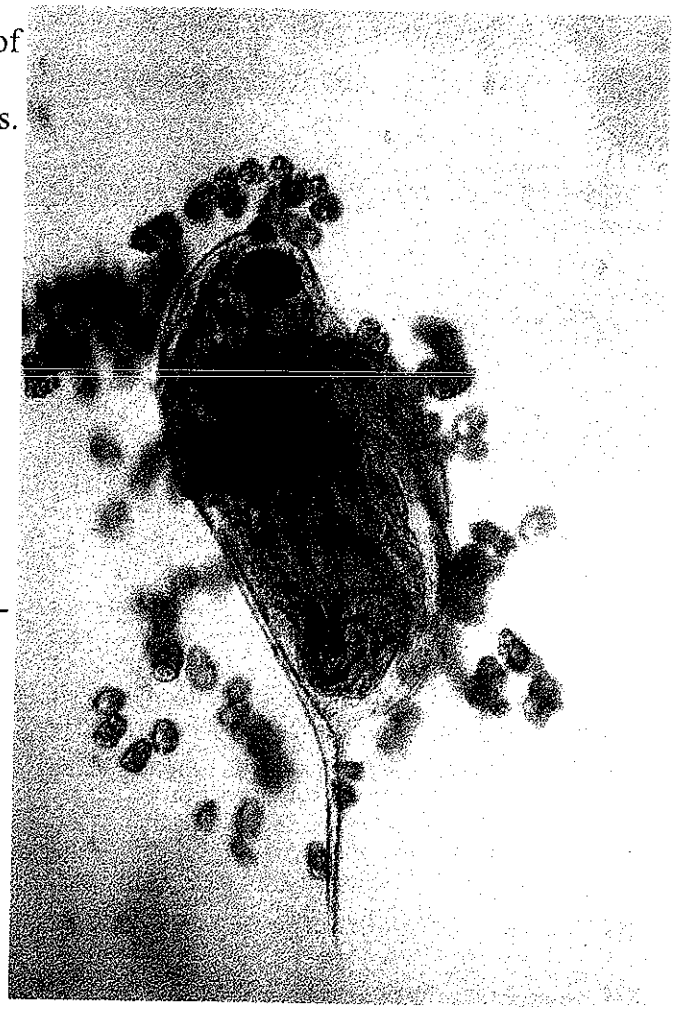
Biology 321 – Introduction to Aquatic Biology – Spring 2015

Dr. Stephen Threlkeld, Professor of Biology; 328 Shoemaker; 662-915-5803; stt@olemiss.edu; Office hours: MW 9-10:30 am, or by appointment.

Catalog Description of Course Objectives Principles of freshwater biology with emphasis on factors affecting ecology and populations in diverse aquatic environments.



Required course readings Moss, Brian. 2010. Ecology of Freshwaters: A view for the twenty-first century. 4th edition. Blackwell Scientific [or 2nd or 3rd editions]; McPhee, John. 2002. The Founding Fish. Farrar, Straus, and Giroux; and other readings as assigned.

Course grading Grades will be based on up to pop quizzes (10%), a midterm exam (20%), laboratory participation and reports (30%), and a final comprehensive examination (40%). Your grade will be the better of two grades determined on the following scales: Scale 1: A, > 90%; B, 80-89%; C, 70-79%; D, 60-69%; F, < 60%; Scale 2: A, > 1.5 standard deviations above the mean; B, from 0.5 to 1.5 standard deviations above the mean; C, $\pm$ 0.5 standard deviations from the mean; D, from 0.5 to 1.5 standard deviations below the mean; F, > 1.5 standard deviations below the mean.

Make-up exams A single comprehensive make-up exam will be given immediately after the final exam for anyone who missed the midterm exam for any reason. None of the laboratories can be made up, and there will be no make-ups given for missed pop quizzes).

Schedule of lectures (MW, 11-11:50 am, 408 Shoemaker), reading assignments (in parentheses), and laboratories (Tu, 1-3:50 pm, 205 Shoemaker or at other designated locations); lecture and lab notes and handouts are available on blackboard.

- **21 Jan** Introduction; course objectives and requirements

- **26 Jan** Physical characteristics of water and constraints on life (Ch.2 & 3)
- **27 Jan** Lab 1: Hypothesis testing -- thermal stratification in standing waters
- **28 Jan** The chemistry of freshwater (Ch.4)

- **2 Feb** Light and temperature (Ch. 5)(FF: 1,2)
- **3 Feb** Lab 2: Scientific report writing
- **4 Feb** Evolution and diversity of freshwater organisms (Ch.6)

- **9 Feb** Headwater streams and rivers (Ch.7; FF: 3,4)

- **10 Feb** Lab 3: Data analysis -- hydrological variation from cypress tree rings
- **11 Feb** Degradation of upland streams (Ch. 8)

- **16 Feb** Middle stage and depositional floodplain rivers (Ch. 9 & 10; FF: 5)
- **17 Feb** Lab 4: Stream environments
- **18 Feb** Floodplain Ecosystems

- **23 Feb** Floodplains, continued (FF: 6)
- **24 Feb** Lab 5: Reservoirs
- **25 Feb** Reservoirs: life in river-lake hybrids (FF: 7)

- **2 Mar** Reservoirs, continued
- **3 Mar** Lab 6: Newspaper reports on reservoirs
- **4 Mar** *Midterm Exam*

- **9-13 Mar** Spring Break

- **16 Mar** Lakes and other standing waters (Ch. 11; FF:9, 10)
- **17 Mar** Lab 7: Field Station
- **18 Mar** Paleolimnology (FF: 11)

- **23 Mar** Paleolimnology, continued (FF: 12)
- **24 Mar** Lab 8: Field Station
- **25 Mar** The communities of shallow waters (Ch. 12)

- **30 Mar** Communities of the pelagic zone (Ch. 13)
- **31 Mar** Lab 9: North Mississippi Fish Hatchery
- **1 Apr** Nutrients, algal succession and grazing (FF: 13)

- **6 Apr** Predation and open water communities (FF: 14)
- **7 Apr** Lab 10: Water and Sewage Treatment
- **8 Apr** Freshwater fishes, biomanipulation and water quality (FF: 15)

- **13 Apr** Benthic-pelagic interactions (Ch. 14)
- **14 Apr** Lab 11: Newspaper accounts of water or sewage treatment
- **15 Apr** Fish production and freshwater fisheries (Ch. 16; FF: 16)

- **20 Apr** Biomanipulation for fisheries and water quality
- **21 Apr** Lab 12: Discussion of John McPhee's book The Founding Fish
- **22 Apr** Paleolimnology and the history of lakes (Ch. 10)

- **27 Apr** Aquatic biogeography and exotic species
- **28 Apr** Lab 13: Debate on Issues in Aquatic Ecology
- **29 Apr** Climate change and the future of aquatic habitats (Ch. 11)

- **4 May** Final examination, Noon, Monday

Last Modified: Tuesday,20 January 2015