

FIELD TECHNIQUES IN ECOLOGY & CONSERVATION

Pymatuning Laboratory of Ecology
Session 4 – July 15-August 2, 2024

Syllabus

INSTRUCTOR: [Dr. David Janetski, IUP](#)
EMAIL: janetski@iup.edu

COURSE OVERVIEW

This project-driven course introduces students to a variety of field and research techniques used in ecology and conservation professions, including sampling and experimental design; sampling methods for plants and animals in terrestrial and aquatic habitats; application of quantitative analysis to field-based studies.

OUTCOMES

Students who complete this course should be able to:

- 1) Design and execute an appropriate research project for sampling populations, communities, and/or habitats in the field to answer specific research questions.
- 2) Select and implement the most appropriate sampling methods to meet the objectives of the sampling and study design.
- 3) Understand the implementation of a variety of field sampling methods used in ecology and conservation, including application of computational approaches to field-based questions.

COURSE CONTENT

- 1) Making and recording observations in the field
- 2) Sampling design & experimental design, set up projects
- 3) Development and presentation of proposals
- 4) Analysis and interpretation of data
- 5) Characterizing vegetation
- 6) Aquatic macroinvertebrate sampling
- 7) Fish surveys (lake and stream)
- 8) Reptile and Amphibian surveys
- 9) Bird point counts
- 10) Small mammal trapping
- 11) Camera trapping
- 12) Environmental sampling (water quality, soil chemistry)
- 13) Regular fieldwork in Pymatuning State Park, Tryon-Weber Woods Preserve, Jeanette Rose Tryon Preserve, and Wallace Woods
- 14) Day-long field trips (sites may include Erie National Wildlife Refuge, Union City Aquatic Conservation Center, Presque Isle State Park, Tom Ridge Environmental Center)

COURSE REQUIREMENTS

- 1) Required texts and other readings
There will be a variety of scientific articles and technical reports.
- 2) Field Journal
You will write 2-3 **nightly journal entries per week** (due at midnight as shown in the schedule below) that reflects your personal experiences during the class that day. Each entry should be 1-3 paragraphs in length, and is meant to provide you with a detailed, first-hand record of your experiences in PLE Field Techniques. You should include details such as the names and descriptions of sites visited, any notable events that occurred, new knowledge you may have gained, thoughts or feedback about how your group project is progressing, or research or career-related ideas you may have generated during the day.
- 3) Papers/projects (number, type, length and deadlines)
A final project will be presented based on a field study designed, conducted, and analyzed by your group. You will give an oral presentation and submit a written project report 8-10 pages in length. Details will be provided during Week 2 of class. Reports are due on the last class day.
- 4) Approximate time spent outside of class:
You are expected to spend an average of **1-2 hours each day** outside of class preparing assignments.
- 5) Grading Policy:
Late work will not be accepted and there will be no make-ups. In case of a bona-fide medical excuse, an assignment will be dropped.
- 6) Dropbox will be used for submitting assignments. Each of you will receive an individualized link to a Dropbox folder, which I will access to grade your assignments.

GRADING (SUBJECT TO CHANGE)

Assignment	Description	Points possible
Field Observations Exercise	Assignment from the first day of class	10 pts
Guest lecture/field trip summaries and questions (x3)	2-page double-spaced (500 words) description of key points you learned from guest lectures; include two questions you had during each guest lecture	10 pts each
Article responses (if necessary)	1-page double-spaced (250 words) response to articles read and discussed in class	5 pts each
Journal responses (x7)	Summarize project activities that day; include your concerns, questions, thoughts, opinions, etc. (one page max.)	10 pts each
Research Proposal	1-2 pages describing your group research project plan; includes question, hypothesis, goals, study design, and data collection plan	50 pts
Proposal Presentation	10-15 minute PowerPoint presentation describing your project proposal	50 pts
Progress report	10-minute PowerPoint presentation updating the class about your progress, including preliminary data and goals for the final week	25 pts
Final Project Paper	8-10 page report of your group project in scientific format	100 pts
Final Presentation	20-25 minute PowerPoint presentation of your research findings	100 pts
Peer Evaluations	Evaluate the contributions of each member of your group	10 pts each
TOTAL		-450 points

TENTATIVE ACTIVITY AND ASSIGNMENT SCHEDULE
(subject to change)

Date	Day	Topic	Assignments (submit to Dropbox)
WEEK 1			
15-Jul-24	Monday	AM – PLE and Course Introduction; Student Intro Session; Lecture on research approaches and study areas PM – Visit study sites; set trap nets in wetland	-Journal #1 (DUE midnight) -Field Observation Exercise (DUE at end of class)
16-Jul-24	Tuesday	AM – Check trap nets PM – Lecture on experimental design; Form Research Project teams	Journal #2 (DUE midnight)
17-Jul-24	Wednesday	AM – Group project planning AM/PM – Field Trip – Erie National Wildlife Refuge: Adaptive management of federally protected lands; aquatic sampling (Yianni Laskaris, USFWS)	Field Trip Summary #1 (500 words; DUE midnight)
18-Jul-24	Thursday	AM – Stream electrofishing PM – Bird and vegetation sampling; set mammal traps	Journal #3 (DUE midnight)
19-Jul-24	Friday	AM – Check mammal traps PM – Work on group project proposals	None
WEEK 2			
22-Jul-24	Monday	AM – Project proposal presentations, revisions; macroinvertebrate sampling PM – Preparations for sampling; gather equipment; start data collection	-Proposal Presentation (PowerPoint DUE at start of class) -Written Proposal (Word file DUE midnight)
23-Jul-24	Tuesday	AM/PM – Field Trip – Tom Ridge Environmental Center (Dr. Jeanette Schnars, Regional Science Consortium) and Presque Isle State Park	Field Trip Summary #2 (500 words; DUE midnight)
24-Jul-24	Wednesday	AM – Project work; Review final paper and presentation requirements PM – Set trap nets (fish)	Journal #4 (DUE midnight)
25-Jul-24	Thursday	AM – Collect trap nets PM – Project work	Journal #5 (DUE midnight)
26-Jul-24	Friday	AM – Project work PM – Preliminary report preparation	None
WEEK 3			
29-Jul-24	Monday	AM –All groups present progress reports to class; overview of work plan for week PM – Project work	Progress Report Presentations (PowerPoint DUE at start of class)
30-Jul-24	Tuesday	AM – Final Project work PM – Begin/complete project breakdown and data analysis	Journal #6 (DUE midnight)
31-Jul-24	Wednesday	AM/PM – Field Trip - Union City Aquatic Conservation Center (freshwater mussels with Josh Arnold, Species Recovery Biologist, PA Fish and Boat Commission)	Field Trip Summary #3 (500 words; DUE midnight)
1-Aug-24	Thursday	AM/PM – Final Project write-up and data analysis	Journal #7 (DUE midnight)
2-Aug-24	Friday	AM – Final presentations PM – Final report edits; wrap-up activity; peer evaluations	-Final Presentation (PowerPoint DUE at start of class) -Written Report (Word file DUE midnight) -Peer evaluations