Natural History of Dinosaurs

Syllabus
(BIO/ESS 065)
Winter/Spring 2016

Lecture time:	Mondays, Wednesdays, and Fridays, 11:30 am – 12:20 pm (50 min)
Lecture location:	Classroom Office Building (COB) 114
Exam Date/Location:	**Monday May 9, 2016 from 3-6pm in CLSSRM 110**

Instructor: Professor Justin D. Yeakel (jdyeakel@gmail.com)
Science and Engineering Bldg., Rm. 288
Office hours: MW 2-4 (SE1 288) or by appt.

Discussion section time and location:

Discussion Section times:	Section 1	M 1:30-2:20 (50 min)
	Section 2	M 2:30-3:20 (50 min)
Location:	CLSSRM 282	
Teaching Assistants:	Paola Saldierna Guzman Bobby Nakamoto	

Office hours:

Justin:	2-4 MW (or by appt.); SE1 288
Paola:	12:25-1:25 W; SE1 398
Bobby:	10-11 WF; Alcove near SE1 281

I. **Course Description:** This course fulfills general education requirement, a lower division requirement for the Ecology and Evolutionary Biology (EEB) emphasis track of the Biological Sciences Major, as well a lower division requirement for the Earth Systems Science Major. This course provides an introduction to the history of life, with an emphasis on the evolutionary ecology of dinosaurs during the Mesozoic Era. *Prerequisite: none. Normal Letter Grade only.*

II. **Course Goals and Outcomes:**
Become familiar with Earth history and the history of life through the lens of the origin and dominance of Dinosauria during the Mesozoic Era (252-66 million years ago). This will include a detailed understanding of the relationships between dinosaur taxa, their known ecological niches, and the clues by which paleontologists reconstruct these animals and their environment.

III. **Format and Procedures:**
1. This course is structured as follows: 3 50-minute lecture session with me and one 50 minute discussion/ practical section with the TA per week.
2. Discussion sections will provide students an opportunity to discuss in more detail concepts introduced in class, practical sessions on graphing, reading scientific papers, data collection, and review for exams. *Your participation in discussion section is required and is part of your grade* (see Grading below).

IV. **Course Requirements & Grading Procedures:**

a. ***Class Attendance and Participation Policy***:
Students are expected to attend all lectures; and will sign in for attendance. It has been shown that a student's performance in a course is ***closely*** coupled to their attendance. *Attendance and participation in the discussion section is* ***required*** *and will be a component of the student's course grade (see Discussion syllabus for details).*

Students are required to have a bound notebook (not an iPad or other electronic device) for taking notes during lectures.

b. ***Required and Supplemental Readings***:

Required Textbook: *Fastovsky & Weishampel. Dinosaurs: A Concise Natural History, 2nd edition.* Selections from: *Brusatte, S. Dinosaur Paleobiology.* (provided)

Course Website: http://jdyeakel.github.io/teaching/dinos/
Information, lectures, notes, and important dates/alerts related to the course will be posted here.

c. Course Assignments and Projects:
LEARNING WILL BE ASSESSED IN THE FOLLOWING MANNER:
Assignments (e.g., homework, natural history report) should be handed in on time.
Late assignments will lose a letter grade (10%) each day past the due date.

Homework: Homework will be assigned by the Teaching Assistant. The assignments will include problem sets, reading, and writing and will be directly related to material presented in class, for which students may expect to see on an exam. Some assignments will be based on readings from the primary literature.

Natural History Report: Each student will choose a topic of interest concerning the natural history of dinosaurs and write a **1/2 page abstract** of their chosen topic. This abstract will serve as one of the above homework assignments and requires approval from the instructor. Pending approval of this summary statement, each student will then write a **6-page research report** (no more, no less) on their chosen topic.

Quizzes: **4 quizzes** will be given periodically during the lecture period. They will be announced during class.

Exams: There will be three "midterm" exams during the semester and a final. If you are sick during an exam, please bring a note from your doctor verifying your illness. Missed exams based on an excused medical illness will be taken as soon as possible. ***There will be no early exams given.***

d. ***Grading***: Your final grade will be based on: lecture and sectional attendance/participation (10%), homework (20%), in-class quizzes (5%), exams (50%), and a natural history report (15%).

Letter Grading Scale: A: (90-100%); B: (75-90%); C: (65-75%), D: (50-60%), F: (<50%)

V.

VI. **Academic Integrity:** Academic integrity is the foundation of an academic community and without it none of the educational or research goals of the university can be achieved. All members of the university community are responsible for its academic integrity. Existing policies forbid cheating on examinations, plagiarism and other forms of academic dishonesty.

a. Each student in this course is expected to abide by the University of California, Merced's Academic Honesty Policy (http://studentlife.ucmerced.edu/what-we-do/student-judicial-affairs/academicy-honesty-policy). Any work submitted by a student in this course for academic credit will be the student's own work or clearly identified group work.

b. You are encouraged to study together and to discuss information and concepts covered in lecture and the sections with other students. You can give "consulting" help to or receive "consulting" help from such students. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an email, an email attachment file, a diskette, or a hard copy. Should copying occur, both the student who copied work from another student and the student who gave material to be copied ***will both automatically receive a zero for the assignment***. Penalty for violation of this Policy can also be extended to include failure of the course and University disciplinary action.

c. During examinations, you must do your own work. Talking or discussion is not permitted during the examinations, nor may you compare papers, copy from others, or collaborate in any way. Any collaborative behavior during the examinations will result in failure of the exam, and may lead to failure of the course and University disciplinary action.

d. Examples of academic dishonesty include:
   - using unauthorized materials during an examination
   - plagiarism - using materials from sources without citations
   - altering an exam and submitting it for re-grading
   - using false excuses to obtain extensions of time or to skip coursework

e. Take responsibility for honorable behavior. Collectively, as well as individually, make every effort to prevent and avoid academic misconduct, and report acts of misconduct you witness to the TA(s) or me.
   - When an instructor specifically informs students that they may collaborate on work required for a course, the extent of the collaboration should not exceed the limits set by the instructor.
   - Know what plagiarism is and take steps to avoid it. When using the words or ideas of another, even if paraphrased in your own words, you must cite your source. Students who are confused about whether a particular act constitutes plagiarism should consult the instructor who gave the assignment.
   - Know the rules --- ignorance is no defense. Those who violate campus rules regarding academic misconduct are subject to disciplinary sanctions, including suspension and dismissal.

Accommodations for Students with Disabilities: The University of California Merced is committed to ensuring equal academic opportunities and inclusion for students with disabilities based on the principles of independent living, accessible universal design and diversity. I am available to discuss appropriate academic accommodations required for student with disabilities. Requests for academic accommodations are to be made during the first 3 weeks of the semester, except for unusual circumstances. Students are encouraged to register with Disability Services Center to verify their eligibility for appropriate accommodations. The instructor will make every effort to accommodate all students who, because of religious obligations, have conflicts with scheduled exams, assignments, or required attendance. Please speak with the instructor during the 1st week of class regarding any potential academic.

Tentative Weekly Schedule: Please note that the Instructor reserves the right to change the schedule. You will be advised in advance of any changes via email or the UC web system.

Week	Date	Topic	Description	Readings	Assessments
1	1/20	Introduction to paleontology I	Intro, timescales & fossils	Fastovsky Chpt 1	
	1/22	Introduction to paleontology II	Sedimentology & Taphonomy		
S1		**None - Organizational**			
2	1/25	Evolution and classification I	Introduction to evolution and natural selection	Fastovsky Chpt 2,3	
	1/27	Evolution and classification II	More on natural selection and an introduction to classification		
	1/29	Early life history	Overview of the origin of life leading up to tetrapods		
S2		**Cladistics**	**HW1: Cladogram worksheet**		
3	2/1	Tetrapods	Life in the Permian	Fastovsky Chpt 4	
	2/3	An introduction to Dinosauria	Basal dinosaurs		
	2/5	Thyreophorans I	Stegosauria		
S3		**Anatomy**	**HW2: Anatomy worksheet**		**Homework 1 due**
4	2/8	Thyreophorans II	Ankylosauria	Fastovsky Part 2 & Chpt 5	
	2/10	Prepare for Exam I			
	2/12	**Exam I**	Good Luck!		
S4		**Review**			**Homework 2 due**
5	2/15	HOLIDAY - NO CLASS			
	2/17	Pachycephalosaurs	Basal traits and conundrums	Fastovsky Chpt 6	
	2/19	Pachycephalosaurs	Intraspecies competition then and now		
S5		**Marginocephalians**	**HW3: A scientific paper!**		
6	2/22	Ceratopsians	Basal traits and relatedness		
	2/24	Ceratopsians	After the frill is gone: diversity and movement over space		
	2/26	Ornithopoda I	Functional morphology and complex dentition	Fastovsky Chpt 7	
S6		**Natural History Report**	**HW4: Writing your Abstract**		**Homework 3 due**
7	2/29	Ornithopoda II	Dinosaur behavioral ecology		

Week	Date	Topic	Description	Readings	Assessments
S6		**Natural History Report**	**HW4: Writing your Abstract**		**Homework 3 due**
7	**2/29**	Ornithopoda II	Dinosaur behavioral ecology		
	3/2	Sauropods I	Carnivorous ancestors to gentle giants	Fastovsky Part 3 & Chpt 8	
	3/4	Sauropods II	Troubles: dealing with gigantism and the sauropod hiatus		
S7		**Sauropods**	**No homework… study!**		**Homework 4 due (abstracts)**
8	**3/7**	Sauropods III			
	3/9	Review for Exam II			
	3/11	**Exam II**			
S8		**Review for Exam II (midterm)**			
9	**3/14**	Dino physiology & ecology I.	Reproduction and growth	Brusatte Chpt 8	
	3/16	Dino physiology & ecology II.	Diet and food webs		
	3/18	Dino physiology & ecology III.	Some like it hot: endothermy vs. ectothermy		
S9		**Physiology and ecology**	**HW5: TBA**		
SPRING BREAK					
10	**3/28**	Theropods	Basal theropods	Fastovsky Chpt 9	
	3/30	Theropods	The strange: Spinosaurus, Oviraptor, and Therozinosaurs		
	4/1	Theropods	Derived theropods: brawn and brains		
S10		**Theropods**	**HW6: TBA**		**Homework 5 due**
11	**4/4**	Origin of birds I	From theropods to Avialae	Fastovsky Chpt 10	
	4/6	Origin of birds II	Feathers and flight		
	4/8	Prepare for Exam III			
S11		**Review for Exam III**	**No homework: Write papers!**		**Homework 6 due**
12	**4/11**	**Exam III**			
	4/13	Mesozoic World I	Climate and environment during the Mesozoic	Fastovsky Chpt 15, Brusatte Chpt 9	
	4/15	The Mesozoic World II	Diversity dynamics in the Mesozoic		

Week	Date	Topic	Description	Readings	Assessments
	4/13	Mesozoic World I	Climate and environment during the Mesozoic	Fastovsky Chpt 15, Brusatte Chpt 9	
	4/15	The Mesozoic World II	Diversity dynamics in the Mesozoic		
S12		**Climate Change**	**No homework: Write papers!**		
13	**4/18**	The Mesozoic World III	Mammals: masters of dentition	TBA	
	4/20	Crocodylomorphs	From croco-dogs to croco-ducks		
	4/22	Flying reptiles	Pterosaur diversity and morphology		
S13		**Air and Ocenas**			**Natural History paper due**
14	**4/25**	Swimming reptiles	Reptiles, fish, and modern ocean specialists: a comparison	TBA	
	4/27	Dinosaurs in California	Planning your next road trip		
	4/29	Macroevolution and Extinction I	Dinosaur diversity: putting it all together		
S14		**To Be Announced**			
15	**5/2**	Macroevolution and Extinction II	The K-Pg extinction event	TBA	
	5/4	Macroevolution and Extinction III	The history of mass extinction events: putting it in perspective		
	5/6	Review for Final			
S15		**Review for Final**			
	5/9	**FINAL EXAM Monday, 3-6pm CLSSRM 110**	May the Force be with you <(-_-)>		