PALEOCLIMATE AND HUMAN EVOLUTION
Spring 2022  ANTH 573-001 (3 credits)

MEETING TIME AND PLACE: THURSDAY, 3:00-5:50PM  ANIMAL SCIENCE 135

INSTRUCTOR INFORMATION

Instructor: Andrew Du, Ph.D.
Email: Andrew.Du2@colostate.edu
Pronouns: he, him, his

Office Location: Clark B-225
Office Hours: Tuesday 1:00-4:00 pm
Attend virtually: https://tinyurl.com/ANTH573

COURSE GOALS AND CONTENT

Despite the course name, the purpose of this course is to introduce you to the principles, theories, and methods of paleoecology, and to examine and understand the way(s) in which paleoecologists use these theories and methods to understand the ecology and evolution of fossil taxa (with an emphasis on paleoanthropology and human evolution where applicable). The course begins with defining what paleoecology is and a discussion of perhaps the two most pervasive concepts in paleoecology: scale and taphonomy. Because paleoenvironmental reconstruction plays such a prominent role in paleoanthropology, we spend two weeks on this topic. We then discuss one of the most foundational topics in ecology, the niche, and how it influences biotic interactions and taxonomic diversity at a given time and place. We lastly finish with micro- and macroevolutionary theories and how ecology and evolution are unified within certain hypotheses of human evolution.

By the end of the course, you should have a foundational knowledge of the different subfields within paleoecology and how these subfields are related and integrated. You should also be able to understand the paleoecological peer-reviewed literature, as well as possess the background knowledge for conducting your own paleoecological research.

READINGS

There is no required book for this course, but multiple reference books will be posted to Canvas if you are unfamiliar with certain anthropological or (paleo)ecological topics. About two to three articles will be assigned each week, with one additional paper selected by two students (see Weekly Assignments below). All readings will be posted to Canvas.

COURSE FORMAT

This class will be conducted in a seminar format, where two students lead discussion each week (see Weekly Assignments below). This means that everyone’s attendance and participation is required. That participation is dependent, in part, on completing all the assigned readings each week and being prepared to discuss them in class. “Doing the readings” means that you acquire a deep understanding of the concepts and arguments, requiring more than just skimming. You are expected to be prepared to discuss the readings in detail each week.
**Weekly Assignments**

Two students will be required to lead discussion for a week/topic of their choosing. This involves:

1. **Picking one additional paper related to that week’s topic (due 10pm on Sunday before class).** This will give you experience combing through the literature, in addition to providing you with the opportunity to pick a paper more aligned with your research interests. The two student leaders need to pick only one paper between them, and only one student uploads the paper to Canvas. Both students will receive credit (I assume the two will have discussed the paper choice beforehand).

2. **Teaching the class about the week’s topic using at least one active learning strategy (done in the beginning of class).** This will familiarize you with the latest teaching strategies, as well as diversify how these topics are taught each week. Each active learning session should be about 15 minutes long. Feel free to use handouts, PowerPoint slides, or whatever materials you’d like. A PDF with different active learning strategies is posted to Canvas. The two student leaders will team teach the topic, so there is only one ~15 minute presentation between them.

3. **Leading discussion.** The two student leaders are expected to keep discussion going for the duration of the class period. This includes coming up with a list of “discussion-starter” questions in case there is a lull in the discussion.

**Grading**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Grade Percentage</th>
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<tbody>
<tr>
<td>In-class participation</td>
<td>15%</td>
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<tr>
<td>Weekly assignments</td>
<td>30%</td>
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<tr>
<td>Term paper assignments</td>
<td>40%</td>
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<tr>
<td>Term paper presentation</td>
<td>15%</td>
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**Term Paper and Presentation**

You will need to write an original research paper on a topic of your choice (can be related to your own research), as long as it is related to at least one of the topics we covered in this course. The paper will be completed in five stages:

1. **Topic description (5pts; due 3/3).** Describe your proposed paper topic in about five sentences and provide at least five references in APA format.

2. **Thesis statement or research question, abstract, and annotated bibliography (10 pts; due 3/31).**
   a. Thesis statement. One to two sentences.
   c. Annotated bibliography. At least 10 references in APA format. Four to five sentences per annotation.

3. **Rough draft (30 pts; due 4/28).** If you are happy with the grade you receive for this, you do not need to do the final draft. Paper requirements are as follows:
   a. 12–15 pages. This does not include the abstract, images that you choose to use, or the bibliography.
   b. Minimum of 20 peer-reviewed references. You can use more if necessary. Peer-reviewed references include journal articles or chapters from edited volumes.
   c. Citations and bibliography should follow APA format.
   d. Double-spaced, 12-point, Times New Roman font with 1-inch margins and page numbers.
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e. For the abstract and bibliography, use single-spaced sentences.

4. **12–15-minute presentation of your term paper (presented in class on 5/5).** This includes:
   a. The purpose/significance of your paper
   b. Background and/or controversy if there is one
   c. Your findings
   d. Conclusions and directions for future research

5. **Final draft (30 pts; due 5/12).** Same format as the rough draft

**COVID POLICIES**

**Important information for students:** Masks are required inside university buildings. You must also meet university vaccine or exemption requirements.

All students are expected and required to report to the COVID reporter ([https://covid.colostate.edu/reporter/](https://covid.colostate.edu/reporter/)) when:

- You suspect you have symptoms of COVID, regardless of whether or not you are vaccinated and even if your symptoms are mild
- You have tested positive for COVID through a non-CSU testing site, such as home test or test at a pharmacy
- You believe you may have been exposed to COVID go to the COVID Reporter and follow the guidance under “I believe I have been in close contact with someone who has COVID-19.” This guidance will depend upon your individual circumstances

You will not be penalized in any way for reporting symptoms or concerns.

**Do not ask me as your instructor to report for you. It is your responsibility to report through the COVID Reporter promptly.**

**As your instructor I may not ask you about vaccination status or if you have COVID, but you may freely volunteer to send me information from a public health official - if you have been asked to isolate or quarantine.**

When you complete the COVID Reporter, the CSU Public Health office is notified. Once notified, that office will contact you and, depending upon each situation, will conduct contact tracing, initiate any necessary public health requirements and notify you if you need to take any steps.

If you do not have internet access to fill out the online COVID-19 Reporter, please call (970) 491-4600.

For the latest information about the University’s COVID resources and information, including FAQs about the spring semester, please visit the **CSU COVID-19 site [https://covid.colostate.edu/](https://covid.colostate.edu/).**

**ACADEMIC INTEGRITY POLICY**

This course adheres to the Academic Integrity Policy of the Colorado State University General Catalog and the Student Conduct Code. Any breach of these policies and codes will be taken very seriously. For more details visit [https://tlt.colostate.edu/Integrity/Pledge](https://tlt.colostate.edu/Integrity/Pledge).
UNIVERSAL DESIGN FOR LEARNING

I am committed to the principle of universal learning. This means that our classroom, our virtual spaces, our practices, and our interactions be as inclusive as possible. Mutual respect, civility, and the ability to listen and observe others carefully are crucial to universal learning. See also CSU’s Principles of Community (https://inclusiveexcellence.colostate.edu/principles-of-community/).

If you need accommodations in this class, please contact me to discuss your individual needs. Any accommodation must be discussed in a timely manner prior to implementation. A verifying memo from the Student Disability Center (https://disabilitycenter.colostate.edu) may be required before any accommodation is provided.
COURSE SCHEDULE

Changes may be made to this schedule as necessary and will be announced in class or through email. Asterisks indicate no readings for that week.

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<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Assignments (due 10pm)</th>
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<tbody>
<tr>
<td>Week 1: 1/20</td>
<td>Course introduction &amp; logistics*</td>
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<td>Week 2: 1/27</td>
<td>What is paleoecology?</td>
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<td>Week 3: 2/3</td>
<td>The importance of scale</td>
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<td>Week 4: 2/10</td>
<td>Taphonomy</td>
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<td>Week 5: 2/17</td>
<td>Reconstructing paleoenvironments I</td>
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<td>Week 6: 2/24</td>
<td>Reconstructing paleoenvironments II</td>
<td></td>
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<td>Week 7: 3/3</td>
<td>The ecological niche</td>
<td>Paper topic description</td>
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<td>Week 8: 3/10</td>
<td>Reconstructing ancient diets</td>
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<td>Week 9: 3/17</td>
<td>No class (Spring Break)*</td>
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<td>Week 10: 3/24</td>
<td>No class (Paleoanthropology meetings &amp; AABA)*</td>
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<td>Week 11: 3/31</td>
<td>Biotic interactions</td>
<td>Abstract and bibliography</td>
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<td>Week 12: 4/7</td>
<td>Taxonomic diversity</td>
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<td>Week 13: 4/14</td>
<td>Microevolution &amp; adaptation</td>
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<td>Week 14: 4/21</td>
<td>Macroevolution</td>
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<tr>
<td>Week 15: 4/28</td>
<td>Environmental hypotheses in human evolution &amp; course wrap-up</td>
<td>Rough draft</td>
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<tr>
<td>Week 16: 5/5</td>
<td>Student presentations*</td>
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Final paper draft due May 12th at 10 pm.
INSTRUCTOR-ASSIGNED READING LIST (I.E., STUDENT-SELECTED PAPERS NOT INCLUDED)

Week 1: Course introduction & logistics

- No readings

Week 2: What is paleoecology?


Week 3: The importance of scale


Week 4: Taphonomy


Week 5: Reconstructing paleoenvironments I


Week 6: Reconstructing paleoenvironments II

Week 7: The ecological niche


Week 8: Reconstructing ancient diets


Week 9: Spring break

- No readings

Week 10: No class (Paleoanthropology meetings & AABA)

- No readings

Week 11: Biotic interactions


Week 12: Taxonomic diversity


Week 13: Microevolution & adaptation

Week 14: Macroevolution


Week 15: Environmental hypotheses in human evolution & course wrap-up


Week 16: Student presentations

- No readings