Spring 2-1-2017

BIOE 403.01: Vertebrate Design and Evolution

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Vertebrate Design and Evolution – Biology (BIOE) 403

Lecture Syllabus

Biology 403
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Spring 2016, TR 11:10-12:30, HS 114
Office Hours: T 9-11, W 9-10 & by appointment; Health Sciences 208
Course Handouts: http://umonline.umt.edu

Date	Topic	Reading
Jan. 24, 26	No Class Tuesday Chordate Origins, Evolutionary Hypotheses, Phylogeny *(Lecture assignment #1: Phylogenetics Website, Garland and Adolph, 1994)*	Ch 1, 2, 3
Jan. 31, Feb. 2	Phylogeny continued	Ch 4
Feb. 7, 9	Scaling: Ontogeny and Macroevolutionary Patterns	Ch 5
Feb. 14, 16	Skeletal anatomy; Mechanical Design, Form and Function	Ch 7, 8, 9
Feb. 21, 23	Skeletal Function;**; Exam I (50 pts)**	Ch 4
Feb. 28, Mar. 2	Muscular anatomy; comparative form and function	Ch 10
Mar. 7, 9	No Class Tuesday, Muscle form and function cont.;	Ch 11
Mar. 14, 16	Comparative locomotion	Ch 11
Mar. 21, 23	Spring Break, No Classes	
Mar. 28, 30	Vertebrate nervous system: Coordination and integration	Ch 13, 14
Apr. 4, 6	No Class Tuesday, Circulation and Respiration	Ch 18, 19
Apr. 11, 13	Circulation and Respiration Continued	Ch 18, 19
Apr. 18, 20	**Exam #2 (50 points** Feeding and Digestion,	Ch 16, 17
Apr. 25, 27	Digestion, Osmoregulation	Ch 20
May. 2, 4	Osmoregulation, Reproduction	Ch. 21
May 9	**Final Exam (100 points, comprehensive; 8:00-10:00 AM, Tuesday)**	

Textbook: Liem, Bemis, Walker, & Grange.
Functional Anatomy of the Vertebrates: An Evolutionary Perspective, 3rd Edition

Course Policy:
Biology 403 is a 5 credit hour course and requires substantial amount of time and effort. Through the course, you will come to view the biological world through a new pair of eyes, and you will be better prepared for entrance into the work force and/or graduate school. Biology 403 integrates much of your undergraduate education, drawing from: evolutionary biology, physics, math, general biology, animal behavior, developmental biology, and introduces aspects of geologic history. If you maintain a positive attitude and a professional demeanor throughout the semester, you will do very well.

Grading: Your final course grade is determined from your balanced performance in both lab and lecture. In other words, lab and lecture grades are combined and equally weighted to determine your final grade.

Student project: Each student will be involved in a group (3-5 students) experiment executed on a Friday with the instructors. A separate handout will outline expectations or oral and written presentations.

Writing: Biology 403 is considered a "W" (writing) course. As such, you will hand in several assignments that will be edited, corrected, and commented on by both instructors. You will be expected to submit a revision of your work to receive a grade on each assignment.

Reading: Students are expected to read and re-read assigned material at least 8-10 hours per week. Postponing your daily reading will simply result in needless pre-test anxiety.
Students are expected to faithfully attend and come prepared to both lecture and lab.
In conclusion, attending class with a "can-do-attitude" will account for the vast majority (perhaps 80%) of your success in this course. Stick with us and we promise you'll learn a wealth of information that will be useful to you throughout your career.

Grading: Your final course grade is determined from your balanced performance in both lab and lecture. In other words, lab and lecture grades are combined and equally weighted to determine your final grade.

Lecture Exam #1			50 pts
Lecture Exam #2			50 pts (comprehensive)
Final Exam			100 pts (comprehensive)
Total Lecture Exam Points			200
Total Lab Points			200 (see lab syllabus)
Writing Points			100
Assignment 2	10 pts	(Lecture)	
Project Proposal	20 pts	(Lab)	
Project, Final Paper	70 pts	(Lab)	
Total Points			500

Learning Outcomes

1. Students will be able to discuss and write syntheses of the major themes in the evolution of vertebrate form and function.
2. Students will be able to graph, problem-solve, and interpret figures describing patterns and processes in functional morphology, comparative biomechanics and physiology.
3. Students will be able to conduct all aspects of an original, guided research project within a small group, with products including a research paper and a public presentation both summarizing the experiment and results.
4. Students will be able to identify anatomical traits and functions in all chordates.
5. Students will be able to dissect and identify anatomical traits and functions in a representative mammal specimen.

Course and University Policy:

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and /or a disciplinary sanction by the University

All students need to be familiar with the Student Conduct Code.

The University of Montana provides upon request appropriate academic adjustments for qualified students with disabilities. For more information, contact the Disability Services for Students at 243-2243. This document has been fixed with heading structure and self-describing links for use with screen readers.