WETLAND ECOLOGY
BIOLOGY 4430

FALL 2014

Instructor: Dr. Peter Lee
Technician: Dr. Susanne Walford

Wetlands are not conventional wild areas. They do not cater to established, classical concepts of vista, horizon, and landscape. By comparison with the Smokies or the High Sierra, wetlands are claustrophobic. They force you inward, both upon yourself and upon the nonhuman world. They do not give you grand views; they humble you rather than reinforce your delusions of grandeur.

-P.A. Fritzell

...snakes hang thick from the cypress trees like sausage on a smokehouse wall; where the swamp is alive with a thousand eyes and all of them watching you...

-Jim Stafford

Cover image: Collecting wetland plants at Hurkett Cove Conservation Area. Class of 2012.

Contents

1 Syllabus 2014

1.1 Required materials

Required materials include this lab manual and the textbook **Wetlands** published by Wiley. The 3rd edition (Mitsch and Gosselink, 2000) is adequate. The 4th edition (Mitsch and Gosselink, 2007) has dropped some sections from the 3rd edition that Dr. Lee feels are an integral part of the course. These sections can be found (for free) in the companion site for students (http://bcs.wiley.com/he-bcs/Books?action=index&itemId=0471699675&bcsId=3998) as "bonus" chapters. A 5th edition is slated for 2015 (Mitsch and Gosselink, 2015), so purchase a 4th edition with caution.

Pre-printed labels for your plant collection are required and available in the bookstore for under $2.00. You will also require at least 30 sheets of thicker quality, acid free paper (11.5×17 in) for mounting your plant collection.

Consider using a field notebook during our trips to make notes about the plants for your collection. A waterproof book and pencil are ideal for wet conditions. Scrap paper can be used as labels to be placed in plastic bags during plant collection (use pencil; pen will rub off).

Newmaster et al. (1997) is recommended and is an excellent field guide; bring it with you to the field! A copy is on reserve at the library. Another reference is Racey et al. (1996) which is now available as a PDF at http://cfs.nrcan.gc.ca/publications?id=9298. A few of its pages are included here as a quick reference guide. An online northern Ontario plant database can be found at http://www.northernontarioflora.ca/index.cfm. Additional resources may be provided via the course website hosted on Desire to Learn.

1.2 Lecture topics

Professor: Peter F. Lee
Office: CB4022
Email: peter.lee@lakeheadu.ca

Lectures are scheduled for Mondays 10:30 am and Thursdays 2:30 pm in CB3013. The following topics will be covered:

1. Importance and classification of wetlands
2. Sediment chemistry of wetlands: Redox, N, P, organic matter
3. Water chemistry: Carbonate cycle, N, P
4. Production and adaptation of aquatic plants
5. Secondary production
6. Decomposition processes
7. Succession in wetlands
8. Sampling of wetlands
9. Survey of wetland types: Salt marshes, tidal freshwater marshes, freshwater marshes, southern swamps, bogs
10. Management of wetlands: Case studies

Midterm Exam Date: TBD

Final Exam Date: As per scheduling.

1.3 Lab dates and topics

Technician: Susanne E. Walford
Office: CB3014A
Email: swalford@lakeheadu.ca

Teaching Assistant: TBD

Labs are Thursday afternoons, although a SATURDAY FIELD TRIP FOR WILD RICE HARVESTING is new this year! All field trips are mandatory; dress appropriately (Section 1.6.1.) There are **NO lectures** field trip days as we leave at 2:30 pm (still assemble in CB3013). We will return to Lakehead University by 6:30 pm.

Table 1.1: Laboratory schedule for Fall 2014.

Lab	Date	Description	Location
Lab 1	Sept. 11	Introduction & Safety	CB3013
Lab 2	**SAT. SEPT. 13**	FIELD TRIP: Wild rice harvesting	Whitefish Lake
Lab 3	Sept. 18	FIELD TRIP: Inland wetlands	Boreal Rd.
Lab 4	Sept. 25	FIELD TRIP: Lake Superior wetlands	Hurkett Cove
Open Lab	Oct. 2	Plant mounting and Group project	CB3013
Open Lab	Oct. 9	Plant mount, ID and Group project	CB3013
Lab 5	Oct. 16	ECOTYPES: Meadow marsh, sheltered marsh, exposed marsh, open water marsh	CB3013
Lab 6	Oct. 23	ECOTYPES: Treed fen, open poor fen, open moderately rich fen, open extremely rich fen, shore fen	CB3013
PLANT TEST 1	**Oct. 30**	**Labs 5, 6**	CB3013
Lab 8	Nov. 6	ECOTYPES: Treed bog, open bog	CB3013
Lab 9	Nov. 13	ECOTYPES: Poor swamp, intermediate swamp, rich cedar swamp, rich black ash swamp, thick swamp	CB3013
PLANT TEST 2	**Nov. 20**	**Labs 8, 9**	CB3013
ANNOUNCEMENT	**Nov. 24**	Public notice for project (1 page)	CB3013
GROUP PROJECT	**Due Nov. 27**	STUDENT PRESENTATIONS	CB3013
PLANT COLLECTION	**Due Dec. 1 12:30 pm**	Individual collection	CB3027

1.3.1 Wild rice harvesting

We will depart Lakehead University from the Agora at 9 am and return at approximately 5 pm. Exact times TBD. You will need to bring a lunch and dress for the weather (which can change quickly). Harvesting will be done with First Nation peoples either by canoe and/or airboat. Since this is the first year for this field trip, details are pending.

1.4 Mark breakdown

- Lecture component
  - Midterm exam: 15%
  - Final exam: 35%
- Lab component
  - Wetland plant identification tests (two): 15%
  - Wetland plant collection: 15%
  - Wetland group project: 20%

1.5 Suggested review material

It is likely some time since first year plant biology. You should review basic botany, including nomenclature, taxonomy and terminology (e.g. parts of a plant). Any first year plant biology textbook will suffice. Botany Illustrated (free if logged into library system) may help: http://www.springerlink.com/content/w3107p/?MUD=MP (Glimn-Lacy and Kaufman, 2006) The sections on "Names and Terms", "Root Types and Modifications", "Stem Modifications", "Leaf Types and Arrangement" and "Leaf Modifications" would aid in plant identification. Plant families for the plants in the study sets are also of value.

1.6 Safety considerations

Students will be given a safety orientation for the biology labs. You must know the location of eye wash stations, safety showers, fire exits, fire pull stations, fire blankets, first aid kits, emergency