

Laboratory sections: L01 (Tuesday) and L02 (Thursday); 4:00-5:40 PM, Biology 130

Additional field location: Because the scheduling of lab activities is subject to variables including the weather, **the lab itinerary, including field days, may be changed.** You will be notified of any changes to the schedule.

Projected laboratory schedule

Lab 1: Statistics and data analysis exercise, resources, and application for greenhouse experiment

Lab 2: Greenhouse experiment (shade leaf and sun leaf grass experiment)

Lab 3: Greenhouse experiment (radish, nitrogen, and allocation)

Lab 4: Russian olive and soil nitrogen, nitrogen cycle (with field sampling)

Lab 5: Phenology – passive warming chamber on campus (with field sampling)

Lab 6: Field vegetation survey and aspect (with field sampling)

Week	Lab dates	Itinerary
1	1/16, 1/18	Introduction to laboratory Discussion of semester project – funding proposal Lab 1: Introductions, how to read a scientific paper, set up greenhouse
2	1/23, 1/25	Lab 2: Intro and setup: Sun and shade leaf lab & basic statistics for analysis
3	1/30, 2/1	Lab 3: Intro: Radish and nitrogen enrichment, deploy passive warming chambers
4	2/6, 2/8	Lab 4: Intro: Nitrogen cycling, fixation, and the ecological implications <i>Time to work on pre-proposals</i>
5	2/13, 2/15	Lab 4: Soil sample collection – at field site
6	2/20, 2/22	Lab 4: Soil prep in lab for total nitrogen analysis <i>Due: 1-page pre-proposal (hard copy)</i>
7	2/27, 2/29	Lab 5: Short grass steppe field trip? Phenology measurements
8	3/5, 3/7	Lab 5: Short grass steppe field trip? Phenology measurements
9	3/12-3/14	Spring Break (March 14-18)
10	3/19, 3/21	Lab 4 & 5: Photosynthesis measurements of sun-shade grass experiment & phenology
11	3/26, 3/28	Lab 3: Radish harvesting and data collection
12	4/2, 4/4	Data analysis (lab groups choose data set to work with) Lab 6: Intro: field measurements & methods (field trip?) <i>Due: Full proposal</i>
13	4/9, 4/11	Lab 6: Field vegetation survey
14	4/16, 4/18	Lab 2,3,4,5: Synthesis of analyses
15	4/23, 4/25	Proposal Presentations
16	4/30, 5/2	Proposal Presentations

Tentative points breakdown:

100 points – **NSF grant proposal**

40 points – **Lab 1**

40 points – **Lab 2**

40 points – **Lab 3**

40 points – **Lab 4**

30 points – **Lab 5**

40 points – **Lab 6**

Total points possible in lab: 330

Note: Points for labs are subject to change depending on how experiments progress (*e.g.* working in natural systems is unpredictable!)

Contact information:

- **TA: Matt Sturchio**
- **Office: Biology 339 (Research Lab 3rd floor Biology Building)**
- **E-mail: matthew.sturchio@colostate.edu (please use BZ 450 Lab in the subject line)**
- **Office Hours: Mondays 9-10 AM, Fridays 8-10 AM, or by appointment**

Laboratory Materials:

Canvas: Registered students have automatic access to the Canvas page where grades, readings, and resources will be posted. Folders and links will be posted containing materials for each laboratory, including readings, spreadsheets, shared class data, and other resources.

Excel: Data analysis and presentation will be done in Microsoft Excel or R. If you do not have home access to Excel, it is available on campus computers. R is an open access data analysis software. As a CSU student, you get FREE access to the entire MS office suite (Word, Excel, Powerpoint, etc.)

PowerPoint: Semester project presentations will be composed on PowerPoint. Like Excel, PowerPoint is available on campus computers.

Grading Policy: The lab is weighted to 40% of the final grade, including the semester project. The remaining 60% of the overall grade will be based on lecture assignments (exams, homework, and discussions). Adjustments to the lab schedule may be made through the semester.

Questions about lab grades should be addressed with your TA within one week of your receipt of your grade.