Functional Vertebrate Anatomy (ZOO 3713), FALL 2008
Lecture: MWF, 8.30-9.20 AM, G186 McCarty Hall A
Laboratories: M-F, 1.55-6.00 PM, 109 Carr
URL: http://www.zoology.ufl.edu/COURSES/zoo3713/2008fall/hsieh/index.html

Course Description and Objectives:
A thorough understanding of vertebrate anatomy is essential for appreciation of many fields of biology, including organismal and molecular study, paleontology, evolutionary development, biomechanics, sports therapy, and medicine. This course presents a functional perspective of comparative vertebrate anatomy, taking advantage of the diversity and conservation of morphological form in the animal kingdom to increase appreciation for how form can dictate function of select organ systems, and of the organism as a whole. Lectures are organized such that during most weeks, concepts presented earlier in the week are reinforced with special topics in the form of current events or scientific paper discussions during the Friday lecture hour. The once-weekly laboratories are an essential part of solidifying what is taught in lecture, and reinforcing anatomical terminology. Consistent and punctual attendance to all parts of the course is expected and required.

Instructor:
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Office Hours: Wednesdays, 10-11 AM

Teaching Assistants:
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Textbooks:
Functional Anatomy of the Vertebrates: An Evolutionary Perspective
By Liem, Bemis, Walker and Grande, Third Edition, Brooks Cole Publisher, 2000.
The Dissection of Vertebrates
By De Iuliis and Pulerà, Elsevier Inc., 2007

Handouts and Supplemental Readings:
Handouts and readings for the lab and lecture will be posted on the course website. It is expected that you will print the appropriate handouts and bring them to class with you. Lecture handouts will be posted by 10PM the night before class and readings will be posted by Saturday for the following week's discussion. Laboratory handouts will be posted by Thursday of the preceding week.

Examinations and Grading:
Final grades will be determined as a combination of exams, quizzes, attendance to both lecture and lab, and participation in the course. It is very difficult to learn when one is not engaged and actively interacting with one's peers and with the instructors.

Mid-term Exams (2 @ 165 pts each)	330
Final Exam (cumulative)	350
Lab	300
Attendance and Participation	20
Total	1,000

Classroom Conduct

Please arrive to class prepared to learn and actively participate in all aspects of the course. Since interaction and open discussion are essential to effective learning, be respectful towards your classmates. Unusual comments often generate provocative discussions, if the time is taken to understand a novel point of view. We might *all* learn something new. That said, if you do make a contentious statement, you may also be asked to defend it!

To enhance the learning environment, unnecessary disruptions are unacceptable. Cell phone conversations must be completed before entering the lecture hall and the phone turned off, or the ringers silenced, for the full duration of class.

By teaching this course, I commit to joining you in the pursuit of knowledge for as far as you would like to take it. To ensure equal opportunity to every student in the class, I will not tolerate dishonest or demeaning behavior. I expect you to conduct yourself according to the University Honesty Pledge, which I reproduce below. I encourage you ask questions during lecture, to work together in study groups, and to openly discuss what you are learning with your peers, the teaching staff, and me, as this is an essential part of the learning process. However, cheating on assignments and exams will not be tolerated, and will be reported to the Dean of Students. If you cheat, you have adversely affected the other students in the course, and this will result in appropriate disciplinary action.

University Honesty Pledge

"I understand that the University of Florida expects its students to be honest in all of their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action, up to and including expulsion from the University."

University of Florida Rule 6C1-4

Lecture Schedule and Readings (*subject to change*)

Week	Class	Date	Topic	Reading/Assignment
1	1	August 25	Course introduction; What is Functional Anatomy?	Ch 1
	2	August 27	Organismal Classification	Ch 2 and 3
	3	August 29	Vertebrate Body Plan	Ch 4
2		September 1	**NO CLASS**	
	4	September 3	Reproduction and Development	Ch 4
	5	September 5	Research topic: The origin of the Cetacean body plan	Posted Readings
3	6	September 8	Skin	Ch 6
	7	September 10	Tissues and Bone	Ch 5, pp. 183-200
	8	September 12	Research topic: Trabeculae realignment in response to load orientation in birds	Posted Reading
4	9	September 15	Physics for Biologists	Ch 5
	10	September 17	How Physics Dictates Motion	Posted Reading
	11	September 19	Research topic: TBA	Posted Reading
5	12	September 22	The Vertebrate Skeleton: The Cranium	Ch 7
	13	September 24	The Vertebrate Skeleton: Mastication and Teeth	Ch 7
	14	September 26	Research topic: Darwin's finches and ballistic toad tongues	Posted Reading
6	15	September 29	**MIDTERM EXAM 1**	
	16	October 1	The Vertebrate Skeleton: The Axial Skeleton	Ch 8
	17	October 3	Research topic: Locomotion without Limbs	Posted Reading
7	18	October 6	Limb Evolution	Ch 9
	19	October 8	The Vertebrate Skeleton: Limbs	Ch 9
	20	October 10	Research topic: TBA	Posted Reading
8	21	October 13	The Muscular System	
	22	October 15	Terrestrial Locomotor Modes and Springs and Dampers in Locomotor Control	Ch 11, pp. 360-380
	23	October 17	Research Topic: Locomotor Control – Passive or Active Stability? Cockroach running.	Posted Reading
9	24	October 20	Revisiting Physics in Functional Anatomy	TBA
	25	October 22	Why We Love to Hate Moment Arms (and Why We Shouldn't): Anole Lizard Ecomorphology	TBA
		October 24	**NO CLASS**	
10	26	October 27	Other Locomotor Modes: Swimming	Ch 11, pp. 354-359
	27	October 29	Other Locomotor Modes: Flight	Ch 11, pp. 380-391
	28	October 31	HAPPY HALLOWEEN! Research Topics: Adhesion	Posted Reading

Week	Class	Date	Topic	Reading/Assignment
11	29	November 3	Sensory Systems: CNS and PNS	Ch 13 & 14
	30	November 5	Internalizing the External World: Sensory Organs	Ch 12
	31	November 7	Research Topic: Sensing turbulent flows in swimming fish	Posted Reading
12	32	November 10	**MIDTERM EXAM II**	
	33	November 12	Respiratory System	Ch 19
	34	November 14	Research Topic: Diving seals and amphibious fishes	Posted Reading
13	35	November 17	Circulatory System	Ch 18
	36	November 19	Hormones and Physiology	Ch 15
	37	November 21	Research Topic: TBD	Posted Reading
14	38	November 24	Reproduction	Ch 21
	39	November 26	Digestive System I	Ch 17
		November 28	**THANKSGIVING, NO CLASS**	
15	40	December 1	Digestive System II	Ch 17
	41	December 3	Excretory System	Ch 20
	42	December 5	Research Topic: TBD	Posted Reading
16	43	December 8	Students' Choice	
	44	December 10	**LAST DAY OF CLASS** Closing Remarks, Exam Discussion	
		December 15	**FINAL EXAM**	