

**Limnology**  
**PCB 5307C, Section 6336Z**  
**Spring 2015**  
**Lectures M,W Periods 6-7 (12:50-2:45 PM)**  
**Williamson Hall Room 210**

**This course examines physical, chemical, and biological aspects of inland waters, with a focus on tropical and subtropical lakes, rivers, and springs. Field excursions will be scheduled for class times and several Saturdays.**

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Office Hours: Wednesday 3:00-5:00 PM

Text: Gerald A. Cole "Textbook of Limnology" (4th ed.)  
Reprints: Made available for specific topics

Course Introduction (Chapters 1, 2, 3).  
Schedule (lectures, fieldtrips)  
Objectives of class and background of students  
Defining limnology  
History of limnology and major contributors  
Sources of information (books, journals, websites, organizations)

Lake origins and ages (Chapter 6)  
Solution, playa, tectonic, glacial, biogenic, fluvial, volcanic, impact craters, artificial

Lake morphometry (Chapter 7)  
Bathymetry, morphometric measures  
Shoreline development and other watershed/lake relations

Hydrology (hydrologic types)  
Inputs/outputs, seepage/drainage  
Lake levels

Light (Chapter 9)  
Light penetration  
Dissolved color  
Absorption (pigments)  
Suspended inorganic particles  
Euphotic/aphotic zones

Thermal stratification (Chapter 10)

- Density, temperature, salinity, stability
- Annual circulation patterns
  
- Heat Energy/Water movements (Chapter 11)
  - Heat budgets, waves, seiches
  
- Dissolved gases (Chapter 12)
  - Oxygen and carbon dioxide
  - Methods of measurement
  - Gases and circulation patterns
  
- Lakewater chemistry and the carbonate system (Chapter 13)
  - pH, alkalinity, the CO<sub>2</sub> system
  - Lake acidification and alkalization
  
- Major ions in lakes (Chapter 14)
  - Specific conductance, TDS, individual ions
  
- Nutrients, and minor chemical constituents (Chapter 15)
  - Carbon, nitrogen, phosphorus
  
- Primary producers (Chapters 4, 5)
  - Phytoplankton and macrophytes
  - Zooplankton
  - Benthic organisms
  - Larger consumers
  
- Lotic systems (Chapter 8)
  - Springs, rivers
  - Estuaries, coastal lagoons
  
- Human impacts on aquatic systems
  - Hydrology, eutrophication, contamination, exotic introductions
  
- Paleolimnology (Review Chapter 2)
  - Paleoclimate
  - Human impacts
  - Florida paleo case studies
  - Tropical paleolimnology

(Take-home exam) – This is an open-book, take-home exercise and students can use any resources to complete the problems and answer questions. It is generally given after spring break and students have ample time to complete the exam.

Each student will complete a field project, research report, or “proposal.” The results of this exercise will be presented to the class orally during the last week of the course or finals week. A written version (~10 pages) is also due the last week of class or finals week. The semester grade

is based on the mid-term exam, class participation, class presentation, and the final written report.