



# **Biology of Extinct Animals (BSCI 392)**

**Spring Semester, 2018**

**Monday-Wednesday-Friday, 10:00 - 10:50, PLS 1130**

BSCI 392 is a survey of animals which formerly resided on this planet and which have few, if any, direct living descendants. The course offers students with a range of backgrounds an overview of the complexity of animal lifestyles that have existed in the past. Throughout the semester, students will use the principles governing the functional design of animals to infer lifestyles for extinct, and frequently bizarre, animals. The course consists of lectures on basic information for different fossil groups and discussions of pertinent readings from the paleontological literature.

## **Textbook**

There is no textbook for the course. Exams are based on the lecture material. Supplemental readings from the primary literature can be accessed through the 'Articles' link on the course homepage.

## **Staff**

Dr. Bretton Kent (PLS 3142; [bkent@umd.edu](mailto:bkent@umd.edu)); appointments scheduled [online](#).

## **Grading**

There are three examinations (two exams during the term and a final). Each term exam is worth 100 points and covers one-half of the course. The final examination is worth 200 points and is a comprehensive review of the whole course. Term examinations consist of two parts. The first part contains sixteen multiple-choice questions (i.e., each question can have from one to five correct answers). Each of these questions is worth 5 points for a total of 80 points on the

first part of the exam. The second part is two short essay questions, worth 10 points each, for a total of 20 points. The total for the entire exam is 100 points.

The final examination consists of forty multiple-choice questions at 5 points each (total = 200 points).

All examinations will contain numerous illustrations of extinct animals for which you will be required to make paleobiological inferences. Some of these animals will have been discussed in class, but most will require reconstructions of life styles based solely on learned principles.

There are also three group projects during the course, where student groups will use the techniques described in class to produce reconstructions of an extinct animal for discussion by the whole class (see 'Lecture Schedule' link on course homepage). Each reconstruction is worth 25 points; a maximum of 15 of these points will be assigned to the reconstruction itself, and a maximum of 10 points will be assigned for draft reconstructions produced by individuals within the groups. Details of this portion of the course will be discussed more fully later in the course.

The course grade will be determined based on a total of 475 points; 200 points for two midterm exams, 200 points for the final exam and 75 points for the three group reconstructions.

Grades are assigned on a standard 10% scale (i.e., 90% = A, 80% = B, etc.). If necessary, grades for each examination are curved to adjust scores to this scale.

### **Academic Policies**

The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course.

*Academic dishonesty will not be tolerated.* Definitions of academic dishonesty follow:

- **CHEATING:** intentionally using or attempting to use unauthorized materials, information or study aids in any academic exercise.
- **FABRICATION:** intentional and unauthorized falsification or invention of any information or citation in an academic exercise.
- **FACILITATION:** intentionally or knowingly helping or attempting to help another to violate any provision of the Code of Academic Integrity.
- **PLAGIARISM:** intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise.

**YOU WILL BE ASKED** to write and sign the University Honor Pledge on all examinations. The pledge reads as follows: "I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination." If you have further questions, please see the link below on Undergraduate Course Related Policies.

**Religious Observances:** In accordance with University Policy, no examination will be held on a major religious holiday; see the [list of these holidays](#). We realize that not all holidays are listed here. If you need to be absent for a religious observance on a day when an exam is being held you must inform us in advance and we will work with you to resolve the problem as best we can.

**Accommodating Students with Disabilities:** The Disability Support Service (a division of the Counseling Center) stands ready to assist faculty in determining and implementing appropriate academic recommendations. DSS will work closely with both faculty and students. You may contact the office at 314-7682. A booklet, *Reasonable Accommodations*, is also available to assist you in understanding this issue. Students registered with DSS will be given every accommodation they deserve (as documented via DSS). However, they will take the examination in a classroom near the lecture hall so the course staff can answer questions that may arise during the test. Examinations will NOT be administered at the DSS.

**If you need help:** We have experienced, dedicated, and knowledgeable teaching assistants in the course. If you have questions, please see the TAs first. If you need additional help, Dr. Kent are ready to assist you in any way possible. All you have to do is ask! You may meet with us by the mechanisms listed above in this syllabus. We are always happy to chat with students immediately after lecture.

The University has a larger set of policies covering undergraduate courses that are too extensive to be covered here. But the following links are useful if you have questions:

[Undergraduate Course Related Policies](#)

[Conduct of Undergraduate Courses and Student Grievances](#)

## Field Trip

There will be a Saturday trip to collect fossils on **17 February** (make-up date of **3 March**).

We will meet at Brownie's Beach (aka Bayfront Park), just south of Chesapeake Beach, MD and will collect for about 3 hours. Directions under the 'Field Trip' link on the course homepage. This trip is optional and will have no direct effect on grades. However, since we have numerous collecting sites within a few hours of campus, the trip is an excellent opportunity to learn some basic paleobiological field techniques.

## Lecture Schedule

Lecture	Date	Topic (click title to access lecture notes)
1	24 Jan.	Course Overview; Humans & Fossils
2	26 Jan.	<i>Ex Ungue Leonem</i>
3	29 Jan.	Fossilization & Information Loss
4	31 Jan.	Size Really Does Matter
5	2 Feb.	The Problem with Giants
6	5 Feb.	Principles of Animal Design
7	7 Feb.	Scaling in <i>Carcharocles megalodon</i> = <b>Group Project 1</b>
8	9 Feb.	Paradigms Lost & Found
9	12 Feb.	Thermal Strategies
10	14 Feb.	Fossil Collecting Trip Overview
11	16 Feb.	Clades & Grades -- Tracing Evolutionary Lineages
12	19 Feb.	A Puzzle with Missing Pieces
13	21 Feb.	Paleo Evo-Devo
14	23 Feb.	Reconstructing Diets
15	26 Feb.	Adaptations to Suspension-Feeding
16	28 Feb.	Adaptations to Sessility
17	2 Mar	Biomechanics of Swimming
18	5 Mar.	Biomechanics of Flying
19	7 Mar.	Biomechanics of Running
20	9 Mar.	Trace Fossils & The Evolution of Behavior
21	12 Mar.	Case Study: The False Mako Shark, <i>Parotodus benedenii</i>
-----	14 Mar.	<b>Midterm 1 [Lectures 1-20]</b>
22	16 Mar.	The Garden of Ediacara
-----	18-25 Mar.	<b>SPRING BREAK</b>
23	26 Mar.	Revolutions in Metazoan Design
24	28 Mar.	A Diverse Lot of Shelled Cephalopods
25	30 Mar.	Trilobites: Life in Three Parts
26	2 Apr.	Eurypterids (aka Sea Scorpions)
27	4 Apr.	Conodonts & Vertebrate Origins
28	6 Apr.	Calcichordates & the Echinoderm Connection
29	9 Apr.	Fishes Rule the World
30	11 Apr.	Bizarre Sharks of the Late Paleozoic
31	13 Apr.	Vertebrates Invade the Land = <b>Group Project 2</b>
32	16 Apr.	Marine Amniotes
33	18 Apr.	The Multitalented Crocodilians
34	20 Apr.	Now for Something Truly Bizarre -- Pterosaurs

35	23 Apr.	Morphology & Physiology of Sauropods
36	25 Apr.	Walking & Running Theropods
37	27 Apr.	Flying Theropods
38	28 Apr.	Flightless Flying Theropods
39	2 May	<i>Gigantopithecus</i>
40	4 May	Archaic Whales = <b>Group Project 3</b>
41	7 May	Sabertooth Cats
-----	9 May	<b>Midterm 2 [Lectures 21-40]</b>

**Final Exam is on Friday, 18 May, 8:00-10:00 am**