

Spring 2023
Biology 3301 Syllabus
Experiential Learning in Ecology and Evolution

Dr. Troy Murphy

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Office: CSI 416

Office hours:

Wed 12:30-2:30pm; Fri 11:30-1:00pm

Additional hours: by appointment

Class schedule

Mon 4:00-5:00pm (DH 104),

Wed&Fri 8:30-11:20am (CSI 402)

Course webpage

http://www.finchwrangler.com/Troy_Murphy/3301.html

Course schedule, all handouts, readings, and other course documents will be posted on the course webpage.

Course Description

This is a field-based, inquiry-driven course, designed to teach study design and science communication for ecology and evolution with an emphasis on field-based techniques. The objectives of the course are for students to gain hands-on experiences with organisms in the field; develop the skills, techniques, and methods of analysis required to conduct biological field studies; communicate the results of scientific studies; and gain an appreciation for natural history. This course will enhance students' overall ability to critical think about how science is conducted & interpreted in ecology and evolution.

This course is set up to be a sampler of many different types of questions and the techniques used to answer them in ecology and evolution. Students will also learn sampling techniques to assess various ecological factors, including population size, demography, community composition, behavior, morphology, abiotic characteristics, and physiology. Students additionally maintain field notebooks, manage and curate data, consider ethics and scientific misconduct, and conduct statistical analyses.

Learning Outcomes:

- design an effective ecology or evolutionary study with proper controls and statistical power.
- collect and interpret scientific data from the field.
- communicate scientific ideas and findings using oral and visual presentations.
- relate ecology to daily life and connect concepts across studies.

Oral and Visual Communication Learning Outcomes:

- identify and use the elements of effective oral and visual communication.
- create and deliver effectively structured oral presentations using language correctly and appropriately.
- use visual media that are effective, appropriate, and well-integrated into the presentation.
- analyze and critique oral and visual components of presentations
- respond thoughtfully to questions and comments from audience members.

Prerequisites: One upper-level Area B Biology course in the ecology and evolution area (3420 through 3435) or Microbiology (Biology 3458). A statistics course is highly recommended.

Course Structure: Students will be required to complete 6 hours/week in lab (Wednesday & Friday) and 1 hour weekly attending the Biology department's seminar (Monday). Wednesday will be "in class" work time, to tackle homework assignments - designed to be worked through during the class period while your instructor is available to help. Friday will generally be an outdoor learning activity. Note that students will be expected to maintain projects outside scheduled laboratory sections.

Depending on measures to ensure safety during the pandemic, we will have 3-5 *field trips*. Two of these will be held overnight, from Friday morning to Saturday evening. Students should anticipate long hours of intensive learning. We will often have to get up early, follow tight schedules, and work outdoors in adverse environmental conditions. Fieldwork can often result in fun unexpected encounters, so stay alert!

Course Schedule and Readings

The schedule for class and readings are posted on the course webpage. Please note that we will be moving between lecture/discussion and activity on a regular basis. Being prepared will allow us to have more meaningful discussions addressing any questions that arose from the assignments.

Please note that this schedule is subject to change.

Assessment:

- 1) Field Notebook - 15% (first check 1%, second check 14%)
- 2) Seminar Notebook - 10%
- 3) Reflection Notebook - 5%
- 4) Homework - 10%
- 5) iNaturalist entries - 10%
- 6) Participation - 15%
- 7) Oral presentation 1: results from faculty led project - 5%
- 8) Oral presentation 2: pitch for independent project - 1%
- 9) Oral presentation 3: finalized Introduction and Methods for independent project - 9%
- 10) Mock poster presentation - 1%
- 11) Final Poster presentation - 19%

Grading scale

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	<60%

Plus and minus will be assigned to final grade depending on the final score.

1) Field Notebook: You will maintain a professionally formatted field notebook (e.g., composition notebook), including three sections (Journal, Catalog, Species accounts). This will be graded twice during the semester. As part of this assignment, you will **create 10 species accounts**. See webpage for more info.

2) Seminar Notebook: You will maintain a digital seminar notebook via Google Drive which will identify key points of the biology seminar and will also provide a description of both the productive and unproductive oral and visual communication techniques utilized by seminar speakers (e.g., the organization of the presentation, the speaker's communication skills). See webpage for more info.

3) Reflection Notebook: Because people don't get outside much anymore, you may be experiencing a disconnect between your daily lives and the world outside. In an effort to develop your observation skills and to practice recognizing connections between ecology and daily life, you are to find a place outside and reflect in your notebook (any kind of notebook is fine) for 20 minutes (with your phone off!). Do this **at least 3 times this semester**. See webpage for more info.

4) Homework: You will have in-class 'homework' assignments. I will be there to help and answer questions. You may consult each other but your finished assignment should be completed individually unless otherwise instructed.

5) iNaturalist entries: You will use this app to take pictures and identify at least **50 plants (non-cultivated)** and at least **100 invertebrates (from at least 15 taxonomic families)**. You will earn my esteem if you also identify multiple vertebrates using the app! You will share your entries with me via iNaturalist and also via a google sheet, where you will list, for each naturalist entry: the common name, the Latin name, the order, and the family. My goal is to have you embrace your inner naturalist!

6) Participation: You will be evaluated on your role in being an active member of the class both during class meetings and on fieldtrips.

7) Oral Presentation 1: You and your partner(s) will report on your research setup, methods, analyses, and findings from the faculty led project.

8) Oral Presentation 2: You and your partner will pitch the design for your independent project.

9) Oral Presentation 3: You and your partner will present your finalized Introduction and Methods for your independent project.

10) Mock Poster Presentation: You and your partner will develop a research conference style poster based on your research project. You and your partner will present the poster in a mock session and receive feedback from class on the content and structure of poster.

11) Final Poster Presentation: You and your partner will present your large-scale research project in a public forum held jointly with the other Experiential Learning class.

My teaching philosophy

I am here to help you to develop skills that will assist you in learning throughout your academic and professional careers. To that end, please feel free to ask questions inside or outside of class if there is something you don't understand. My goal is to provide a supportive community for your learning.

My office hours

It is best to come see me during my scheduled office hours (see above). During office hours I can give you my undivided attention and I will work with you one-on-one to solve problems and help you to better understand material or assignments. If you cannot make it during office hours, you are more than welcome schedule an appointment in advance.

My email protocol

I only check my email only 2 times per day (approx. at 12pm and 4pm), so please do not expect immediate responses to your emails. I often respond about 24hrs later. NOTE: I rarely check email on weekends.

Academic Support

The very best students seek out help when necessary. The following resources are in place to support your academic success:

[Academic Success](#): time management, student skills, test anxiety, note taking, tutoring

[Career Services](#): major exploration, career guidance

[Counseling Services](#): mental health concerns, mental health referrals

[Quantitative Reasoning and Skills Center](#): quantitatively demanding coursework

[Student Accessibility Services](#): accommodations for a diagnosed disability

[Wellness Center](#): nutrition, sleep, stress management

[Writing Center](#): starting a paper, finding a thesis, drafting and editing

Attendance and late work

Regular class attendance is expected as discussion and group activities will be routine. Please let me know as soon as possible if you will be missing class or a field trip. Assignments missed due to absences cannot be made up unless you provide an excuse before class. In most cases, grades on late work will be reduced by 10% per day that they are late.

Excused Absences

For the duration of the COVID-19 pandemic, the following exception to the Excused Absences from Class policy has been approved: Students who are ill will be excused from classes. To protect community health, we urge students to request an excused absence by informing instructors of the illness via email. Students must adhere to University health and wellness procedures for self-evaluation, follow-up, and quarantine as necessary. Please note: Untruthful student claims about illness may be regarded as a violation of the Academic Honor Code, which prohibits “falsification of academic records.”

Students who experience a family emergency that interferes with academic performance are encouraged to contact the Dean of Students.

Cheating & plagiarism (an unfortunate addition)

I take fairness, honesty, and responsibility very seriously. Be advised that I have a variety of electronic methods at my disposal to detect cheating and plagiarism. Just don't do it—we will all be happier.

Remember that you are to follow the Academic Honor Code

All students are covered by a policy that prohibits dishonesty in academic work. Under the Honor Code, a faculty member will (or a student may) report an alleged violation to the Academic Honor Council. It is the task of the Council to investigate, adjudicate, and assign a punishment within certain guidelines if a violation has been verified. **Students are required to pledge all written work that is submitted for a grade: “On my honor, I have neither given nor received any unauthorized assistance on this work” and their signature. The pledge may be abbreviated “pledged” with a signature.**

Please note that you MUST cite ALL of the material in your submitted work that is not your own. Also note that when you work in collaboration with a student during lab projects, you are required to specify the parts of your assignments which were done in-full or in-part by others.

Any materials created by your instructor to enhance or assess your learning in this class (including but not limited to examinations, exam keys, problem sets, lecture slides, and clicker questions) are proprietary materials that may not be shared with anyone without prior authorization from the instructor. Sharing these documents in any way is a violation of the Trinity University Honor Code and infractions will be reported to the Honor Council. The sale or donation of these materials to any organization that, as a business or community service, provides study aids is included in this policy. This includes providing materials to such organizations over the internet. Further, the illicit use of materials obtained from such organizations or individuals is also a violation of the Honor Code and will be reported to the Honor Council. In addition, examinations, exam keys, problem sets, lecture slides, and clicker questions are intellectual property governed by copyright laws. Sharing these materials without authorization is a violation of these laws. Obtaining such materials is also a violation of copyright laws as well as Trinity's Honor Code.

Note to students with disabilities

If you have a documented disability and will need accommodations in this class, I expect that you will deliver your accommodation letter to me during my office hours early in the semester so we can discuss how I might prepare to meet your needs. Please make these arrangements with me as soon as possible once you have met with the SAS Coordinator and have picked up your accommodation letters. All discussions will remain confidential. If you have not already registered with Student Accessibility Services, contact the office at 999-7411 or SAS@trinity.edu. You must be registered with SAS before I can provide accommodations.

Courtesy

Please show common courtesy: (1) Be prepared for class and arrive on time, (2) Avoid conversations with others during class, (3) Limit food and beverages to those that can be consumed quietly, (4) Turn off cell phones before class. Note that the use of laptops for notetaking is acceptable; HOWEVER, there should be no surfing, chatting, email checking, snapchatting, etc. during class.

Title IX/Sexual Misconduct Reporting

As a university employee who is committed to creating an environment where every member of our community can thrive, I want to let you know that I am a Mandatory Reporter. What that means is that I am required to report any instances of sexual misconduct, including sexual harassment, sexual assault (rape, fondling, non-consensual sodomy, sexual assault with an object, statutory rape, and incest), intimate partner violence (dating or domestic violence), sexual exploitation, stalking, and related retaliation that I am aware of to the Title IX Coordinator.

So, if you share information with me about any incidents that implicate the [**Policy Prohibiting Sexual Harassment and Sexual Misconduct**](#), I am required to report all information to the Title IX Coordinator to make sure you have information about support resources and complaint resolution options. My report does not initiate the complaint process, and you are in control over how you choose to engage with our Title IX Coordinator. If you or someone you know has experienced sexual misconduct, including sexual harassment, I encourage you to share this information directly with the Title IX Coordinator or one of the individuals who has been designated as a confidential resource on campus. [**The reporting form is available here**](#) and information about supportive resources is available [**here**](#).