

Earth System Science Field Methods (ESS 114)

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No textbook. Handouts, readings and lab materials will be distributed in class.

Class will meet twice a week:

1-hour lecture on Wed 11-1150 in Croul Hall 1103

3-hour fieldwork or lab on Monday afternoon 2-5

Grading: Based on lab write-ups. Grade will include participation in labs.

Marsh fieldwork: We will meet at arboretum parking lot as announced. Wear old cloths and boots or sneakers. Don't be surprised if you get wet. Wear insect repellent - there are lots of mosquitoes. Wear sunscreen and/or a hat. Bring notebook and water.

Introduction

April 5 Lab Class overview; what makes a good measurement; prepare peepers (Goulden)

Analytical techniques

April 7 Lec What makes a good measurement; Winkler demonstration (Reeburgh)

April 12 Lab Tour of Marsh (Goulden)

April 14 Lec Overview of soil and sediment geochemistry (Reeburgh)

April 19 Lab Measure redox potential, iron and sulfide in pore water (Goulden)

April 21 Lec Techniques for measuring fluxes (Goulden)

April 26 Lab Collect air samples for CH₄ in chambers (Reeburgh)

April 28 Lec Gas chromatography (Reeburgh)

May 3 Lab Analyze samples for CH₄ by Gas chromatography (Reeburgh)

Sampling

May 5 Lec Spatial and temporal heterogeneity (Goulden)

May 10 Lab Spatial sampling of biomass (Goulden)

Integrated measurement systems

May 12 Lec Introduction to leaf gas exchange (Goulden)

May 17 Lab Leaf gas exchange measurements with LiCor 6400 (Goulden)

May 19 Lec Introduction to electronics (Goulden)

May 24 Lab Introduction to data acquisition (Goulden)

May 26 Lec Build sap flow sensors (Goulden)

June 2 Lec Begin Independent Projects (Goulden)

June 7 Lab Independent Projects (Goulden)

June 9 Lab Independent Projects (Goulden)