expect to be in lab for the full four hours each week.
- You will be expected to prepare and familiarize yourself with the upcoming discussion and lab prior to class each week. This includes reading the assigned articles and handouts about the upcoming labs. These materials will be posted on Canvas (<https://utk.instructure.com/>).
- Usage of cell phones during lab is prohibited. Students using their cell phones for non-emergency situations will be asked to leave class.
- Please turn in your assignments when they are due. **We enforce a late penalty of 25% plus 25% per day late for all assignments.**
- It is expected that all students attending lab will conduct themselves in a manner that is respectful to their laboratory instructors and to their working lab partners/fellow students. Rude and disruptive behavior will NOT be tolerated and will result in the dismissal of the student from the lab period and possibly the course.

**Traveling to field locations:** Each week we travel to a field location for lab, we will need a student volunteer to drive one of UT's 12-seater vans. This student must currently be on UT payroll and have a valid driver's license. If you would like to volunteer, please contact your TA. More info at <http://fleetmanagement.utk.edu/faq/>.

**Academic Matters:** Academic dishonesty of any sort will not be tolerated. Students should refer to Hilltopics for University policies and procedures regarding these instances. You are expected to abide by the University of Tennessee honor statement in all of your university activities. Copying sentences, portions of sentences, or re-phrasing sentences in the same order as another student's will all be flagged as **plagiarism**. You may discuss your labs with other students, but write your lab assignments based on your own thoughts.

**Disability Services:** If you need course adaptations or accommodations because of a documented disability, or if you have questions or concerns about disabilities or emergency information to share, please contact Disability Services (Location: 915 Volunteer Blvd/100 Dunford Hall, Phone: 865-974-6087, Email: [sds@utk.edu](mailto:sds@utk.edu); Website: <https://sds.utk.edu/>).