

**SYLLABUS: PCB 5307C Limnology
GLY 4930
University of Florida, Department of Geological Sciences**

Semester: Spring 2021

Credits: PCB 5307C – 4/GLY 4930 - 3

Meeting Location: Williamson 218, Online Synchronous

Meeting Time: T/Th (4-5): 10:45 – 12:40

INSTRUCTOR

Instructor: Dr. Mark Brenner
Office: 203 Williamson Hall
Office hours: By appointment
Phone: 352-392-7226
e-mail: brenner@ufl.edu

COURSE DESCRIPTION

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 (but may be virtual in COVID times)

Course Objectives: It is the goal of this course that, by the end, students will:

- Have a basic understanding of physical, chemical and biological aspects of inland waters
- Understand the major challenges for managing freshwater ecosystems

COURSE MATERIALS

Option Textbook

Title: Textbook of Limnology

ISBN: 1-4786-2307-1

Cover: Paperback Book

Author: Gerald A. Cole and Paul E. Weihe

Publisher: Waveland Press

Edition: Fourth or Fifth

Copyright: 2016 by Tom Cole and Paul E. Weihe

In addition, there will be selected readings delivered by email.

ASSESSMENTS AND GRADING

Grades in this class will be the result of your performance on:

- 1) One take-home exam (40%) - 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 in early March and students have ample time (~10 days) to complete the exam.
- 2) A research report or “proposal” (50%) - The results of this exercise will be presented to the class orally by Powerpoint 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 (time to be determined). Students in GLY 4930 are not required to present a final report.
- 3) Class attendance and participation (10%)

For further information on UF's Grading Policy, consult:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

COURSE AND UNIVERSITY POLICIES

Attendance and Absence

Students are expected to complete all requirements (assignments, problem sets, discussions, and quizzes) on the specified dates and will not be granted an alternate due date unless they have an acceptable reason (e.g. medical emergency, observance of religious holidays, military obligation) or pre-arranged consent of the instructor. These requests must be timely and accompanied by all necessary written documentation.

‘In-class activities’ must be turned in by the end of each class period. They can be turned in only up to 1 week after the class they are due but will receive half credit. This does not apply to the online course, for which there will be no late work accepted.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Classroom policy

Students should bring to each class meeting a laptop or similar device for use in taking notes, completing in-class activities, and accessing the internet. However, use of mobile devices and computers during class for purposes other than viewing readings or conducting sanctioned research is not allowed. Cell phones must be put on “vibrate” during class. Students who receive or make calls or text messages or engage in other disruptive behavior during class will be asked to leave. Students should also bring pen/pencil and paper to each class.

Academic Honesty Policy

Students must conform to UF’s academic honesty policy regarding plagiarism and other forms of cheating. This means that on all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.”

The university specifically prohibits cheating, plagiarism, misrepresentation, bribery, conspiracy, and fabrication. For more information about the definition of these terms and other aspects of the Honesty Guidelines, see <http://www.dso.ufl.edu/sccr/process/student---conduct---honor---code/>. All students found to have cheated, plagiarized, or otherwise violated the Honor Code in any assignment for this course will be prosecuted to the full extent of the university honor policy, including judicial action and the sanctions listed in paragraph XI of the Student Conduct Code. For serious violations, you will fail this course.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

Accommodations for Students with Disabilities

Please do not hesitate to ask for accommodation for a documented disability. Students requesting classroom accommodation must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drp/>). The Dean of Students Office will provide documentation to the student, who must then provide this documentation to the Instructor when requesting accommodation. Please ask the instructor if you would like any assistance in this process. Please provide this information to your instructor within the first two weeks of the semester.

Instructor Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

Drop/Add/Withdrawal

A student can drop/add during the drop add period with no penalty. After drop/add, a student who drops will receive a W until the date listed in the academic calendar. After that date, the student may be assigned an "E" (fail). Note: it is the responsibility of the STUDENT to withdraw from a course, not the instructor. Failure to participate/complete the class is NOT a drop.

Additional Resources

Students facing difficulties completing the course or who are in need of counseling or urgent help may contact the Counseling and Wellness Center:

<http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575; or the University Police Department: 392-1111 or 9-1-1 for emergencies. Other Resources available on-campus for students include:

- a. Student Mental Health, Student Health Care Center, 392-1171, personal counseling;
- b. Interpersonal Violence Counseling, Student Health Care Center, 392-1161
- c. Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.

COURSE SCHEDULE

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