Paleolimnology

Special Topics
GLY 6932, Fall 2020
Zoom
Times: Tuesday Period 5 (11:45-12:35)
Thursday: Periods 5-6 (11:45-1:40)

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Office Hours: Wednesday 11:00 AM-1:00 PM

This course provides students with a basic understanding of the multidisciplinary uses of lake and wetland sediment cores for understanding earth system processes. Paleolimnology is an interdisciplinary science that incorporates principles of geology, pedology, hydrology, climatology, chemistry, physics, and biology. Its temporal component provides an historical perspective on natural and anthropogenic changes in watersheds and lakes, including climate change, erosion and deposition, deforestation, lake acidification, and eutrophication.

1) What is paleolimnology?
    a) questions that can be addressed (paleoclimate/paleoenvironment)
    b) applied and theoretical issues
    c) the watershed concept
    d) autochthonous versus allochthonous materials

2) Designing paleolimnological investigations
    a) picking core sites
    b) coring devices
    c) sample handling in the field and lab
    d) subsampling

3) Sediment chronology
    a) ^{210}Pb dating
    b) ^{14}C dating
    c) ^{137}Cs marker
    d) pollen zones
    e) volcanic ash
    f) other stratigraphic markers (natural and anthropogenic)
    g) sedimentation rates

4) Physical characteristics
    a) density
    b) laminations (varves)
    c) lithology
    d) erosion/transport/deposition

5) Biogeochemistry
    a) nutrients
    b) metals
    c) biogenic silica
    d) pigments

6) Diagenesis

7) Stable isotopes
    a) carbon, nitrogen, oxygen
    b) applications to eutrophication, climate, hydrology studies

8) Microfossils
    a) pollen, spores
    b) diatoms
    c) animal microfossils
    d) pH, productivity, climate inferences

9) Pollutants (toxics/radioisotopes)

10) Case studies
    a) trophic state changes (cultural eutrophication)
    b) climate change
    c) anthropogenic impacts on vegetation
    d) lake acidification
    e) heavy metals (Pb, Hg)

11) Lake management and restoration

There are no exams. Grades are based on attendance and classroom participation in discussions. Each student will prepare a short (10-15 pages, double-spaced) final paper to be handed in at the end of the semester. Students will also give a short (15-20 minute) powerpoint presentation on the topic during one of the final class periods.

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 https://sccr.dso.ufl.edu/process/student-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.

Accommodations for Students with Disabilities

Please request accommodation for a documented disability. Students who request 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. Please ask the instructor if you need assistance with this process. Please provide this information during the first two weeks of the semester.

Course Evaluations

"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/."