ECOSYSTEMS SINCE GLACIATION
BIOL 356

Winter 2026 (202610)

Instructor:	Dr. Britt Hall
Office:	LB 243
e-mail:	Via UR Courses
Phone	306-337-2355
Lecture time:	T/H 11:30 - 12:45
Location:	LB 235
Prerequisites	BIOL 275

Course description/rationale

Long-term ecosystem structure and dynamics provide the context for present day global change. This course examines ecosystem dynamics in the last 10,000 years, focusing on the last few centuries. Paleoecological methods and results of reconstructing such phenomena as acid rain, range changes, island biogeographies, and fire histories will be studied.

Course objectives

Learning Objectives and/or Outcomes:

- Students will gain an understanding of paleoecological methods in lectures.
- Students will gain an understanding of environmental history in the context of human induced environmental change
- Students will learn to present biological information to the wider community through the formulation of infographics.
- Students gain independent research experience.

Components

Component	Grade weight	Due date
Attendance	15%	
Quiz 1 – up to the end and including "Principles of Paleo"	15%	January 22 (45 mins)
Quiz 2 – up to and including "Dendrochronology"	30%	March 17
Quiz 3 – up to and including all student presentations	10%	April 9 (45 mins)
Infographic draft	5%	In room ED314 – February 10
Infographic	10%	February 17
Student project presentation	15%	Late March/Early April
Total	**100%**	

LATE ASSIGNMENTS WILL NOT BE ACCEPTED
(Grade will be zero)

Research project and Presentation

The class will be provided with a list of topics that cover a subject area relating to course content. Each of you will choose an initial paper which will form the basis of your assignment. You will be required to find 2-3 additional related papers and will prepare a presentation on this research. Presentations to class as per the schedule presented above.

Please sign up for a topic here: https://docs.google.com/document/d/17oDNq3TNGi0QBRNI-4gJ_BjyeYY4dwBhip-IYwCgsH0/edit?usp=sharing

If you have an idea of another topic, please feel free to speak with me about it!

Exams

There will be three exams worth a total of **55% of your final grade.** All three will be in class. THERE IS NO EXAM IN THE FINAL EXAM PERIOD. The exams will be short and long answer exams.

Infographic

Infographics (information graphics) are graphical presentations of information (including data) in a form that makes the information and data understandable quickly by a diverse audience. The creation of an infographic requires the developer and presenter to:

- creatively develop unique and interesting ways to visualize data
- understand the audience for whom the infographic is developed
- create a compelling presentation that will grab the attention of the target audience

- present the information clearly and succinctly (but thoroughly) such that the viewer understands detailed concepts quickly and accurately
- evaluate the credibility of sources of information.

We are surrounded by infographics in our daily life. Formulating an infographic requires a balance between detail and overview, such that the information presented is accurate, easily understood, and balanced. An internet search of "infographics" will yield a wealth of information and many excellent examples.

In this class, students will work in small groups to produce an infographic on the use of a particular proxy in paleoecology. Groups will consist of 2 or 3 students, who choose to work together. The "target audience" for the infographic is your peer group of upper-level Biology students, so you can assume familiarity with biology in general but not with the specific subject matter of this course. The size of the infographics should fit on 11X17" sized paper. Infographics are an effective way to relay information but are challenging in that you must be concise on what you present. While I encourage you to be creative, remember that the primary goal is to relay information accurately and clearly. The draft will be created IN CLASS. I will give feedback in class.

Deadlines

Deadlines are listed above. No late assignments will be accepted, no exceptions (without prior approval). Infographics should be submitted to turnitin.com. Please plan accordingly. The class ID is **50935779** and the password/enrollment key is **Holocene**. You should set up an account promptly.

PLEASE NOTE: In all assignments do not include direct quotes from electronic sources (i.e., cut and paste text transfers). The presence of such passages will be considered plagiarism, and will result in an automatic grade of 0%. All students are responsible to ensure that their assignments are unique. Turnitin.com is able to determine if there is overlap with electronic sources of information as well as overlap with other students' work.

The grading rubric that will be used for the infographics is given below.

CATEGORY	4	3	2	1
Content	Covers topic in-depth with details and examples. Subject knowledge is excellent.	Includes essential knowledge about the topic. Subject knowledge appears to be good.	Includes essential information about the topic.	Content is minimal.
Accuracy of scientific content, contribution to improved scientific literacy	No scientific inaccuracies. An excellent contribution to scientific literacy.	No scientific inaccuracies. Message conveyed clearly.	1-2 factual errors OR message not clear.	Several factual errors OR no take home message.
Graphics	All graphics are related to the topic and make it easier to understand.	All graphics are related to the topic and most make it easier to understand.	All graphics relate to the topic.	Graphics do not relate to the topic.
Attractiveness	Makes excellent use of font, color, graphics, effects, etc. to enhance the presentation.	Makes good use of font, color, graphics, effects, etc. to enhance to presentation.	Makes use of font, color, graphics, effects, etc. but occasionally these detract from the presentation content.	Use of font, color, graphics, effects etc. but these often distract from the presentation content.
Mechanics	No misspellings or grammatical errors.	Two or fewer misspellings and/or mechanical errors.	Three misspellings and/or grammatical errors.	Four or more spelling or grammar errors.

Tentative Class Schedule: BIOL 356

Date/Day		Subject
6 Jan	T	Intro, Why we care, time line up to the Holocene/ Earth's energy budget
8 Jan	H	Teleconnections/Orbital forcing Feedback cycles
13 Jan	T	LGM and transition to the Holocene/Terminal Pleistocene
15 Jan	H	How we study the past/ Principles of Paleoecology
20 Jan	T	Intro to Proxies
22 Jan	H	QUIZ 1 (45 mins) /infographics
27 Jan	T	Dating methods /Pollen analysis
29 Jan	H	Diatoms / Microscopes in class LOCATION CHANGE: TBD
3 Feb	T	Stable isotopes
5 Feb	H	Stable isotopes - speleothems
10 Feb	T	INFOGRAPHICS DRAFTED IN CLASS LOCATION CHANGE: ED 314
12 Feb	H	eDNA/How to read ordination graphs
17 Feb	T	READING WEEK – NO CLASSES
19 Feb	H	READING WEEK – NO CLASSES
24 Feb	T	Dendrochronology INFOGRAPHIC FINAL DUE
26 Feb	H	Easter Island
3 Mar	T	Acid rain
5 Mar	H	Early Holocene
10 Mar	T	Early Agriculture
12 Mar	H	Anthropocene
17 Mar	T	QUIZ 2 (45 mins)
19 Mar	H	Student presentations
24 Mar	T	Student presentations
26 Mar	H	Student presentations
31 Mar	T	Student presentations
2 Apr	H	Student presentations
7 Apr	T	Student presentations
9 Apr	H	Quiz 3 on presentations

Other information

- The professor owns the copyright to all lecture content.
- Any unauthorized audio or visual recording is prohibited.
- Posting or sharing lecture materials created by the professor is prohibited.
- Any student who needs accommodation or seeks to make any kind of recording or transcription must do so through the accessibility office or with the instructor's explicit permission.
- Student absences from classes are excused for medical or compassionate circumstances, family emergencies, or religious observance. For most approved absences permission must be obtained prior to the missed class.
- Cell phones use is NOT PERMITTED during class. If cell phone use is noted, the lecture will be stopped until the cell phone is turned off and put away. Please put cell phones away before class begins. The use of laptops to take notes is permitted, but note that research has demonstrated clearly that writing notes out by hand during lectures contributes to active learning. Please reserve the front seats for students who prefer to avoid the distraction of screens.

Optional Textbook: Roberts, Neil. 2014. *The Holocene: An Environmental History*. 3rd Edition. John Wiley and Sons, West Sussex, UK.

Office hours:

- Drop-In: Anytime the door to LB 243 is open.
- By appointment: If you would like to schedule a meeting, please e-mail me.

Statement on the approved use of generative AI:

- Students are permitted to make use of available technological tools, including generative AI tools as supplementary resources in this course. When leveraging these technologies, students are encouraged to critically evaluate the generated content and to integrate it with their own understandings to **produce original work**. Generative AI tools may be used in the preliminary stages of assignment creation, however, students must ensure that final drafts of all assignments are revised to represent their own comprehension and efforts. The final submission should primarily reflect the student's own original understandings and insights.
- Any use of generative AI in the completion of coursework should be cited appropriately, including the identification of any tools that were used, how the tools were employed, and how the AI-generated content was integrated into the submitted coursework.
- Collaborative projects that include the use of generative AI tools are welcome. If students choose to integrate AI-generated content into group assignments, it is important that all group members understand and can explain such content. It is also important that students clearly delineate between human-generated and AI-generated content submitted as coursework.
- When using AI tools to improve one's own writing, students must retain drafts of the original work prior to modification by AI and have these drafts available for instructors to review if requested.
- When using generative AI tools in assignments that involve problem-solving or critical thinking, students should be cautious to ensure that they have critically evaluated and adapted AI-generated content.

Plagiarism Policies:

Plagiarism is a form of academic dishonesty in which one person submits or presents the work of another person as his or her own, whether from intent to deceive, lack of understanding, or carelessness. Unless the course instructor states otherwise, it is allowable and expected that students will examine and refer to

the ideas of others, but these ideas must be incorporated into the student's own analysis and must be clearly acknowledged through footnotes, endnotes, or other practices accepted by the academic community. Students' use of others' expression of ideas, whether quoted verbatim or paraphrased, must also be clearly acknowledged according to acceptable academic practice. It is the responsibility of each student to learn what constitutes acceptable academic practice.

Plagiarism includes the following practices:

- not acknowledging an author or other source for one or more phrases, sentences, thoughts, code, formulae, or arguments incorporated in written work, software, or other assignments (substantial plagiarism);
- presenting the whole or substantial portions of another person's paper, report, piece of software, etc. as an assignment for credit, even if that paper or other work is cited as a source in the accompanying bibliography or list of references (complete plagiarism). This includes essays found on the Internet.
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Students who are uncertain what plagiarism is should discuss their methodology with their instructors.