Outline of the day

- Overview of LB144 labs
- Conducting scientific research through hypothesis testing
- Hypos, hypos, hypos…
- Ex 2
What do I need for lab?

- Lab course pack = lab manual
- Lab notebook
- To stay up-to-date on Lon-Capa
- An engaged and prepared mind

Details in the lab syllabus

Lab Learning Goals

- Science process skills
- Effective and cooperative teamwork
- Communication
  - Speaking
  - Reading
  - Writing
  - Thinking

How to Achieve these Goals?
What will we do during lab?

DO SCIENCE!!!
We learn everything in life by practicing it!
We’ll do science in teams and individually.

How will we be assessed in lab?

- Pre-lab quizzes (collected 10 min after start)
- Random notebook checks
- Performance-based assessments
- Individual and team exercises (1-22 in c-pack)

Details in the lab syllabus
So, what is LB144 lab really like?

- Three weeks of prep, intro to:
  - Biology [and ecology] research
  - Working in research teams
- Eleven weeks of team-based research, culminating in a poster poster

How do we conduct biology research?

2 main scientific approaches:

1. Discovery, descriptive, exploratory science
2. Mechanistic, experimental, predictive science
Hypothesis-driven science

WORD BANK:
- Hypotheses
- Literature Review
- Observations
- Data analysis/summary
- Communicate
- Research Proposal
- Predictions
- Questions
- Test (Experiments or Observations)
- Communicate

Hypotheses & the score card

-Pay attention to the differences between
  1) Explanatory hypothesis
  2) Null hypothesis
  3) Alternative hypothesis
  4) Predictions
Hypothesis formation using: birch beetles

Hypothesis formation using:
- observations
- questions
Hypothesis formation using: termites

Turn in one completed Ex 2 per team before you leave

Homework

- **Complete**: Team-maker survey
  - You will receive an email with instructions
  - Complete by midnight Sunday (on own)
- **Carefully Read**: c-pack pg 31, pp 37 & Smith 2007 ch 2 (1st ch in the handout)
- **Complete**: Ex 3a
- **Pre-read**: Ex 3b, Ex 5, Ex 6
  - Exercise 1 due November 14