

Quaternary Geology



EEES 4200/5200

Instructor:	Dr. Timothy Fisher	Term:	Spring 2015
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Office Hours:	3-4 pm and by appointment	Class Day/Time:	TR 4-5:15
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COURSE/CATALOG DESCRIPTION

To provide understanding of such cyclical events as climate change, sea level fluctuations, vegetation change and ice sheet paleogeography during the Quaternary Period and to explore future changes for planet Earth.

COURSE GOALS

The goal is to provide an understanding of the Quaternary Environment in both glaciated and nonglaciated areas. For the past 2.6 million years the Quaternary has been a time of rapid change on planet Earth with the rise of *Homo sapiens*, repeated episodes of climate change, and cyclical fluctuations in sea level, vegetation and ice sheet paleogeography. Many of the world's resources are the result of Quaternary processes, with much of the world's population reliant upon those resources and landscapes. What is in store for the future? With the majority of Earth's population living within only a few meters of sea level, it is desirable to attempt predictions of the future. For these reasons it is important to understand the events of the Quaternary, for our future is most likely a continuation of the last few million years.

STUDENT LEARNING OUTCOMES

Students will be able to communicate effectively by giving many succinct and one longer oral presentations of the Quaternary literature.

Students will be able to interpret, either in the field or from maps or other images, the processes and interactions among the geosphere, biosphere, hydrosphere, and atmosphere that produce features on the Earth surface.

Students will be able to analyze and scientifically evaluate past research in Quaternary geology.

TEACHING STRATEGIES

Through lectures, homework assignments, in class assignments with discussions, and assigned readings followed by student presentations, students will learn about the past 2.6 million years of Earth history.

PREREQUISITES AND COREQUISITES

EEES 3100 or permission of the instructor to register.

REQUIRED TEXTS AND ANCILLARY MATERIALS

Field note book. In lieu of a text, readings will be provided ahead of time.

UNIVERSITY POLICIES

The University is an equal opportunity educational institution. Please read The University's Policy Statement on Nondiscrimination on the Basis of Disability Americans with Disability Act Compliance.)
http://www.utoledo.edu/policies/administration/diversity/pdfs/3364_50_03_Nondiscrimination_o.pdf

Academic Accommodations

The University of Toledo is committed to providing equal access to education for all students. If you have a documented disability or you believe you have a disability and would like information regarding academic accommodations/adjustments in this course please contact the Student Disability Services Office.

ACADEMIC POLICIES

The undergraduate students are expected to follow the guidelines of student conduct as outlined in the Student Handbook: <http://www.utoledo.edu/studentaffairs/pdfs/studenthandbook.pdf> The graduate students are expected to follow the guidelines of student conduct as outlined in the COGS Student Handbook: <http://www.utoledo.edu/graduate/files/Graduate%20Student%20Handbook%202014-2015.pdf>

All students assume the responsibility of knowing drop procedures and dates, dates on the syllabus, the UT Student Handbook and following through with the administrative details (i.e., forms in the registrar's office).
<http://www.utoledo.edu/offices/registrar/registration.html>

Cell phones and pagers are to be turned off during class. The University of Toledo has published guidelines for student conduct and they will be followed in this class (UT Student Handbook). Keeping others from listening to lectures, taking notes, etc. is a form of theft (as you know tuition is costly). There should be no visiting or other possible disruptive behavior during class. Social media activity or surfing the web on your laptop, tablet, or cell phone, along with text messaging is considered a distraction to other students and the instructor. If such activity is more important than lecture, don't come to lecture, or wait until after lecture. If you have any problems please let me know and I will assist you in any way that I can in solving the problem or if necessary, filing a complaint to the proper authorities on campus.

Make-up exams & labs are not normally given except with excused absences (See University of Toledo Missed Class Policy http://www.utoledo.edu/facsenate/missed_class_policy.html). The reason(s) for taking the make-up exam or lab must be in writing from the student (email is acceptable), and the exam will normally be ready approximately one week after the regular exam is given. If a student does not make up an exam prior to taking the next exam, a grade of F will be given for the former exam. In some cases, due to the time to make another exam, the make-up exam may be essay style. If any exam(s) is not taken by the end of the day before the final exam, an F will be given and calculated into the final grade. All make-up exams will be taken in the department or if necessary, in the Test Center in the Memorial Field House.

COURSE EXPECTATIONS

It is expected that you will attend all classes; arriving on time. You will participate in class discussion by asking questions, offering explanations or enhancements with the goal of demonstrating your interest in the subject matter.

GRADING

The standard letter grade scale will be used.

Grading Scheme

20%	Oral presentations
15%	Participation in class discussion and activities ¹
30%	Exercises
15%	Midterm exam
20%	<u>Final Exam</u>
100%	Total

¹Participation in class involves doing the assigned readings, coming to class, coming to class prepared, and actively participating in the discussions.

TENTATIVE COURSE SCHEDULE

Readings:

There will be assigned readings for some lectures. These readings will be made available ahead of time and must be read before class. Students will give short, 3-minute summaries of the readings at the beginning of class.

Exercises

Although there is not a formal lab in this course, numerous exercises will be handed out. The purpose of them is to get you used to working with Quaternary related data.

Oral Presentation:

One 12-minute oral presentation will be prepared and presented to the class in a mini-conference style setting. The topic will be a specific process or event during the Quaternary, or a dating method used in Quaternary Science. The topic should be researched from the primary literature. Topic should be chosen by Jan. 27.

Field Trip (Mandatory): A one-day field trip Sunday April 19th will be to investigate some Quaternary features in the area. You will be required to take field notes for this trip, which will be handed in for a grade.

Field Project (weather & logistics willing)

Assess the conclusions in Wilson (1943). This will involve coring Sandusky Bay sediment, splitting the core, describing it, and counting rhythmites.

Wilson, I.T., 1943. Varves in Sandusky Bay sediment. The Ohio Journal of Science. Vo. XLIII (5), 195–197

Tentative Schedule:

WEEK	ACTIVITY	READINGS
(1) Jan. 12	Introduction & Last Glacial Ice Maximum	Assigned
(2) Jan. 19	Glacial Geology primer,	Assigned
(3) Jan. 26	Cause of Quaternary Glaciations, Glaciers and climate change (Talk chosen)	Assigned
(4) Feb. 2	Glaciers and climate change	Assigned
(5) Feb. 9	Sea Level Changes	Assigned
(6) Feb. 16	Isotope Records	Assigned
(7) Feb. 23	Quaternary Dating Methods	Assigned
(8) Mar. 2	Quaternary Dating Methods	Assigned
(9) Mar. 9	Spring Break, no class	
(10) Mar. 16	Pluvial Lake Records, Catastrophic Flooding (Midterm Thurs., Fisher away)	Assigned
(11) Mar. 23	Lake Agassiz & Abrupt Climate Change	Assigned
(12) Mar. 30	Quaternary History of the Great Lakes	Assigned
(13) Apr. 6	Quaternary History of the Great Lakes	Assigned
(14) Apr. 13	Topical Issues	Assigned
	Apr. 19 <i>Local area field trip</i>	
(15) Apr. 20	Topical Issues,	Assigned
(16) Apr. 27	Oral Presentations	
(17) May. 4	Friday, Final Exam 2:45–4:45 pm BO-1006	