

Paleolimnology GEOL 3925 Spring Semester 2013

Class Description: This is an advanced level class with Limnology as a prerequisite. This class will be focused on how past physical, chemical and biological events in fresh water systems are archived in geologic records. There are two goals of the class: (1) to read, present, and discuss a chapter from Andy Cohen's book 'Paleolimnology: The History and Evolution of Lake Systems' each week and (2) to write a thesis or research proposal focused on your interests. Students will be responsible for presenting three topics during the semester.

Presentations: Three students each week will be responsible for presenting the material from one chapter from Andy Cohen's book. Each student should prepare and copy for everyone in the class a 1-3 page set of notes covering approximately 1/3 of the chapter and supplemented with relevant material from other sources (books, journals, web, etc). The group of students presenting will work together to produce a logical presentation. Overheads, powerpoint and board work should be incorporated into this presentation.

Class Hours: Wed 2-4pm and Fri 10-12pm

Prerequisites: Geology (GEOL 0800) and Geology laboratory (GEOL 0055).

Instructor: Dr. Mark Abbott, Geology and Planetary Science

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Office Hours: Wed 12:30-2:00 and *by appointment*.

Text: Paleolimnology: The History and Evolution of Lake Systems, Andrew S. Cohen, Oxford University Press 2003

Grades: 20% for each of 3 presentations and 40% for the writing assignment.

Academic Integrity: All students are expected to adhere to the Academic Integrity Policy of the University pertaining to cheating and plagiarism. Cheating/plagiarism will not be tolerated. Students suspected of violating the University of Pittsburgh Policy on Academic Integrity, noted below, will be required to participate in the outlined procedural process as initiated by the instructor. A minimum sanction of a zero score for the quiz, exam or paper will be imposed.

The integrity of the academic process requires fair and impartial evaluation on the part of faculty and honest academic conduct on the part of students. To this end, students are expected to conduct themselves at a high level of responsibility in the fulfillment of the course of their study. It is the corresponding responsibility of faculty to make clear to students those standards by which students will be evaluated, and the resources permissible for use by students during the course of their study and evaluation. The educational process is perceived as a joint faculty-student

enterprise, which will perforce involve professional judgment by faculty and may involve – without penalty- reasoned exception by students to the data or views offered by faculty.
Senate Committee on Tenure and Academic Freedom (February 1974)

<u>WEEK</u>	<u>DATE:</u>	<u>TOPIC</u>	<u>CHAPTER</u>
1		Introduction	
2		Lakes as archives of earth history	1
3		The Geological evolution of lake basins	2
4		The physical environment of lakes	3
5		The chemical environment of lakes	4
6		The biological environment of lakes	5
7		Age determination in lake deposits	6
8		Sedimentological archives in lake deposits	7
10		Geochemical archives in lake deposits	9
11		Paleolimnology in deep time: the evolution of lacustrine ecosystems	14
12		Paleolimnology: the past meets the future	15

Discussion Topics

Radiocarbon Chronology	Mark	9-15
Sedimentology	Matt	9-17, 9/22
Seismic Stratigraphy	Chris	9-24
Lead and Cesium Chronology	Dave	9-29
Carbon Stable isotopes	Byron	10-6
Oxygen Stable isotopes	Dave	10-8
Nitrogen Stable isotopes	Emily?	10-13
Glacial Signatures	Matt	10-15
Drought Signatures	Aubrey	10-20
Tsunami Signatures	Dave	10-22
Storm Signatures	Chris	10-27
Anthropogenic Metal Signatures	Aubrey	11/3
Modeling	Byron	11/5
Land Use Changes		
Earthquake Signatures		

Grading

1. Lead 2 class discussions on above or approved topics (50%).
Plan on leading the discussion for one hour and handing out a 2-4 page document to help lead the discussion
2. A 5 page abbreviated NSF style proposal on a topic of interest (50%).