Limnology – Biol/Fish 473
(Autumn 2010)

INSTRUCTOR: Daniel Schindler, 320A Fishery Sciences, deschind@uw.edu
OFFICE HOURS: F 10:00-11:30 or by appointment

TEACHING ASSISTANTS:
Brooks Miner, 442 Kincaid Hall, miner@uw.edu, OFFICE HOURS: Tues 3:00-4:00
Peter Lisi, 358A Fishery Sciences, pjlisi@uw.edu, 221-6884, OFFICE HOURS: T 1:00-2:30

TEXT (optional)[1]: Limnology (2nd edition), by A.J. Horne and C.R. Goldman1994, McGraw-Hill.
LECTURES: M,W,F (1:30 – 2:20) in the (New) Fishery Sciences Building, Room 102

Biology/Fish 473 (***Limnology***) provides an overview of the physical, chemical and biological processes that characterize inland waters. This course will introduce some of the dominant biota of lakes, rivers and streams, and how they are related to physical and chemical processes of the systems in which they reside. A series of *case studies* will also be presented to highlight the interdisciplinary nature of this science and its application to environmental problem solving and conservation.

GRADING SCHEME:

	Percent of final grade	Date
EXAMS		
Midterm[3]	25	F October 29
Take home[4]	15	W December 1
Final	45	M December 13
Term paper	15	F November 12

All class notes for this course are available on the following website:
https://depts.washington.edu/schind/notes.html
You will need to enter your UW NetID and password to gain access to the class notes. We strongly recommend that you review the material for each lecture before class. You will probably want to print the notes and bring them to class to use during the lecture.

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[1] **The following books are on reserve at the Undergraduate Library**:
- *Limnology* (3nd edition) by R.G. Wetzel, 1983
- *Limnology* (2nd edition) by A.J. Horne and C.R. Goldman, 1994
- *Limnoecology* by W. Lampert and U. Sommer, 1997
- *Textbook of Limnology* (4th edition) by G.A. Cole

[3] Inclusive of material from Sept. 29 – Oct. 25.
[4] Students will have about 2 weeks to finish

COURSE OUTLINE

TOPIC	READING (pages in Horne&Goldman)	DATE
Introduction, history, relevance	1-26	Sept 29
PHYSICAL LIMNOLOGY		
Lake types, origins and morphometry	457-464	Oct. 1
Light, Water Color, Heat	26-46	4
Lake Stratification and Mixing	47-69	6
Water Movements	70-99	8
CHEMICAL LIMNOLOGY		
Overview of lake chemistry	100-108	11
The phosphorus cycle	152-171	13
Oxygen in lakes	115-132	15
Case study: Lake Washington – a history of sewage pollution, Seattle politics, and lake recovery	paper	18
The nitrogen cycle	133-151	20
pH and acid neutralizing capacity, carbon dioxide in lakes	117-122, 106-113	22
Biogeochemistry and the iron, sulfur and silica cycles	131-132, 172-192	25
BIOLOGICAL LIMNOLOGY		
Fishes	193-225	27
Midterm exam		**29**
Zooplankton	265-291	Nov. 1
Case study: The take-over of the Laurentian Great Lakes by exotic species	paper	3
Phytoplankton	226-236, 345-350	5
Plankton community dynamics	236-249, 269-282	8
Primary production	350-355, paper	10
Aquatic macrophytes and littoral zone productivity	204-209,264	12
AN EXPANDED VIEW OF LIMNOLOGY		
Wetlands	408-432	15
Case study: Historical trends and the future of freshwater in the Pacific Northwest (Dr. Nate Mantua)	paper	17
Rivers and streams	356-407, paper	19
Paleolimnology	464-475	22
Acid rain	106-113, paper	24
Thanksgiving week – no class		26

HUMAN INTERACTIONS WITH AQUATIC ECOSYSTEMS

Salmon and marine-derived nutrients in coastal systems		29
Case study: Conserving endangered salmon in the Pacific Northwest (Dr. Mark Scheuerell, NOAA)	paper	Dec. 1
Persistent toxic chemicals	paper	3
Case study: Conflicts between conserving biodiversity and providing food and jobs for people in Lake Victoria, East Africa	paper	6
Global change and freshwater issues of the future	paper	8
Review session for final exam	paper	10
Final Exam[4] (2:30 – 4:20)		**13**

[4] Final exam is comprehensive