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Bret William Tobalske

University of Montana, Missoula, bret.tobalske@umontana.edu

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Comparative Vertebrate Anatomy – Biology (BIOE) 403

Lecture Syllabus

Biology 403

Dr. Bret Tobalske, bret.tobalske@mso.umt.edu

Fall 2021, TR 9:30-10:50, HS 114

Office Hours: T Th 11:00-12:00, W 1-2 & by appointment

Course Handouts: <http://umonline.umt.edu>

Lecture Zoom Link: <https://umontana.zoom.us/j/4198571277>

Date	Topic	Reading
Aug. 31, Sep. 2	Evolutionary Hypotheses, Phylogeny, <i>(Lecture assignment #1: Phylogenetics Website, Garland and Adolph, 1994)</i>	Ch 1, 2
Sep. 7,9	Phylogeny continued, Vertebrate Story <i>(Assignment #2)</i>	Ch 3
Sep. 14, 16	Scaling: Ontogeny and Macroevolutionary Patterns, Vertebrate Origins	Ch 4
Sep. 21, 23	Development, Skeletal Form and Function	Ch 5, 7, 8, 9
Sep. 28, 30	Exam 1 (50 pts) , Skeletal Form and Function	Ch 4
Oct. 5, 7	Muscular anatomy, comparative form and function	Ch 10
Oct. 12, 14	Muscle form and function, continued	Ch 10
Oct. 19, 21	Comparative locomotion, Vertebrate Nervous System	Ch 4, 16
Oct. 26, 28	Vertebrate nervous system: Coordination and integration	Ch 16
Nov. 2, 4	Exam #2 (50 pts) , Circulation and Respiration	Ch 12, 11
Nov. 9,11	Circ. & Resp. Cont. Thursday, No Class, Veteran's Day	Ch 12, 11
Nov. 16, 18	Circulation and Respiration, Feeding and Digestion	Ch 13
Nov. 25, 26	Feeding and Digestion, Thursday no Class Thanksgiving	Ch 13
Nov. 30, Dec. 1	Feeding, Osmoregulation	Ch 14
Dec. 7, 10	Osmoregulation	Ch 14
Dec. 14	Final Exam (100 points, comprehensive; 10:10-12:10, Tuesday)	

Textbook: Kardong

Vertebrates: Comparative Anatomy, Function, Evolution, 8th Edition

Course Policy:

Biology 403 is a 4 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 during Thursday labs with 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 assures equal access to instruction through collaboration between students with disabilities, instructors, and the Office for Disability Equity (ODE). If you anticipate or experience barriers based on disability, please contact the ODE at: (406) 243-2243, ode@umontana.edu, or visit www.umt.edu/disability for more information. Retroactive accommodation requests will not be honored, so please, do not delay. Your instructors will work with you and the ODE to implement an effective accommodation, and you are welcome to contact them privately if you wish.

University of Montana Notes:

- The official UMT mask and social distancing policy will be adhered to during lecture and lab. At present, this means that masks must be worn during lecture and lab whenever indoors. If pandemic circumstances should worsen during the semester, we will adjust according to official UMT policy.