Field Ecology 159:195:AAA and 159:195:A01
ENVS:3095:0AAA and ENVS:3095:0A01

Information about the course:

- The course instructor is Sam James, 232A Biology Building. Office hrs: 1:30-3:00 pm MW and by appointment. samuel-james@uiowa.edu
- This course is offered by the Department of GeoSciences. The main office in 121 Trowbridge Hall (335-1818). Dr. Mark Reagan (335-1802) is the DEO (Dept. Chair), 121C Trowbridge Hall, email: geology-deo@uiowa.edu.

Relevant CLAS policies are on the last pages of this syllabus.

Course description: Field Ecology is an introduction to methods in ecological and environmental research. We emphasize the practical, rather than ecological theory or why certain things may or may not be happening in the world. Therefore we will use the lectures to cover the design of sampling and experiments, and the statistical methods used to analyze data. Field trips and labs will focus on 4 or 5 class projects which will be done as a group but analyzed by subsets of the students. Uncertainty in the number of projects is partly to accommodate things taking longer than one hopes (almost always true) and the exceptionally dry conditions prevailing in Iowa from June onwards.

Course goals and objectives: Our primary focus is on the design of investigations that can produce scientifically valid results. The goal of the course is to train students to conceive, design and implement research programs which can in principle generate solid scientific results. Towards this goal, each student will use the methods and principles of the course to create a research proposal.

Among the objectives are: 1. Comprehend the scientific method, including the design and interpretation of ecological experiments, but generalizable to experiments in other scientific disciplines. 2. Learn how to evaluate published and proposed research vis-à-vis its design and data analysis, and to improve upon it where appropriate. 3. Become familiar with or at least aware of a wide range of sampling techniques applicable in environmental science/education careers.

Text for the course: Practical Field Ecology, a Project Guide by C. Philip Wheater, J. R. Bell and P. A. Cook. ISBN 978-0-470-69429-9 available at University Book Store. Electronic versions: Kindle

Course web site: http://wiki.uiowa.edu/display/fieldecologyfall12/Home

Grading procedures: Grades are based on a combination of written work, a midterm exam (20%) and participation.There will be several short written assignments (10%) and a project proposal. The latter is an important part of the grade (30%) and will be evaluated twice by the instructor (once for free) and by your peers in group discussions. The second half of the course will be conducted by the peer learning format, in which lectures are replaced by sets of challenges to be solved **in or before** class by small groups and supplemented by discussion and instructor contributions when needed. You will be graded on these challenges (total of 30%). The remaining 10% is for attendance and participation in field trips and labs. All you have to do for that 10% is show up (or have an excused absence) and actively take part.

2012 Schedule

Aug 21 T	Lecture/Lab	Introduction to Field Ecology; Hypothesis Development
	Assignment	Write one hypothesis set from an assigned *Ecology* paper (10 pts.)
	Readings	Practical Field Ecology pp. 1-8 Due Fri. 8/24
Aug 23 Th	Lecture	Site characterization and the use of field notebooks.
	Readings	PFE 14-18; 35-58
	Assignment	Construction of hypothesis set from field observations (20 pts) Due Weds. 8/29
Aug 25 Sat	**Field Exercise:**	**Mark/Recapture of Beetles I 8:45 AM**

Aug 28T	**Field Exercise:**	**Mark/Recapture of Beetles II 8:30 AM**
Aug 30 Th	Lecture	1) Introduction to sampling design 2) How many are there? Estimating pop size and density
	Readings	PFE 18-34; 104-107; 252-256
	Assignment	Mark-Recapture Example Worksheet (10 pts) Due Monday 9/10

Sep 4 T	**Field Exercise:**	**Mark/Recapture III Dr. Art Bettis in command**
Sep 6 Th	**Lecture**	**day off: instructor on travel**
	Assignments	Rewrite Returned Hypothesis Sets (Due 9/14) (variable pts) Mark-Recapture Data Worksheet (Due 9/14) (10 pts) Field Notebooks (Due 9/14) (20 pts)

Sep 11 T **Field Exercise Response of florest floor vegetation to invasive plant removal. Meet at Hickory Hills park south entrance off Bloomington St. 8:30 AM**

	Assignment:	1st Draft of Project Hypotheses (Due 9/20) (10 pts)
Sep 13 Th	Lecture/Lab	1) Introduction to experimental design 2) Species richness and diversity 3) Getting started on your project
	Readings	PFE 8-18; 256-257

Assignments: Come prepared to discuss individual project hypotheses on Thursday.

Sep 15 Sa **Field Exercise Forest floor invertebrate diversity Meet at Hickory Hills park south entrance off Bloomington St. 9:00AM**

Sep 18 T **Field Exercise**: **Forest floor invertebrate diversity Meet at Hickory Hills park south entrance off Bloomington St. 8:30 AM**

Sep 20 Th	Lecture/Lab	Literature Searching
	Assignment	Literature search on topic of project proposal (Due 10/2) (20 pts.)
	Readings	PFE 8-11

Sep 25 T	**Field Exercise**	**Forest floor invertebrate diversity Meet at Hickory Hills park south entrance off Bloomington St. 8:30 AM**
	Assignment	Mean-variance worksheet (due 10/2) (5 pts)
Sep 27 Th	Lecture	Introduction to Statistics: data description, choosing tests
	Readings	PFE 235-251 1st draft of Project Materials and Methods (Due 10/20) (20 pts)

Oct 2 T	**Lab**	**processing of invert collections, in lab Trowbridge Hall**
Oct 4 Th	Lecture	Invertebrate sampling and observation techniques
	Readings	PFE 67-73; 95-117

Oct 9 T	**Field Exercise**	**Goldenrod gall insects**
Oct 10	**Evening**	MIDTERM EXAMINATION covering up to Oct 4
Oct 11 Th	Lecture/Lab	One way Analysis of Variance / Introduction to a Sci. Paper
	Assignment	Analysis of Variance Work Sheet (Due 10/16) (10 pts)
Oct 13 Sa	**Field Exercise**	**Goldenrod insects 9:00 AM**

Oct. 16 T	**Field Exercise**	**Goldenrod insects**
	Assignment	1st Draft of Project Introduction (Due Oct. 26) (20 pts)
Oct 18 Th	Lecture/Disc	Round Table Discussion of Project Materials and Methods

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Oct. 23 T	lecture/ lab:	Further methods for sampling mobile organisms
	Reading:	PFE: 121-173 (not exhaustively memorized) and general methods for vertebrates 174-234.

Oct. 25 Th	Lecture Reading:	Regression analysis PFE 235-243; 269-273

Oct 30 T	Lab Assignment:	data gathering/processing for class projects 2nd draft of materials and methods (Due Nov. 9) (points variable)
Nov 1 Th	Lecture Reading:	Two-way ANOVA 261-269

Nov 6 T	Lab	data gathering/processing for class projects
Nov 8 Th	Lecture Reading:	Analyzing data for pattern and structure PFE 286-304

Nov 13 M	Lab	Reports on class projects: oral presentations and discussion. Field Notebooks due
Nov 15 W	Lecture Reading:	Chi-Square/Contingency Tables, Non-Parametric statistics PFE 274-275; 267-270; see 238-244

Nov 20 T		No Class: Thanksgiving Holiday
Nov 22 Th		No Class: Thanksgiving Holiday

Nov 27 T	Lab	Continued class projects

NOTE: Original and Three Copies of Rewrite of Proposal due at James Office 2:00 pm (Introduction, Materials and Methods, Statistical Analysis, Literature Cited, Figures, Maps, etc.)

By 5:00 PM - Pick up copies of Proposals to be Reviewed

Nov 29 Th	Lecture Reading:	Preparing scientific reports PFE: 305-331

Dec 4 T	Lecture/Lab	**Proposal presentations**
Dec 6 Th	Lecture/Lab	**Proposal Reviews, other unfinished business**

Dec 7 F **Final draft of proposals due at James office 4:00 pm.**

Academic Misconduct:

The College of Liberal Arts and Sciences considers academic fraud, dishonesty, and cheating serious academic misconduct. All students suffer when academic misconduct takes place. Academic fraud, dishonesty, and cheating disturb the mutual respect that should exist between instructors and students and among students, and can poison the atmosphere of a classroom. Perhaps most seriously, those who commit academic fraud, dishonesty, or cheating are robbed of

the educational experiences that are the primary purpose of course work in the College of Liberal Arts and Sciences. We expect instructors to help students understand and avoid all academic fraud.

If you are unclear about the proper use and citation of sources, or the details and guidelines for any assignment, you should discuss the assignment and your questions with the instructor. All forms of plagiarism and any other activities that result in a student presenting work that is not really his or her own are considered academic fraud. Academic fraud includes these and other misrepresentations:

- presentation of ideas from any sources you do not credit;
- the use of direct quotations without quotation marks and without credit to the source;
- paraphrasing information and ideas from sources without credit to the source;
- failure to provide adequate citations for material obtained through electronic research
- downloading and submitting work from electronic databases without citation;
- participation in a group project which presents plagiarized materials;
- taking credit as part of a group without participating as required in the work of the group;
- submitting material created/written by someone else as one's own, including purchased term/research papers;

Cheating on examinations and other work also interferes with your own education as well as the education of others in your classes. If you are unclear about the guidelines for any testing situation or assignment, you should discuss your questions with the instructor. Academic cheating includes all of the following, and any other activities that give a student an unfair advantage in course work.

- copying from someone else's exam, homework, or laboratory work;
- allowing someone to copy or submit your work as his/her own;
- accepting credit for a group project without doing your share;
- submitting the same paper in more than one course without the knowledge and approval of the instructors involved;
- using notes, text messaging, cell phone calls, pre-programmed formulae in calculators, or other materials during a test or exam without authorization;
- not following the guidelines specified by the instructor for a "take home" test or exam.

When an instructor in the College of Liberal Arts and Sciences suspects a student of academic fraud or cheating these procedures will be followed:

- The instructor (or supervisor, if the instructor is a teaching assistant) must inform the student--in a printed letter--as soon as possible after the incident has been observed or discovered.
- If the instructor comes to the conclusion that the student academic fraud or cheating has occurred, he or she (in consultation with the supervisor if the instructor is a teaching assistant) will determine what action to take. The instructor may decide to reduce the student's grade on the assignment or activity, or in the course, or even to assign an F for the assignment or activity or for the course
- The instructor will send a written report of the case to the Associate Dean for Academic Programs and send copies of the report to the DEO and to the student(s) involved
- The associate dean for academic programs will impose the following or other penalties: disciplinary warning until graduation (usually for a first offense); suspension from the college for a calendar year or longer (usually for a second offense); or recommendation of expulsion from the University by the president (usually for a third offense).

If a student believes that the finding of academic fraud or cheating is in error or the penalty unjust, he or she may request information on appeal procedures from CLAS Academic Programs & Services, 120 Schaeffer Hall.

Administrative Home
The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Academic Policies Handbook at http://clas.uiowa.edu/students/handbook.

Electronic Communication
University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences (Operations Manual, III.15.2, k.11).

Accommodations for Disabilities
A student seeking academic accommodations should first register with Student Disability Services and then meet privately with the course instructor to make particular arrangements. See www.uiowa.edu/~sds/ for more information.

Academic Honesty
All CLAS students have, in essence, agreed to the College's Code of Academic Honesty: "I pledge to do my own academic work and to excel to the best of my abilities, upholding the IOWA Challenge. I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty." Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled (CLAS Academic Policies Handbook).

CLAS Final Examination Policies
The final examination schedule for each class is announced around the fifth week of the semester by the Registrar. Final exams are offered only during the official final examination period. **No exams of any kind are allowed during the last week of classes.** All students should plan on being at the UI through the final examination period. Once the Registrar has announced the dates and times of each final exam, the complete schedule will be published on the Registrar's web site.

Making a Suggestion or a Complaint
Students with a suggestion or complaint should first visit with the instructor (and the course supervisor), and then with the departmental DEO. Complaints must be made within six months of the incident (CLAS Academic Policies Handbook).

Understanding Sexual Harassment
Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI Comprehensive Guide on Sexual Harassment for assistance, definitions, and the full University policy.

Reacting Safely to Severe Weather
In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Department of Public Safety website.