

BIOSC 1390 – FIELD TECHNIQUES IN ECOLOGY & CONSERVATION
Pymatuning Laboratory of Ecology
Summer 2013 - Syllabus

INSTRUCTOR: [Dr. Joe Townsend, IUP](#)

EMAIL: josiah.townsend@iup.edu

COURSE OVERVIEW

This course introduces students to a variety of field and research techniques used in ecology and conservation professions, including sampling and experimental design, basic orienteering skills, and sampling methods in forests, fields, and aquatic habitats.

OUTCOMES

Students who complete this course should be able to:

- 1) Design an appropriate scheme for sampling populations, communities, and habitats in the field to answer specific questions.
- 2) Select and implement the most appropriate sampling methods to meet the objectives of the sampling and study design.
- 3) Navigate to defined locations in unfamiliar areas with the help of maps, compasses, and pacing.
- 4) Understand the field implementation of a variety of sampling methods used in ecology and conservation.

COURSE CONTENT

- 1) Orienteering, Geographical Information Systems, and Global Positioning Systems (2 days)
- 2) Sampling design & experimental design, set up projects (2 days)
- 3) Sampling plants and animals in herbaceous vegetation (2.5 days)
- 4) Practical Exam (0.5 day)
- 5) Sampling plants and animals in forests (3 days)
- 6) Sampling aquatic invertebrates & habitats (3 days)
- 7) Radio telemetry (1 day)
- 8) Practical and Final Exam (0.5 day)
- 9) Presentation of projects (0.5 days)

COURSE REQUIREMENTS

- 1) Required texts and other readings
There will be a variety of scientific articles and technical reports assigned that relate to the various techniques.
- 2) Weekly assignments
Each day of class will consist of a unit designed to teach sampling and analysis in a variety of habitats and to address a variety of different ecological or conservation questions. Students will complete a laboratory report for each of six units covered in the class.
- 3) Papers/projects (number, type, length and deadlines)
A final project will be presented based on an experiment designed, conducted, and analyzed by the students. Students will give an oral presentation and submit a written project report ca. 10 pages in length. These are due on the last class day.
- 4) Exams (number, type and dates)
There are three exams. Two will be a practical exams focusing on ability to perform certain tasks. The third will be a final exam focusing on content.
- 5) Approximate time spent outside of class
Students will need to spend at least 3 hours each day outside of class preparing lab reports.

6) Grading Policy:

There are 6 lab reports, each worth 10% of the grade, a final project worth 10% and three exams each worth 10% of the grade. 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.

TENTATIVE SCHEDULE

<u>Date</u>	<u>Day</u>	<u>Topic</u>	<u>Location</u>	<u>Assessment</u>
15-Jul-13	Monday	Introduction, orienteering, observations and hypothesis testing, Lay out plot grids	PLE Lab site & Wallace Woods	
16-Jul-13	Tuesday	Lay out plot grids, Tree ID, design of experiments, work on independent projects	Wallace Woods	
17-Jul-13	Wednesday	Orienteering test; Tree ID and Sampling overstory trees	Wallace Woods	test (5)
18-Jul-13	Thursday	Spider web and shrub sampling	Tryon-Weber & Wallace Woods	report* (10)
19-Jul-13	Friday	Understory vegetation sampling	Tryon-Weber & Wallace Woods	report (10)
22-Jul-13	Monday	Litter invertebrates (collect litter); research talks	Allegheny National Forest	
23-Jul-13	Tuesday	Mist-netting birds, count and ID inverts, mammals, herpetofauna	Allegheny National Forest	
24-Jul-13	Wednesday	Check mammal traps; herps; Orienteering test; return to PLE	Allegheny National Forest	report (10)
25-Jul-13	Thursday	Amphibian & fish sampling in streams; measuring flow in streams	Wallace Woods	
26-Jul-13	Friday	Rapid Bioassessment of streams	Various streams	report (10)
29-Jul-13	Monday	More litter inverts; Amphibians & reptiles; Small mammal population assessment (set out traps, run overnight)	Tryon-Weber & Wallace Woods	report (10)
30-Jul-13	Tuesday	Small mammal population assessment (check traps morning, run again overnight);	Tryon-Weber & Wallace Woods	
31-Jul-13	Wednesday	Small mammal final recapture, analysis; work on independent projects	Tryon-Weber & Wallace Woods	report (10)
1-Aug-13	Thursday	Lakes and islands	Pymatuning Lake	
2-Aug-13	Friday	Final exam, presentations	PLE Lab site	final project paper** (20) presentation (5) final exam (10)
				TOTAL (100)