

The Evolution and Paleobiology of

Dinosaurs

Geology 12

Winter Quarter, 2022

Tuesday and Thursday, 12:10 - 1:00 PM

1001 Giedt Hall

Credit: 2 units

Prerequisites: none

Grading: letter grade

Instructor: Sandy Carlson (Telephone: 752-2834) **E-mail:** sjcarlson@ucdavis.edu

Office Hours: Tuesday & Thursday 10:30-11:30 am or by appt., Rm. 2123 Earth & Physical Sciences Bldg.

Teaching Assistant: Steven Mendonca **E-mail:** semendonca@ucdavis.edu

Recommended Text: *Dinosaurs: a Concise Natural History* by D.E. Fastovsky and D.B. Weishampel, 4th Edition, 2021, Cambridge University Press, Cambridge. 521 pp.

Requirements: One midterm exam and a final, cumulative exam (35% each) and a 400-word essay on a current event/topic relevant to dinosaur paleontology (30%)

Date	Lecture	Reading: Chapters
January 4	Introduction to Dinosaurs: History of study	16
January 6	Dinosaurs in Temporal Perspective: Geological time	2
January 11	Geology and Climate in the Mesozoic Era	2
January 13	Collecting Dinosaurs: How is it done?	1
January 18	Dinosaur Ancestors: Who are they?	3, 4, and 5
January 20	Dinosaur Relationships I: Saurischia	6, 7, and 9
January 25	Dinosaur Relationships II: Ornithischia	10, 11, and 12
January 27	Dinosaur Biomechanics I: Postcranial	Review 6, 7, 9-12
February 1	Dinosaur Biomechanics II: Dental and cranial	Review 6, 7, 9-12
February 3	MIDTERM EXAM: during class time, in 1001 Giedt	----
February 8	Pterosaurs	----
February 10	The Origin of Birds	8
February 15	Dinosaur Physiology I: Endothermy Hypothesis	13 and 14
February 17	Dinosaur Physiology II: Testing the Hypothesis	13 and 14
February 22	Dinosaur Behavior I: Functional Morphology; Trackways	Review 6-14
February 24	Dinosaurs Behavior II: Reproductive Behavior	Review 6-14
March 1	Life in Mesozoic Seas: Marine Reptiles	----
March 3	Hot New Topics in Dinosaur Paleobiology	----
March 8	Dinosaur Extinction I: Causal hypotheses	15 and 17
March 10	Dinosaur Extinction II: Testing the Hypotheses	17
March 15	FINAL EXAM: 3:30 to 5:30 pm in 1001 Giedt	

Some class notes:

Goals for the course: My primary goal is to further the development of your critical thinking skills in dinosaur paleobiology, and how this can lead to a better appreciation of the world we live in today. How is the history and evolution of dinosaurs as revealed by the fossil record relevant and useful to enriching our lives today?

Contacting me: Please come to office hours! I am hoping to get to meet at least some of you in person. If you can't attend office hours we can set up another time to talk in person or by Zoom – just send me an email or message via Canvas (Inbox icon on the left side, and then click on the little pencil and paper icon at the top) – I don't check my office phone as often as I check my email Inbox. I will post Announcements on Canvas periodically if I have information I want you all to be aware of in a timely manner.

Class format: The class is organized around a standard lecture format, but I strongly encourage you to interrupt me to ask questions in class, even though the class is pretty large. I show lots of slides in lecture, so it is a very good idea to come to class regularly to see what all the slides illustrate and hear what I say about them.

Expectations for class etiquette: When class begins, please stop your conversations. If you must arrive at class late or leave early, please do so as quietly and unobtrusively as possible. Cell phones must be turned off and put away during class. Please show respect for me and for fellow classmates and do not engage in disruptive behavior: whispering or talking to others, eating smelly food, or any other activity during lecture that would disturb others or interfere with the learning environment. Thank you!

Recommended reading: The textbook for the course is recommended, not required, and will be available in digital form from campus (or so they assure me), or you can order it from any of a number of other sources, if you want to buy it. (Here is a recent article on Equitable Access: https://studentaffairs.ucdavis.edu/news/equitable-access-2021?utm_source=datelinehtml&utm_medium=datelinenewsletter&utm_campaign=dateline_20211207.) It is a great book, and the latest edition just came out a few months ago, so it is very current -- you may want to purchase it if you are a true dinosaur aficionado, but purchase is not required for the class. And you have my word that I will never ask questions on an exam that concern material in the book that I have not also covered in lectures.

Grading: Your final grade will be based on three components: two in-class exams (midterm and final) of multiple choice, true-false, and matching questions. The exams will focus on material that I cover in lecture -- there are many topics in the book that I will not have time to cover and will not expect you to know, while some other topics that I cover in lecture are not in the book at all. I usually include material from other sources in lectures as appropriate, so attending lecture regularly will ensure that you do not miss any relevant information. Under exceptional circumstances, I allow exams to be taken early. Also, I want each of you to write a short, roughly 400-word mini-research essay on a current topic of your choosing related in some way to the study of dinosaurs. I will give you more information on my grading philosophy and on the essay assignment as the quarter proceeds.

Study habits: I strongly recommend that you attend lectures, read the book, and take notes during class. I will post some brief notes and slides on Canvas (in Files) for each lecture, but they can't take the place of your own notes, taken during class. If you must miss a class, you should attempt to find out what you missed. The material we cover in this class cannot be understood fully by rote memorization alone; it requires both analysis and synthesis of information. I plan to offer practice exams as worksheets and will schedule a review session before each exam. I do not return exams afterwards but am happy to review your exam with you during my office hours.

Finally, I just want to say "Bravo!!!" to all of you for continuing to put in the extra effort to move your education forward. Our persistence, determination, and flexibility continue to be tested daily over these many months now, and I am so proud of you all for keeping at it! I love teaching this course – I want you to learn something about dinosaurs and I also want us to have a bit of fun along the way!

