

## Dinosaurs – EARTH 2401 – Course outline 2019

**Please read!**

**Course Topic:** Earth 2401 “Dinosaurs” introduces you to the evolution of the natural world of our planet as manifested in the fossil record. Fossils are a testament to ancient life and its paleoenvironmental history. We will zoom into the era of dinosaurs, their place in evolution, their fossil record, their anatomy, their behavior and what we know about their habitats. We will also look at their contemporary life forms and include marine reptiles and pterosaurs. Finally, we will speculate what brought their extinction and how life recovered after dinosaurs were gone.

**Prerequisites:** None

**Organization:** This course has an in-class section and an on-line section that can be viewed streamed, in one of Carleton’s viewing rooms or by video on demand. Often, seats in the classroom become available later in the fall, when some students decide to switch to the on-line section. Those who would have preferred the classroom section, but did not get space, are most welcome to join us in class as seats are always available. I prefer to have you in class, so that you can take part in our dialogue and I can put a face to my students.

In-class lecture times in Steacie 103: Wednesday and Friday 1:05 to 2:25 PM. **Due to a field course I teach in Nova Scotia at the beginning of the fall term, this course starts on Wednesday, Sept. 11, 2019.**

**Instructor:** Prof. Claudia Schröder-Adams, Herzberg 2201, Office Hours: Wednesday 9:30-10:30 AM. Email contact **only** over CULEARN. Please address all questions to the teaching assistants. If they cannot answer your question, they will forward your question to me and I shall answer.

**Teaching Assistants:** Your TAs are Matthew Brenning, Erin MacKenzie and Carling Walsh; their office hours will be announced. Your TAs are responsible for addressing the CULEARN site once a day from Monday to Friday to answer your questions, so do not expect answers immediately. If you like to meet with a TA, please make an appointment over CULEARN email. Before exams TAs will hold a special session(s) to answer questions you might have; this might take place on-line depending on demand.

The course is CULEARN supported. All announcements that I have for the entire class will be posted. We will not answer questions that address information clearly spelled out in our announcements. Please check frequently. Lectures in PDF format will also be posted. Due to copyright laws this material will only contain text slides and images not affected by these laws. These slides will be posted the day before each lecture to make note taking easier for you. However, this method requires that you come to class or listen to the broadcast or tapes since I deliver more in my lectures than what is presented on the text powerpoint slides. Also, for those of you in class, you have the opportunity to ask questions which I encourage. The TA’s will prepare weekly quizzes for you so that you

keep up with the material and feel better prepared when exams will be held. These quizzes will start in the week of **Sept. 23** and are part of your final grade, so complete them in time. **We will not open quizzes after the allotted time! Any requests for that will be denied.**

**It is important that you have access to CULEARN. If you have difficulties connecting, please solve these issues with the university.**

### **Grade Breakdown**

Midterm Examination: 30% (2 hours) taking place **Oct. 4th**, 6 to 8 PM (rooms will be announced).

On-line Quizzes: 20%

Final Examination: 50% (2 hours) to be scheduled by the university

The early midterm date gives you a sign for how you are performing in this class. Please arrange your schedule accordingly. **A valid excuse for missing the mid-term is for medical reasons or death in the family and must be documented with a medical certificate. Any other reason will be evaluated case by case with documentation. If a deferred midterm is granted by the instructor, your make-up midterm needs to be scheduled with Renea Free (examination coordinator) of CUOL.** The final will have a make-up exam with the university rules attached. **I will never hold make-up exams before the main exam, so don't ask.** The exam material for the midterm and final is not cumulative; this is to your advantage. When it gets closer to the midterm, you will be reminded of the exact lectures that need to be studied. Exam material is entirely based on my lectures.

Due to the large size of this class all examinations will consist of multiple choice and true/false questions. A scantron sheet will be used for the multiple-choice questions. Your marks will then be uploaded into gradebook. The weekly quizzes will be posted and you will have a limited time for your answers after you logged in. Instructions will be provided by your TAs, who will compose the quiz questions as well. Questions regarding quizzes always have to be directed to the TAs since they are monitoring your progress in quizzes.

### **Suggested textbook:**

D.E. Fastovsky and D.B. Weishampel, 2016. *Dinosaurs, A concise Natural History*. Cambridge University Press (ISBN 978-1-316-50115-3). The book can be ordered online or bought in the bookstore. I recommend this book, but I have not made it mandatory, since many of you will only take one course in Earth Sciences and I recognize the cost of textbooks.

### **Course learning objectives**

1. Identify the major events in the evolution of life on earth.  
(Remembering and Understanding)
2. Relate large-scale changes in earth history as related to plate movements and earth' paleoenvironmental changes.

(Understanding and Analyzing)

3. Explain the importance of fossils for paleoenvironmental interpretations.

(Remembering)

4. Explain the position of dinosaurs in the evolutionary history of life and their development throughout the Mesozoic Era including extinction theories.

(Remembering, Analyzing and Understanding)

5. Distinguish dinosaurs according to characters of fossil remains.

(Remembering and Understanding)

6. Analyze dinosaur intraspecific and interspecific behavior through time.

(Remembering and Understanding)

### **Lecture topics and dates (those in red will include the material of the midterm)**

Lectures are based on a variety of sources, not only on the textbook. The order is also diverging from the textbook, but related chapters are named after lectures. The following lecture topics will be covered in this course with slight shifts in associated dates due to progress at the time.

Sept. 11: Introduction to the course: a cross section through the fossil record (**this lecture will not be posted**)

Sept. 13: Earth' changing paleogeography and the Mesozoic landscape (chapter 2)

Sept. 18: Taphonomy: How do fossils form? (chapter 1)

Sept. 20: Taxonomic order in the natural world: where do dinosaurs fit? (chapters 3 and 4)

Sept. 25: Dinosaur anatomy (chapter 5)

Sept. 27: Fossil prospecting, collecting and preparation (chapter 1)

Oct. 2: Stegosaur and Ankylosaur (chapter 10)

Oct. 4: Pachycephalosaurs (chapter 11)

**Oct. 4, 6 to 8 PM: Midterm, locality will be announced**

Oct. 9: Ceratopsia: Horns and frills (chapter 11)

Oct. 11: Dr. Michael Ryan (expert on ceratopsian dinosaurs), guest lecture

Oct. 16: Ornithopoda: The great herds (chapter 12)

Oct. 18: Sauropoda: the giants (chapter 9)

### **Week of Oct. 21 to 25: no lectures due to fall break**

Oct. 30: Theropoda (chapters 6 and 7)

Nov. 1: Theropoda; origin and early evolution of birds (chapter 8)

Nov. 6: Pterosaurs

Nov. 8: Dinosaur tracks (ichnology)

Nov. 13: Dinosaur's thermoregulation (chapter 13)

Nov. 15: Patterns of dinosaur evolution (chapter 14)

Nov. 20: Marine Reptiles

Nov. 22: Extinction events in geological history

Nov. 27: The extinction at the Cretaceous/Tertiary boundary (chapter 16)

Nov. 29: Biotic recovery and the rise of mammals

Dec. 4: Guest lecture by Dr. Jordan Mallon (Canadian Museum of Nature)

Dec. 6: catching up

### **Academic Accommodation**

You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:

**Pregnancy obligation:** write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details see the Equity Services website at [carleton.ca/equity](http://carleton.ca/equity)

**Religious obligation:** write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details see the Equity Services website at [carleton.ca/equity](http://carleton.ca/equity)

**Academic Accommodations for Students with Disabilities:** If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or [pmc@carleton.ca](mailto:pmc@carleton.ca) for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. For more details, visit the [Paul Menton Centre website](#).

**Survivors of Sexual Violence:** As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: [carleton.ca/sexual-violence-support](http://carleton.ca/sexual-violence-support)

**Accommodation for Student Activities:** Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or

as soon as possible after the need for accommodation is known to exist. For more details, see [the policy](#).