Limnology
ECOL/FISH/WASR 4310/6310
Syllabus Fall 2009

Labs marked with an * means that you are going out in the field. Wear clothing appropriate for field work!

Date	*Lecture Topic*	*Text Reading Assignment*

Section 1: Physical and chemical dynamics of freshwater ecosystems

Week of Aug. 17

Lab 1: *Lab overview; What we will do this semester, introduction to lake study and sampling equipment. Make up litterbags.*

Primary literature assignment for this week: Baron et al. 2002 – please read it prior to lab if possible!

Lectures:

Aug. 17	Lecture 1 - Introduction to limnology	Ch. 1
Aug. 19	Lecture 2 – Physical properties of water	Ch. 2,3

Week of Aug. 24

Lab 2: *Overview of Stream Projects and Stream Project field procedures. Put out litterbags*. Choose the stream that you will use for your term stream project.*

Primary literature assignment for this week: Poff et al. 1997

Lectures:

Aug. 24	Lecture 3 - Hydrology and physiography of wetlands and flowing waters	Ch. 4,5
Aug. 26	Lecture 4 - Physiography of lakes	Ch. 6

Week of Sept 1

Lab 3*: Stream periphyton and Interactions between geomorphology and ecology **.

Primary literature assignment for this week: Walter and Merritts 2008

Labor holiday on Monday - No Lab this week!

Lectures:

Aug 31	Lecture 5 - Southeastern reservoirs	Porter et al. 1996
Sept 2	Lecture 6 - Chemistry controlling nutrient cycling	Ch. 11

Week of Sept 7

Labor holiday on Monday - No Lab this week!

Lectures:

Sept. 7	No class	
Sept. 9	Lecture 7 – Carbon dynamics in freshwater ecosystems	Ch. 12

Week of Sept. 14

Lab 4: *Lake field trip* *

Primary literature assignment for this week: none

Lectures:

Sept. 14	Lecture 8 - N, S, P and other nutrients	Ch. 13
Sept. 16	Exam 1	

Section 2: Freshwater organisms and sources of change to freshwater ecosystems

Week of Sept. 21

Lab 5: *A review of basic chemistry for limnology; pH, SRP and alkalinity from lake study. Collect week 4 litterbags.*

Primary literature assignment for this week: Knoll et al. 2003

Lectures:

Sept. 21	Lecture 9 - Toxins and pollutants	Ch. 14
Sept. 23	Lecture 10 – Urbanization and effects on aquatic systems	Walsh et al. 2005

Week of Sept 28

Lab 6*: Phytoplankton and chlorophyll analyses from lake study; Review of data analysis required for lake study report.*

Primary literature assignment for this week: Winder and Schindler 2004

Lectures:

Sept 28	Lecture 11 - Heterotrophic microorganisms in lakes and streams	Ch.s 7, 8 & Meyer 1994
Sept 30	Lecture 12 - Primary producers in lakes and streams	Ch.s 7, 8 & 11 (just pp. 214-228)

Week of Oct 5

Lab 7: *Zooplankton identification and counting, Lake study data analyses. Review of guidelines for writing lake study report.*

Primary literature assignment for this week: Strayer et al. 1999

Lectures:

Oct. 5	Lecture 13 – Consumers in streams (C.J. Tant)	Ch. 9
Oct. 7	Lecture 14 - Consumers in lakes	Ch. 9, 10

Week of Oct. 12

Lab 8*: Lake papers due in lab / Aquatic insect identification, Bioassessment and calculation of biotic indices.*

Primary literature assignment for this week: McIntyre et al. 2007

Lectures:

Oct. 12	Lecture 15 – Fish Ecology (Dr. M. Freeman)	as assigned
Oct. 14	Lecture 16 – Nutrient use / stoichiometry	Ch. 16

Week of Oct. 19

Lab 9*: Collect week 8 litterbags. Litterbag processing.*

Primary literature assignment for this week: Creed et al. 2009

Lectures:

Oct. 19	Exam 2	
Oct. 21	Lecture 17 - Eutrophication	Ch. 17

Section 3: Ecology and interactions among freshwater organisms and functioning of freshwater ecosystems

Week of Oct. 26

Lab 10*: Stream Project Insect Identification.*

Primary literature assignment for this week: Smith and Schindler 2009

Lectures:

Oct. 26	Lecture 18 – Microbial interactions	Ch. 18
Oct. 28	Lecture 19 – Herbivory, detritivory, omnivory	Ch. 19

Week of Nov. 2

Lab 11*: Piedmont fishes – biodiversity and habitat-specificity**

Primary literature assignment for this week: Taylor et al. 2006

Lectures:

Nov. 2	Lecture 20 - Predation in lakes and streams (C. Small)	Ch. 19
Nov. 4	Lecture 21 – Community ecology	Ch. 20

Week of Nov. 9

Lab 12*: Fecal coliform analyses for stream projects. Stream periphyton analyses (stream project samples).*

Primary literature assignment for this week: Hall et al. 2003

Lectures:

Nov. 9	Lecture 22 - Food webs	Wallace et al. 1997, Rosi-Marshall and Wallace 2002
Nov. 11	Exam 3	

Week of Nov. 16

Lab 13: *LAB PRACTICAL*

Lectures:

Nov. 16	Lecture 23 – Invasive species	Baxter et al. 2004
Nov. 18	Lecture 24 - Tropical vs temperate ecosystems (Dr. A. Covich)	as assigned

Week of Nov. 23

No Lab and no class/ Thanksgiving Break

Week of Nov. 31

Lab 14: *Stream project papers due in lab / Oral reports given in lab*

Primary literature assignment for this week: none

Lectures:

Nov. 30	Lecture 25 – Stream ecosystems	Ch. 22 and Dent et al. 2002
Dec. 2	Lecture 26 - Lake Ecosystems	Ch. 22 and Dent et al. 2002

Week of Dec. 7

No Lab

Dec. 7	Lecture 27 - Restoration of aquatic ecosystems	- Bernhardt et al. 2005

Important Dates:

Aug 17 – Classes start

Sept 7 – Labor day

Oct 12, 14 – Lake project papers due in lab

Nov 23-27 - Turkey Days

Nov 30, Dec 2 – Stream project papers due in lab

Dec 14 – Final Exam, 8-11 am

Dec 18 – Grades due