Functional Vertebrate Anatomy (ZOO 3713C), Spring 2016

Lectures: Monday, Wednesday, Friday, 11.45am – 12.35pm (period 5)

Location: Psychology, Rm 0130

Laboratories: Monday to Wednesdays, 1.55 - 6.00 pm (periods 7-10)
Section 11C9 Monday
Section 11HE Tuesday
Section 11DD Wednesday

Location: Rm109 Carr Hall (Biology Department)

Course Description and Objectives:
A thorough understanding of Vertebrate anatomy is essential for appreciation of many fields of biology, including whole organism biology, molecular and cellular biology, paleontology, evolutionary development, biomechanics, sports therapy, medicine and veterinary medicine. This course presents a functional perspective of comparative vertebrate anatomy, taking advantage of both the diversity and conservation of morphological structure in the animal kingdom to increase appreciation for how form can dictate function of select organ systems and of the organism as a whole. Form is studied not only at the anatomical level but also at the cellular and molecular level as well as at the developmental level as these are the basic building blocks on which anatomy is moulded. The organisms studied are the Chordates which range from Tunicates to Mammals.

Three-weekly lectures and the once-weekly laboratories are intended to be mostly co-ordinated such that the laboratory work solidifies and expands upon what is discussed in the lectures and reinforces anatomical terminology, structure and form. The systems covered include all the major components of the vertebrate body and the understanding of these systems is achieved by lectures, dissection, examinations of prepared tissues, histological studies and practical work.

Course requirements: Consistent and punctual attendance to all parts of the course is expected and required and a component of the marks is specifically laid aside for this. There will be a total of three non-cumulative examinations on the lecture material spaced out during the course with the third examination during finals week and these examinations will be multiple choice. There are also several quizzes during the laboratory periods which all contribute towards the final grade as well as two lab exams. There is also a short essay required on a topic of contemporary interest in biology.

Instructor:
Malcolm Maden
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Teaching Assistants:

Luciano Soares – lsoares@ufl.edu
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Required Texts:

Functional Anatomy of the Vertebrates: An Evolutionary Perspective
by K.F. Liem, W.E. Bemis, W.F. Walker and L. Grande, 3rd Edition, Brooks Cole, 2001.

Mammalian Anatomy: The Cat
by A.M. Sebastiani and D.W. Fishbeck, 2nd Edition, Morton Publishing Company, Colorado, 2005.

Lab manual: Kardong, K.V. and Zalisko, E.J. Comparative Vertebrate Anatomy – A laboratory dissection guide 7th Edition. 2014.

Lectures, Handouts and Supplemental Readings:

Lectures will be posted on the course website on Canvas at least the day before class and it is expected that you will either print the appropriate handouts and bring them to class with you or follow them on Canvas and they will be available there for revision. Papers for the short essay will be posted the previous week.

Handouts and readings for the lab will be posted on the course website. Laboratory handouts will be posted by Thursday of the preceding week. Several pre-lab quizzes will be conducted on the Sakai website.

Examinations and Grading:

Final grades will be determined as a combination of exams, quizzes, attendance at 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.

Exams 1, 2 and 3 approx 200 each	580
Short essay	100
Lab	280
Attendance (all parts of the course)	40
Total	1000

Final exam date – Friday 29th April 7.30am – 9.30am

LECTURE SCHEDULE SPRING 2016 (subject to change)

WEEK	LECTURE	DATE	TOPIC	READING (textbook)
1	1	6th Jan Wed	Introduction	Ch 1
	2	8th Jan Fri	Chordates, Craniates & Vertebrates	Ch 2, 3
2	3	11th Jan Mon	Integumentary System I	Ch 6
	4	13th Jan Wed	Integumentary System II	Ch 6
	5	15th Jan Fri	Development I	Ch 4
3		18th Jan Mon	HOLIDAY (MLK Day)	
	6	20th Jan Wed	Development II	Ch 4
	7	22nd Jan Fri	Evolution & Development	Ch 4
4	8	25th Jan Mon	Connective tissues	Ch 5
	9	27th Jan Wed	Skeleton, cranial	Ch 7
	10	29th Jan Fri	Skeleton, axial	Ch 8
5	11	1st Feb Mon	Skeleton, appendicular	Ch 9
	12	3rd Feb Wed	Evolution of limbs - the fin to limb transition	Ch 9
		5th Feb Fri	Revision session	
6		8th Feb Mon	**EXAM I** (in classroom)	
	13	10th Feb Wed	Muscle structure, skeletal	Ch 10
	14	12th Feb Fri	Muscle structure, cardiac, smooth, evolution of axial muscles	Ch 10
7	15	15th Feb Mon	Evolution of cranial muscles	Ch 10
	16	17th Feb Wed	Digestive I teeth, jaws	Ch16
	17	19th Feb Fri	Digestive system II	Ch 17
8	18	22nd Feb Mon	Digestive system III	Ch 17
	19	24th Feb Wed	Respiratory system I	Ch 18
	20	26th Feb Fri	Respiratory system II	Ch 18
9		29th Feb Mon	SPRING BREAK	
		2nd Mar Wed	SPRING BREAK	
		4th Mar Fri	SPRING BREAK	
10	21	7th Mar Mon	Circulatory system I	Ch 19
	22	9th Mar Wed	Circulatory system II	Ch 19
		11th Mar Fri	Revision session	
11		14th Mar Mon	**EXAM II** (in classroom)	

	23	16th Mar Wed	Excretory system	Ch 20
	24	18th Mar Fri	Osmoregulation	Ch 20
12	25	21st Mar Mon	Reproduction	Ch 21
	26	23rd Mar Wed	Reproduction & hormones	Ch 21
	27	25th Mar Fri	Endocrine system I	Ch 15
13	28	28th Mar Mon	Endocrine system II	Ch 15
	29	30th Mar Wed	Development of the nervous system	Ch 13
	30	1st April Fri	Cells of the nervous system	Ch 13
14	31	4th April Mon	Sensory systems, spinal cord	Ch 13
		6th April Wed	Assignment essay discussion	
	32	8th April Fri	Sensory systems, cranial nerves	Ch 13
15	33	11th April Mon	Sensory systems, eye	Ch 12
	34	13th April Wed	Brain evolution	Ch 14
	35	15th April Fri	Regeneration of tissues	
16		18th April Mon	Revision session	
		20th April Wed	Assignment essay due	
		22nd April Fri	**Reading day**	
17		25th April Mon		
		27th April Wed		
		29th April Fri	**FINAL EXAM 7.30 - 9.30am**	

LAB SCHEDULE

DAYS	MATERIAL COVERED	QUIZ/EXAM
11-15 Jan	Origin & Evolution of Vertebrates; Integument (Chps. 1 - 4)	
18-22 Jan	NO LABS	
25-29 Jan	Embryology (special chapter - handout)	**QUIZ**
1-5 Feb	Cranial Skeletal System (Chp. 5)	
8-12 Feb	Axial & Appendicular Skeletal System (Chps. 5)	**QUIZ**
15-19 Feb	Muscular System (Superficial muscles, Chp. 6)	
22-26 March	Muscular System (Deep muscles, Chp. 6)	**QUIZ**

29-4 March	NO LABS - SPRING BREAK	
7-11 March	Reviews and **Exam 1***	**EXAM**
14-18 March	Digestive (Chp. 7)	
21-25 March	Respiratory Systems (Chp. 8)	
28-1 April	Circulatory System 1 (Chp. 7)	**QUIZ**
4-8 April	Circulatory System 2/Urogenital Systems (Chps. 8 & 9)	
11-15 April	Nervous & Sensory Systems (Chp. 10)	**QUIZ**
18-22 April	Reviews and **Exam 2***	**EXAM**

*Reviews are generally held on Sunday and Monday afternoons. Exams are held Tuesday evenings.

REQUIRED TEXTS: Bring to lab every class.
Kardong, K.V. and Zalisko, E.J. 2014. Comparative Vertebrate Anatomy – A laboratory dissection guide 7th Edition.
Sebastiani & Fishbeck 2005. Mammalian Anatomy of the Cat

OPTIONAL TEXT:
De Iuliis & Pulera 2007. The Dissection of Vertebrates.
Wessells & Center 1992. Vertebrates: A Laboratory Text. 2nd edition (ISBM: 0-86720-853-8)

REQUIRED EQUIPMENT:
-Blunt forceps, blunt probe, sharp probe, scissors, scalpel. Lab coats, aprons, andcolored pencils optional.
DISSECTING EQUIPMENT IS NOT SUPPLIED IN LAB.
Gloves are provided.

GRADING: Lab grade is worth approximately 30% of the total course grade.
Exam 1: 100 points
Exam 2: 100 points
Quizzes (5 @ 16 points each): 80 points
Dissection participation: 40 points

Lab sections are:
Monday, Tuesday and Wednesday 1:55-6pm (period 7-10)

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