

University of Alberta

Introduction to Dinosaurs in the Fossil Record

PALEO 200

Fall 2018

**INSTRUCTOR:** Gavin Bradley

**Office:** CCIS 5-216

**E-mail:** gbradley@ualberta.ca

**Website:** Paleo 200 will be available on your eClass portal within one week of course start date. Dino 101 Videos hosted on: [www.coursera.org](http://www.coursera.org)

**OFFICE HOURS:** Online only, via the forums on the eClass site, or through email.

**LECTURE TIME:** Class officially starts September 4<sup>th</sup>. All lessons are available as videos, readings and interactive learning objects at (<https://www.coursera.org/course/dino101>). It is the student's responsibility to engage with this online content throughout the course. **You must register for a free Coursera account at [www.coursera.org](http://www.coursera.org) using your ualberta.ca email address, and then follow the permalink emailed to you by the instructor/posted on eClass to join the University of Alberta's exclusive class.** You will be joining the free (not Signature) version of Dino 101 with Coursera. If you accidentally enroll in the paid version, you will need to apply to Coursera, not the University, for a refund.

**ECLASS SITE:** Students registered in PALEO 200 should post questions about course content, logistics, and exams in the eClass forums, rather than the Coursera private session forums. By posting in the eClass forums, you will have more direct access to help from your instructor, and will likely receive a quicker response. To access the eClass site, go to <https://eclass.srv.ualberta.ca/portal/> login to the University of Alberta Credit Courses section, and select PALEO 200.

**STUDENT WELLNESS:** I understand that University is a stressful time for everyone, so it is important to take care of your mental health and happiness. If you are feeling overwhelmed, anxious, or just need someone to talk to, please be aware that there are a number of different sources of help at the University; from the Peer Support Centre to free Counseling and Clinical Services. Alternatively, remember that your Instructors and TAs can be resources too, and are here to listen and help.

For more information, please visit: <https://www.ualberta.ca/current-students/wellness/mental-health>

---

**COURSE DESCRIPTION:** Students will learn the fundamental processes of how and what we know about the fossil record, with a special focus on dinosaurs. Topics include fossilization, fossil collection/curation, morphological analysis, organismal evolution, paleoecology, protection of fossils, speciation, stratigraphy, and taphonomy. Students learn how paleontological research determines the ages, behaviour, breeding, life cycles, physiology, sexes and other aspects of the biology of dinosaurs and other extinct animals.

*NOTE: This course will be delivered entirely on-line. Course materials and activities include video segments, course notes, and learning and evaluation activities.*

**COURSE PREREQUISITES:** Prerequisites: Biology 30 or equivalent, or any 100-level course in the Faculty of Science. Students who have obtained credit for PALEO 201 cannot take PALEO 200 for credit. 'It is important to prepare yourself for this course through a review of the prerequisite material. Students who do not have the required prerequisites at the time of taking this course should not expect supplementary professorial tutoring from the instructor.

**COURSE OBJECTIVES AND EXPECTED LEARNING OUTCOMES:**

In this course, students will learn about the many kinds of non-avian dinosaurs that roamed the earth during the Mesozoic Era, from 250 to 65 million years ago. In order to deliver a comprehensive survey of this important group of animals, topics include adaptations, anatomy, behavior, evolutionary theory, feeding specializations, fossilization processes, growth, integumentary structures, life cycles, locomotion, major groupings, origins, paleogeography, plate tectonics, reproduction, species concepts, stratigraphy, and the extinction event that brought their dominance to an end.

---

**COURSE MATERIAL:**

There is no textbook required for this course. Lessons are available online through Coursera (<https://www.coursera.org/learn/dino101>). You must register for the free (not Signature Track) version of Dino 101 with Coursera, using your ualberta email address (full instructions above and on eClass page). Course Notes and supplementary readings are provided for each lesson, both on the Coursera site and on eClass. These are required readings unless otherwise stated. Students can also find a Course Glossary on each of these sites. Extra resources will be posted on eClass.

**Lecture Schedule & Assigned Readings:**

The online course will cover the following topics:

- Lesson 1, September 4-8: "Appearances and Anatomy" covers the diversity in dinosaur appearances, and students will be able to identify major features of the major groups of dinosaurs.
- Lesson 2, September 10-14: "Death and Fossilization" describes how fossils form, how we interpret the taphonomy of skeletons and bonebeds, and looks at the possible biases taphonomic events may create in the fossil record.
- Lesson 3, September 17-21: "Eating" looks at the variety of food types, feeding habits, and feeding adaptations amongst the major groups of dinosaurs.
- Lesson 4, September 24 -28: "Moving Around" helps students understand the general modes and styles of locomotion in the major dinosaur groups. The lesson also describes general methods of evaluating hypotheses on locomotion.
- Lesson 5, October 1-5: "Birth, Growth, Reproduction" provides a generalized life history of a dinosaur, from birth through adulthood, including reproduction. The student will be able to describe major techniques of evaluating growth stages and rates in dinosaurs.
- Lesson 6, October 8-12: "Attack and Defense" examines the behaviours and structures that may have served for attack or defense through the lifetime of a dinosaur.
- **Midterm Exam: October 15 to 19th.**
- Lesson 7, October 22 to 26: "What is a Species" will teach the different ways of defining what a species is. Students will be able to compare the strengths and weaknesses of different species concepts.
- Lesson 8, October 29 - November 2: "Evolution" will describe the basic theories of speciation, and discusses how these different methods of speciation may have occurred, including both hypothetical and empirical examples.
- Lesson 9, November 5 - November 9: "Stratigraphy and Geologic Time" provides basic stratigraphic concepts and the scale of earth history. Students will learn about the evolution of groups of dinosaurs through time.
- **Reading week: November 12 - 16**
- Lesson 10, November 19 - 23: "Palaeogeography and Plate Tectonics" presents the basic concepts in plate tectonics and the evolution of the earth's surface.
- Lesson 11, November 26 - November 30: "Dinosaur Origins" will look at the evolution of dinosaurs from non- dinosaurian archosaurs.
- Lesson 12, December 3 - December 7: "Dinosaur Extinction" will examine the end Cretaceous extinction event, and provide examples of vertebrate groups that both persisted and died out during the event.
- **Final Exam, tentative dates: One week period between Dec. 10th to 21st.**

**Optional Learning Resources:** Quizlet study aids and audio versions of the course notes will be uploaded onto eClass throughout the year. For those interested in additional information on the dinosaurs or concepts introduced in this course, titles of additional reading material will also be provided on eClass.

---

## EVALUATION:

### Mark breakdown:

- 50%: midterm
- 50%: final exam

**Grade point averages:** Grade evaluation will be by a combination of relative standing in the class and absolute achievement. This means that each assignment and test will be assigned a numerical mark and those marks will be summed. A final grade will be assigned based on the overall quality of the work done and where possible on natural breaks in the grade distribution, so as to be consistent in standard with previous years' grading. No absolute grade distribution ('curve') will be imposed on the grades, but the overall level and range of grades is likely to be similar to other classes at this level at the University of Alberta, in which the mean grade is typically in the B to B+ range.

Grades are unofficial until approved by the Department and/or Faculty offering the course. As an example, in previous years, final letter grades based upon cumulative marks for online palaeontology courses were as follows, and I would expect to see a similar trend this year:

97-100% = A+

94-96.9% = A

90-93.9% = A

85-89.9% = B+

80-84.9% = B

75-79.9% = B

70-74.9% = C+

65-69.9% = C

60-64.4% = C

55-59.9% = D+

50-54.9% = D

>50% = F

**NOTE:** Grades are unofficial until approved by the Department and/or Faculty offering the course.

## EXAMS:

The University Learning Assessment Centre will digitally administer the midterm and final exams, **which you will have to attend in person**. Students will sign up for an examination session during the week of the midterm and also during the week of the final exam. NOTE: Be

certain to carefully record which examination sessions you have signed up for! Forgetting to attend the correct session will not automatically guarantee you a seat in a different session.

**Format of Exams:** Exams will be composed of multiple choice questions and will be administered electronically at the Learning Assessment Centre, University of Alberta (North Campus). Address: Education North 3-106, University of Alberta, 11210 - 87 Ave Edmonton, AB, T6G 2G5.

**Midterm Exam: This will run the week of October 15th to 19th, 2018** and will test the content from weeks 1-6 of the course.

You must register for your own exam! Registration will open approximately 2 weeks ahead of the scheduled exam date. To do this:

1. Follow this link: <http://lac.ualberta.ca/students#book>
2. Login using your U of A account.
3. The dates for the midterm exam will appear under: Paleo200 Fall 2018 Midterm
4. Select the date. A new small window will appear under the date and you will be able to select the time to begin the exam. Remember you will have 2 hours to complete the exam.
5. Register.

Please, remember that if you have any problems during registration or you want to change your exam date you will need to contact the Learning Assessment Center as soon as possible at:

Telephone: (780) 492-3563

Email: [edlac@ualberta.ca](mailto:edlac@ualberta.ca)

I will not be able to help you in this matter because I don't have access to the internal registration system of the Learning Assessment Center and don't have the ability to make changes.

**Final Exam: The final exam will run for one week, yet to be determined, between December 10th and 21<sup>st</sup>, 2018.** Registration will require you to follow the same steps as for the midterm exam (see above).

The final exam will primarily assess weeks 7-12 of the course material, however students should be able to recall and build upon key concepts from weeks 1-6. Some questions will require interpretation of images. NOTE: Students will have access to sample multiple-choice questions in the style they can expect to see on the midterm and final exams. These examples of representative evaluative material can be found on the eClass site.

**Scheduling Exams with the Learning Assessment Centre:** Students will be responsible for scheduling their own examination session (see above) through the Learning Assessment Centre's website: <http://lac.ualberta.ca/> A link to the booking page can be found on the course eClass site. Students will log in using their CCID and password to book their exams by selecting a time during the five-day (one school week) span that the exam will be available.

**Midterm Review:** A period for midterm reviews will be established once the grades are posted on eClass. Reviews will only be through appointment. Students will write an email to the Instructor asking for an appointment. The instructor will assign a day and a time slot. The Instructor/TA will try to accommodate as many students as possible, but please take into consideration the high number of students (around 800 students) and petitions. Due to the high number of students in this course, appointments will be scheduled on a first-come first-serve basis and a rigid schedule will need to be maintained to accommodate the highest number of students. Failure to show up for an established appointment will result in losing the chance to review the exam.

**Missed Midterm Exams:** The exam will only be available during the week of October 15<sup>th</sup>-19<sup>th</sup>, and due to the students' ability to choose the exam dates and times, deferrals will not normally be granted. However, a student who cannot write an examination due to incapacitating illness, severe domestic affliction or other compelling reasons can apply to take the midterm later in the week. In such cases, it is necessary for students to notify the instructor promptly – prior to the examination if the student has advance warning, or within two working days of the scheduled examination session for sudden illnesses. Deferral of term work is a privilege and not a right; there is no guarantee that a deferral will be granted. Misrepresentation of Facts to gain a deferral is a serious breach of the Code of Student Behaviour.

**Deferred Final Examination:** As with the midterm exam, the final exam will only be available for one week, yet to be confirmed, within the University's examination period of December 10-21, 2018. Deferrals will not normally be granted, due to the students' ability to choose the time and date of their final exam. Exceptions include religious observances. In these cases, students must contact the instructor within two weeks of the start of Winter Term to request a deferred exam. A student who cannot write the final examination due to incapacitating illness, severe domestic affliction or other compelling reasons can apply for a deferred final examination later that same week. In the event of missing the final exam, it is necessary for students to notify the instructor promptly – prior to the examination if the student has advance warning, or **within two working days** of the scheduled examination session for sudden illnesses. Deferred examinations are a privilege and not a right; there is no guarantee that a deferred examination will be granted. Misrepresentation of Facts to gain a deferred examination is a serious breach of the Code of Student Behaviour.

**Reexamination:** A student who writes the final examination and fails the course may apply for a reexamination. Reexaminations are rarely granted in the Faculty of Science. These exams are governed by University (Calendar section 23.5.5) and Faculty of Science Regulations (Calendar section 192.5.3). Misrepresentation of Facts to gain a reexamination is a serious breach of the *Code of Student Behaviour*.

**Extra credit:** Any and all requests for extra credit will be denied.

---

## **STUDENT RESPONSIBILITIES:**

**Academic integrity:** "The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at [www.governance.ualberta.ca](http://www.governance.ualberta.ca)) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University."

All forms of dishonesty are unacceptable at the University. Any offence will be reported to the Associate Dean of Science who will determine the disciplinary action to be taken. Cheating, plagiarism and misrepresentation of facts are serious offences. Anyone who engages in these practices will receive at minimum a grade of zero for the exam or paper in question and no opportunity will be given to replace the grade or redistribute the weights. As well, in the Faculty of Science the sanction for cheating on any examination or major assignment will include a *disciplinary failing grade* (NO EXCEPTIONS) and senior students should expect a period of suspension or expulsion from the University of Alberta.

See Don't Do It sheet for more detailed outline of this policy: <https://cloudfront.ualberta.ca/-/media/science/research-and-teaching/documents/2017/dont-do-it-august-2017.pdf>

**Exam protocol:** Your student photo I.D. is required at exams to verify your identity. The only other items students may bring into the examination room are water bottles. Students will not be allowed to begin an examination after it has been in progress for 30 minutes. Students must remain in the exam room until at least 30 minutes has elapsed. Electronic equipment cannot be brought into examination rooms. Students caught with electronic devices during the examination sessions may face charges under The Code of Student Behaviour.

**Cell phones:** Cell phones are not to be brought to exams.

---

## **ADDITIONAL LEARNING RESOURCES AND ASSISTANCE:**

**Academic Success Centre:** Students who require additional help in developing strategies for better time management, study skills or examination skills should contact the Student Success Centre (<https://www.ualberta.ca/current-students/academic-success-centre>) located in SUB (Student Union Building). They also provide writing resources.

**Centre for Writers:** Students desiring additional assistance with writing assignments (both native and on-native English speakers) can visit the Centre for Writers (<http://c4w.ualberta.ca/>), located in Assiniboia Hall. One-on-one appointments can be booked online at their website, along with workshops and additional assistance.

**Counselling and Clinical Services, and the University Health Centre:** Learning effectively is difficult if you feel unwell, both physically and mentally. For any and all mental health concerns please contact Counselling and Clinic Services (<https://www.ualberta.ca/current-students/counselling>), located in SUB (Student Union Building). For physical health concerns, please contact the University Health Centre (<https://www.ualberta.ca/services/health-centre>), also located in SUB. Both are great resources, and you shouldn't hesitate to contact either if you have any health concerns.

**Recording and/or distribution of course material:** Audio or video recording, digital or otherwise, of course content by students is not allowed. Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose.

**Students eligible for accessibility-related accommodations (students registered with Accessibility Resources (<https://www.ualberta.ca/current-students/student-accessibility-services/>):** Eligible students have both rights and responsibilities with regard to accessibility related accommodations. Students who require accessibility-related accommodation in this course are advised to discuss their needs with AR. Please note that adherence to procedures and deadlines is required for U of A to provide accommodations. Consequently, scheduling exam accommodations in accordance with AR deadlines and procedures is essential. Contact AR ([www.ssds.ualberta.ca](http://www.ssds.ualberta.ca)) for further information.

---

**DISCLAIMER:** Any typographical errors in this Course Outline are subject to change and will be announced in class. The date of the final examination is set by the Registrar and takes precedence over the final examination date reported in this syllabus.



**COPYRIGHT:** Gavin Bradley, Department of Earth and Atmospheric Sciences; Science Learning and Innovation Facilitation Team, Faculty of Science, University of Alberta (2018). With thanks to Dr. Michelle Merkarski, Dr. Philip Currie and Dr. Angelica Torices for previous years' syllabi.