

EEB 110: VERTEBRATE MORPHOLOGY

FALL 2007

Instructor: Dr. Vicente Cassano

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Lecture: TR 11:00A – 12:15P, Franz 2258A

Labs: TR 1:00P – 5:50P; WF 8:00A - 12:50P, Young Hall South 2337

TA's: **Julie Meachen-Samuels**

Josh Samuels

Deborah Bird

Course web page URL: <http://www.lsic.ucla.edu/classes/fall07/>

Course Description: This course examines vertebrate evolution from a morphological viewpoint, focusing on comparative vertebrate anatomy. Comparative anatomical features are examined in a phylogenetic, functional, biomechanical, developmental and paleontological perspective. The Laboratory involves the study of selected vertebrates, and concentrates on comparative dissection.

This is an intensive **6 UNIT** course that contains three hours of lecture and five hours of laboratory time per week. Prerequisites: Life Sciences 1, 2, 3, 4.

COURSE OBJECTIVES: After completing this course student are expected to be able to:

1. Recognize and identify all classes of vertebrates by their anatomical features.
2. Explain the evolution and transformation of different organ systems in vertebrates.
3. Explain the functional significance of these changes.
4. Identify all organs and organ systems in the shark and the cat.
5. Apply evolutionary concepts in understanding the anatomical features of vertebrates.

REQUIRED TEXTS:

Liem, K.F, W.E. Bemis, W.F. Walker, Jr., and L. Grande. 2001. *Functional Anatomy of the Vertebrates: An Evolutionary Perspective* (3rd edition). Harcourt College Publishers, Orlando, FL. 766 pp. ISBN 0-03-022369-5

Homberger, D.G and W.F. Walker. 2004. *Vertebrate Dissection* (9th edition). Brooks/Cole-Thomson Learning, Belmont, CA. 432 pp. ISBN 0-03-022522-1

Attendance Policy: Absence is NOT the way to succeed in this class. The material is comprehensive, and you are expected to be present at all lectures and laboratories. You must play an active roll in your learning, questioning the material and learning as you go.

GRADING: Grades will be assigned on a straight curve:

A = 90 - 100%, B = 80 - 89%, C = 70 - 79%, D = 60 - 69%, F = below 60%..

Grades are determined from a combination of lecture and lab practical exams. Your final grade may also reflect improvement during the course.

Lecture Exams: These will be mostly short answer/essay, but may include multiple choice, true/false, and problem solving. The lecture exams will be held in class. The FINAL exam will be similar to the other exams and **will be PARTLY CUMULATIVE (i.e. covering material from all ten weeks)**. Exams will cover material from lectures and readings, strongly emphasizing the material covered in lecture. Students who require special arrangements for taking exams must prepare for this with the Office of Students with Disabilities in advance, and let me know at least one week prior to the exam to assure that appropriate arrangements can be made. **THERE WILL BE ABSOLUTELY NO MAKEUP EXAMS!** Unless the student can provide written verification of illness or family emergency

Lab Practical Exams: Lab exams are scheduled below. Your TA will explain what a practical exam is and how it is run in lab. No early or makeup lab practical exams will be given due to extensive setup and breakdown

Laboratory: You will need your lab manual for the first week of lab. Read the appropriate sections of the manual before the lab session. You will need a dissecting kit, including a scalpel, blunt probe, small scissors, large scissors and blunt forceps. This kit can be purchased at a discount in Westwood Village at **Scrubs Unlimited, 10930 Weyburn Ave. Los Angeles, CA 90024; TEL: (310) 208 - 7669**. In addition, you need to purchase latex (or some other) disposable gloves that you will be using for the wet dissections. One to two boxes should be enough to last you through the quarter. Lab coats are optional; however, lab can be rather messy, so either a lab coat, or durable clothes that can be washed in hot water often are recommended. The use of eye protection (goggles) is not required, but recommended, as the fumes and liquids encountered in lab may be irritating to eyes. More laboratory information will be given to you in lab section.

Points will be awarded as follows:

Exam I	150 pts.
Exam II	200 pts.
Final exam	250 pts.
First practical exam	200pts.
Second practical exam	200 pts.
Total	1000 pts.

Note: Total points are 60% Lecture and 40% Lab

Policy on cheating: Cheating will absolutely not be tolerated in any form (e.g. copying from a classmate, plagiarism, changing answers on graded exams). Any case of cheating will be immediately turned over to the Dean of Students for disciplinary action.

TENTATIVE LECTURE SCHEDULE: TR 11:00 - 12:15 FRANZ 2258A

DATE			TOPIC	READING
SEPTEMBER	27	R	Introduction: course overview and concepts	Ch. 1
OCTOBER	2	T	Vertebrate origins, history and diversity 1	Ch. 2, 3
	4	R	Vertebrate origins, history and diversity 2	Ch. 2, 3
	9	T	The transition from water to land	HO and movie
	11	R	Embryology 1	Ch. 4
	16	T	Embryology 2	Ch. 4
	18	R	EXAM I (lectures 9/27 - 10/16)	
	23	T	Integument	Ch. 6
	25	R	Cartilage and bone / Head skeleton 1	Ch. 5, 7
	30	T	Head skeleton 2 / Axial skeleton	Ch. 7, 8
NOVEMBER	1	R	Appendicular skeleton	Ch. 9
	6	T	Muscles 1	Ch. 10
	8	R	Muscles 2	Ch. 10
	13	T	EXAM II (lectures 10/23 - 11/8)	
	15	R	Respiration 1	Ch. 18
	20	T	Respiration 2	Ch. 18
	22	R	Thanksgiving Day – No Classes	
	27	T	Circulation 1	Ch. 19
	29	R	Circulation 2	Ch. 19
DECEMBER	4	T	Feeding	Ch. 16, 17
	6	R	Digestion	Ch. 16, 17
	11	T	FINAL EXAM: 8 - 11 AM (lectures 11/15 - 12/6)	

* Liem et al. (2001) *Functional Anatomy of the Vertebrates*.

TENTATIVE LABORATORY SCHEDULE

WEEK	DATE	TOPIC	READINGS**
1	Oct. 2-5	Primitive chordates & vertebrates; Skeleton I	Ch. 1 – 2; 3-6
2	Oct. 9-12	Integument & Skeleton II	Ch. 3 - 6
3	Oct. 16-19	External Anatomy; Muscles I (dogfish)	Ch. 3, 7
4	Oct. 23-26	Muscles II (cat)	Ch. 7
5	Oct. 30-Nov. 2	Digestive & respiratory systems	Ch. 10
	NOV. 5	Practical Exam I: Labs 1–5, 6:00–9:00 PM	
6	Nov. 6-9	Locomotor and feeding adaptations I	Handout/Lecture notes
7	Nov. 13-16	Circulation I (dogfish)	Ch. 11
-	Nov. 17	La Brea Tar Pits Field Trip (Mandatory)	Handout
8	Nov. 20-23	Thanksgiving Holiday	
9	Nov. 27-30	Circulation II (cat)	Ch. 11
10	Dec. 4-7	Excretory & reproductive systems	Ch. 12
	DEC. 10	Practical Exam II: Labs 6–10, 6:00–9:00 PM	

** Homberger and Walker (2004) *Vertebrate Dissection – 9th Edition*.

Please notice that the La Brea tar pits field trip is on Saturday, November 17th. This fieldtrip is **mandatory**, and will be included on the final practical exam. If you know you already have a legitimate conflict that you cannot reschedule, please let your TA know ASAP.