FIELD TECHNIQUES IN ECOLOGY & CONSERVATION
Pymatuning Laboratory of Ecology
Session 4 – July 17-August 4, 2023

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; applications of computational approaches 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, Roger Tory Peterson Institute of Natural History, 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 **four nightly journal entries per week** (due before 11:00pm Monday through Thursday) 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 strive to include details such as the names and descriptions of sites visited, any notable species of plants or animals you may have observed, new knowledge you may have gained, or research or career-related ideas you may have generated during the course of the day.
Turn in articles here:
https://www.dropbox.com/sh/x7rw7rkzz9hqomv/AACOjkwQNgx3pjICOshTOK6Qa?dl=0

3) Papers/projects (number, type, length and deadlines)
A final project will be presented based on a field study designed, conducted, and analyzed by the students. Students will give an oral presentation and submit a written project report ca. 10 pages in length. Details will be provided during week 2 of the class. These are due on the last class day.

4) Approximate time spent outside of class
Students are expected to spend an average of **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.

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	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	1-page double-spaced (250 words) response to articles read and discussed in class	5 pts each
Participation	Participation points will be awarded for certain group activities throughout the course	5 pts each
Work Reflections	Final week: summarize project activities that day (one page max.)	10 pts each
Research Proposal	1-2 pages describing your group research project plan; includes question, hypothesis, study design, and data collection plan	50 pts
Proposal Presentation	10-15 minute PowerPoint presentation describing your project proposal	30 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	75 pts
Peer Evaluations	Evaluate the contributions of each member of your group	10 pts each
TOTAL		~400 points

TENTATIVE SCHEDULE
(subject to change)

Date	Day	Topic	Assignments
WEEK 1			
17-Jul-23	Monday	PLE Introduction; Course Introduction; Student Intro Session; Lunch in the field; Field Observations Exercise; Instructor Introduction	PLE Lab site Tryon-Weber
18-Jul-23	Tuesday	Overview of aquatic sampling strategies (aquatic inverts, fishes, herps); Fish sampling in lakes; Stream sampling for fish and inverts	PLE Lab site Tryon-Weber
20-Jul-23	Wednesday	Check fish traps; Overview of terrestrial sampling strategies; Vegetation sampling/Point-Quarter method	Wallace Woods Tryon-Weber Beaver Pond
21-Jul-23	Thursday	Designing a field study; Introduction to experimental design in Field Studies; Introduction to Small mammal trapping	
22-Jul-23	Friday	Check mammal traps; Research Project teams formed; Independent group work – Developing a proposal for research study, presentation	PLE Lab site/Library
WEEK 2			
24-Jul-23	Monday	Classroom: Project proposal presentations, revisions; preparations for sampling; Field: Project set-up and sampling	PLE Lab site Wallace Woods
25-Jul-23	Tuesday	Project work	Various field sites/Lab site
26-Jul-23	Wednesday	Field Trip – Erie National Wildlife Refuge: Adaptive management of federally protected lands; aquatic sampling (Melissa Althouse, USFWS)	Erie National Wildlife Refuge
27-Jul-23	Thursday	Project work; preliminary report preparation	Various field sites/Lab site
28-Jul-23	Friday	Lakes and islands (Brian Pilarchik, Crawford Co. Conservation District)	Pymatuning Lake
WEEK 3			
31-Jul-23	Monday	Classroom: All groups present progress reports to class; overview of workplan for week; Field: Project work	PLE Lab site Wallace Woods Tryon-Weber
1-Aug-23	Tuesday	Final Project work, begin/complete project breakdown	
2-Aug-23	Wednesday	Lakes and islands; Tom Ridge Environmental Center (Dr. Jeanette Schnars, Regional Science Consortium) and Presque Isle State Park	Presque Isle
3-Aug-23	Thursday	Final Project Work	PLE Lab site
4-Aug-23	Friday	Presentation day, wrap up activity	PLE Lab site