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 CO₂ 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.