# ENTOMOL 697: Field Research in Ecology (Special Topics)
# 3 credits

**Instructor:** Dr. Lynn Adler, lsadler@ent.umass.edu, 5-1060, 204C Fernald Hall
**Time schedule**: TBA
**Additional requirements**: Instructor consent required.
**Notes:** Participants will spend one week at Harvard Forest in late August; students pay room and board
**Course limit**: 10 students
**Classroom**: Fernald 201
**Office hours**: TBA

**Course Description:** Students will conduct individual research projects based on testing hypotheses developed from observations in a field setting. The majority of class time will be spent during a week at a field station prior to the Fall semester. During the semester, we will review the main types of experimental design and data analysis used by ecologists. Each student will be responsible for a paper and presentation based on their research and for peer-reviewing other's work. This class should provide a foundation for many of the necessary skills of an ecologist or organismal biologist.

**Textbook (required):** Scheiner and Gurevitch, Design and Analysis of Ecological Experiments, 2nd ed.

**Suggested supplemental texts:**

Littell, R.C, Stroup, W.W. and R. J. Freund. 2002. SAS for linear models. Fourth Edition. The SAS Institute.

Delwiche, L. D. and Slaughter S. J. 1996. The little SAS book: a primer. Second Edition. The SAS Institute.

Additional readings will be handed out in class.

**Grading scheme**: Grade will be based on class participation (25%; includes attendance, homeworks, involvement in discussion, and peer critique of talks and papers); first draft of written paper (25%; includes correct analysis and presentation of data), final draft of paper (25%), and oral presentation (25%).

**Grading details**: Students are responsible for designing, conducting, analyzing, writing up and presenting an independent research project. Papers must be written in the format of an Ecology manuscript (instructions will be provided) and include at least 15 citations. Oral presentations should be 12 minutes and will be cut off after 15 minutes. Both papers and presentations will be peer-critiqued by the class; providing this feedback is an important component of your grade. Papers will be revised based on comments and you will be graded on both the first and final draft.

## Course Outline

The majority of course time is spent during the week before the semester starts. We will stay at a field station and work all day every day, from approximately 8 am to 10 pm (with meal breaks). Therefore we will meet only once a week for 90 minutes during the semester.

| **Week** | **Topic** | **Reading** |
|---|---|---|
| Sept 15 | Experimental design and power analysis | Chpts. 1 and 2 |
| Sept 22 | No class – Lynn gone | |
| Sept 29 | Correlation, Regression | handout |
| Oct 6 | Regression continued and multiple regression | Chpt. 9 |
| Oct 13 | ANOVA | Chpt. 4 |
| Oct 20 | ANOVA and ANCOVA | Chpt. 5 |
| Oct 27 | MANOVA | Chpt. 6 |
| Nov 3 | Repeated-measures analysis | Chpt. 8 |
| Nov 10 | Blocking; fixed and random factors | Newman *et al*. 1997 |
| Nov 17 | No class; write paper | |
| Nov 24 | THANKSGIVING - No class; write paper | |
| Dec 1 | Papers due in class; **bring copies for everyone**<br>Bonferroni corrections | Rice 1989<br>Moran 2003 |
| Dec 8<br>**6 pm** | Peer critique of papers | |
| Dec 15<br>**6 pm** | 15 minute presentations; peer critique<br>**REVISED papers due; bring 3 copies** | |