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BIOE 403.01: Functional Vertebrate Morphology

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Biology (BIOE) 403: Functional Vertebrate Morphology
Fall 2013 Lab Syllabus

Monday 2:40-5:30 pm, Friday 1:10 – 5:00 pm, HS 102

Kristen Crandell
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Office Hours will be during open lab and by appointment.

Text: Homberger and Walker, *Vertebrate Dissection*
There are also numerous websites, alternate dissection guides, and study guides that may help in the study of comparative anatomy.

Lab handouts will be available on moodle in advance of lab at http://umonline.umt.edu
It is your responsibility to print out handouts and finish all of the reading and pre-lab work *prior* to coming to the lab.

Friday sessions will generally be held at the Field Research Station at Fort Missoula. These sessions provide time in an active biomechanics and functional anatomy lab for **group research projects** on novel scientific questions. Thus the exact time and dates that you will be required to attend will depend on your project. Project assignments will be made in the first two weeks. At the end of the semester, you will write your own scientific manuscript, and perform a professional group presentation of the results of your research. Times of meetings will be announced, due dates are on the attached handout.

Homework and Quizzes: each lab will have a homework assignment to be completed before lab and a quiz at the end of lab. Quizzes will provide examples of the types of questions on the **practical exams**.

Exams will consist of practical questions about structures, functions, and comparisons of anatomy. There will be *no* makeup quizzes or exams, period.

Pre-lab assignments are just that, short assignments to be downloaded from the website or handed out in class, and MUST be completed prior to coming to lab, *or you will not be allowed to participate.*

Lab Points:

Quizzes, Homework	50
1st lab practical	50
2nd lab practical	50
Group project	50
Participation/Preparation (20 pts)	
Group Evaluation (10 pts)	
Group Presentation (20 pts)	
	200 points

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 Code is available for review online at http://www.umt.edu/SA/VPSA/index.cfm/page/1321

Schedule (subject to revision)

Month	Date	Day	Lab and assignments
August	25	Mon.	Lab 1a: Introduction to anatomy and chordates; post-cranial skeleton of cat
	29	Fri.	Lab 1b: Comparative post-cranial skeletons
September	1	Mon.	Labor Day Holiday
	5	Fri.	Lab 2a: Cranial skeleton anatomy and Comparative skulls: evolution/migration of inner ear ossicles
	8	Mon.	Lab 3: Muscle dissection: proximal-appendicular, and major axial muscles
	12	Fri.	Initial meetings: All Groups, Field Station
	13	**Sat.**	**Field Trip: National Bison Range**
	15	Mon.	Lab 3: Muscle dissection: Comparative
	19	Fri.	Experiment time (group ____)
	22	Mon.	Lab 4: Muscle dissection: distal forelimb and cranial musculature First Draft of Proposal Due
	26	Fri.	Lab 5: Muscle function and Biomechanical techniques: sonomicrometry and strain gauges
	29	Mon.	Lab: Comparative Muscle Dissections
October	**3**	**Fri.**	No Lab – Write Final Project Proposal
	6	Mon.	Lab: Finish your dissections & review for practical
	10	Fri.	Experiment time (group ____) **[Final Project Proposal Due]**
	13	Mon.	**Lab Practical 1**
	17	Fri.	Experiment time (group ____)
	20	Mon.	Lab 6: Nervous system, brain and eye
	24	Fri.	Experiment time (group ____)
	27	Mon.	Lab 7: Circulatory system I dissection: the heart, arteries, and veins.
	31	Fri.	Lab 8: Circulatory system II
November	3	Mon.	Lab 9: Respiration and Digestion
	7	Fri.	Open lab; analysis time
	10	Mon.	Analysis time
	14	Fri.	Review for Lab Practical 2
	17	**Mon.**	**Lab Practical 2**
	21	Fri.	Work on Projects
	24	Mon.	Work on Projects
	28	Fri.	Thanksgiving Holiday
December	**1**	**Mon.**	**Work on Presentations**
	5	**Fri.**	**Symposium at Field Station**
	10	**Wed.**	**Final Paper Due**

BIOE 403 2013Research Projects

Initial meetings: Each group will meet at the designated times to discuss the rationale behind the project. Literature will be distributed at this time to aid in a more detailed literature search in preparation for writing the proposals.

Proposals: Must be submitted by noon on the date specified. They must be submitted electronically (as a MS Word attachment) via email. Receipt will be confirmed by email.
Editing suggestions will be made, and the rewrites will be due before starting the experiment. No late proposals will be accepted. Each person must write their own proposal.

Experiments: All group members are required to attend all parts of the experiment. Some may have both morning and afternoon times. The total amount of time for the experiment will be at least five hours.

Manuscripts: Must be submitted by noon on 11 December. They must be submitted electronically (as a MS Word attachment) via email. Receipt will be confirmed by email.
Format should follow the *Journal of Experimental Biology* (http://jeb.biologists.org) . No late manuscripts will be accepted. Each person must write their own manuscript.

Presentations: There is a 30 minute slot for each presentation. Please allow 5 – 10 minutes for a question-and-answer session within that slot. Presentations must be made using MS Powerpoint and brought to the session (Field Station) via CD or USB key to upload to the presentation computer at least 15 minutes before the start of the session. All group members should play equal parts in the presentation.

Details on format for proposals, manuscripts, and presentations will follow.