DEPARTMENT of SCIENCE

COURSE OUTLINE – Fall 2017

PALE200 (A2): Introduction to Paleontology **– 3 (3-0-0) 45 Hours over 15 Weeks**

INSTRUCTOR:	Matthew Vavrek	**PHONE:**	N/A
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OFFICE HOURS:	By appointment		

CALENDAR 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.

PREREQUISITE(S)/COREQUISITE: Biology 30 or equivalent or 1000-level science course or consent of instructor.

REQUIRED TEXT/RESOURCE MATERIALS: *Dinosaurs: A Concise Natural History* by David E. Fastovsky and David B. Weishampel. This textbook is recommended, but not required. Additional course readings will be posted on Moodle.

DELIVERY MODE(S): The class will be primarily lecture based, with several additional field and lab based classes (additional dates TBA). The course will operate on a "flipped" classroom model, with students using the University of Alberta Dino 101 course modules available on Coursera (https://www.coursera.org/learn/dino101)

Lectures – Monday 18:00-20:50, Rm. J203

COURSE OBJECTIVES:
1. Understand the general progression and timing of life on earth from its first appearance to today, with a special focus on non-avian dinosaurs
2. Demonstrate knowledge of the major groups of non-avian dinosaurs, including their primary characteristics, physiology and their relationships to each other and other major branches of vertebrates
3. Demonstrate knowledge of large scale geological and ecological processes that have influenced dinosaur evolution
4. Demonstrate knowledge of the collection, curation and ownership of fossils, particularly in Alberta

LEARNING OUTCOMES: Upon completion of this course the student will have a working knowledge of the history and development of the field of palaeontology. As well, students will have a general understanding of the major geological processes that have influenced the evolution and ecology of dinosaurs, and the general timing and appearance of major dinosaur groups through the Mesozoic.

TRANSFERABILITY:
University of Calgary; University of Alberta; King's University College

***Warning:** Although we strive to make the transferability information in this document up-to-date and accurate, **the student has the final responsibility for ensuring the transferability of this course to Alberta Colleges and Universities**. Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at Alberta Transfer Guide main page http://www.transferalberta.ca or, if you do not want to navigate through few links, at http://alis.alberta.ca/ps/tsp/ta/tbi/onlinesearch.html?SearchMode=S&step=2

** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. **Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability**

EVALUATIONS: Assignments - 40%
Midterm Exam - 25%
Final Exam - 35%

GRADING CRITERIA: (The following criteria may be changed to suite the particular course/instructor)
Please note that most universities will not accept your course for transfer credit **IF** your grade is **less than C-**.

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	90-100		C+	2.3	67-69
A	4.0	85-89		C	2.0	63-66
A-	3.7	80-84		C-	1.7	60-62
B+	3.3	77-79		D+	1.3	55-59
B	3.0	73-76		D	1.0	50-54
B-	2.7	70-72		F	0.0	00-49

COURSE SCHEDULE: Students will be expected to review online material/resources BEFORE the in class lecture, as the lectures are designed for more in depth discussion and debate of the concepts. There will be a field trip on September 30th to either a local fossil hotspot or (if weather is poor) to the Philip J. Currie Dinosaur Museum.

Date	Topic
September 11th	"Appearances and Anatomy" - Students will learn the major groups of dinosaurs and their main defining characteristics.
September 18th	"Death and Fossilization" - Students will learn about the processes acting on an organism after it dies that will lead to it becoming (or not becoming) a fossil (i.e. taphonomy and diagenesis).
September 25th	"Eating" - What types of food did dinosaurs eat, and what were the habits and feeding adaptations that each group possessed.
September 30th	Field Trip (location to be determined closer to date)
October 2nd	"Moving Around" - What are the different locomotory methods that different groups of dinosaurs used, and what were the adaptive advantages or disadvantages of each type? Also, how can modern researchers infer locomotory function in extinct animals?
October 9th	"Birth, Growth, Reproduction" - What is the general 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.
October 16th	"Attack and Defence" - What types of adaptations did dinosaurs possess that would have allowed for attack or defense? What types of behaviours can be inferred from fossil evidence?
October 20th	Assignment #1 Due
October 23rd	MIDTERM EXAM
October 30th	"What is a Species" - What are the major species concepts that are used in palaeontology? What are the differences between the major concepts, and what concept would be used in a given situation? "Evolution" - What are the basic processes underlying evolution, and by what means might a new species arise?
November 6th	"Stratigraphy and Geologic Time" - Students will learn the basic geological principles surrounding stratigraphy and how geologic time is determined, as well as how these concepts relate to our understanding of the evolution of dinosaurs and other life on earth.
November 20th	"Palaeogeography and Plate Tectonics" - What are the basic principles of plate tectonics, and how may have changes in the earth's surface led to effects on dinosaur history?
November 27th	"Dinosaur Origins" - What are the phylogenetic, temporal and geographic origins of dinosaurs?
December 4th	"Dinosaur Extinction" - How have both minor and major extinction events affected the evolutions and ecology of dinosaurs through time.
December 8th	Assignment #2 Due
TBD	FINAL EXAM

STUDENT RESPONSIBILITIES: Students must come to class prepared to discuss the topics covered that week, by completing the online resources for that week. Students are also responsible for all assignments to be completed outside of class time.

STATEMENT ON PLAGIARISM AND CHEATING:

Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the Student Conduct section of the College Admission Guide at http://www.gprc.ab.ca/programs/calendar/ or the College Policy on Student Misconduct: Plagiarism and Cheating at http://www.gprc.ab.ca/about/administration/policies/

**Note: all Academic and Administrative policies are available on the same page.