SYLLABUS
ZOOLOGY 132 - Comparative Vertebrate Morphology
FALL 2006

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Lecture:
Science, Room 322
MW 12:00 – 12:50 pm

Lab:
Science, Room 308
MW 1:00 – 3:50 pm

Office Hours:
Science, Room 302
MW 10:00–11:00 am
or by appointment

Course Description

This course is designed to familiarize you with morphological and anatomical features of animals from a comparative evolutionary perspective. What this means is that we'll be examining morphological and anatomical **form** across the vertebrates with the hopes of understanding both their **functional significance**, and **evolutionary history**. The lectures will tackle both historical and modern views on comparative anatomy, the underlying biology of tissue-organ systems, and evolutionary perspectives on the origin, maintenance, and diversification of form among the vertebrates. The laboratories will provide hands-on opportunities for you to witness the breadth of vertebrate morphological and anatomical characteristics in a comparative light, through dissection and discussion. It is my responsibility to keep you engaged in the classroom. It is your responsibility to come to class prepared and willing to have some fun learning.

Prerequisites: *Introductory Biology (BIOSC 1A and BIOSC 1B)*. By enrolling in this course, the student assumes the responsibility of knowing the information contained in both of the aforementioned courses. The instructor will assume that you have a general understanding of both courses and will not review the material in any detail.

Text Requirements:

Textbook: Kardong, K.V. (2006). Vertebrates: Comparative anatomy, function, evolution. 4th Edition. McGraw-Hill, Boston. ISBN 0-07-252830-3

Laboratory Manual: Wischnitzer, S. & Wischnitzer, E. (2007). Atlas and dissection guide for comparative anatomy. 6th Edition. W.H. Freeman and Company, New York. ISBN 0-7167-6959-X.

Other Suggested Texts:

Justification: This text provides a comprehensive list of Latin and Greek derivations for a vast majority of the terms that you will encounter in this class, and throughout your career as a student of biology (and beyond!). It is an excellent resource and, for any student serious about pursuing a career in the biological/health sciences, it will prove valuable. You can obtain this book for $15 online.

Borror, D.J. (1960/1988). Dictionary of word roots and combining forms (1st edition). Mayfield Publishing Company, 134 pages. ISBN 0-8748-4053-8.

Laboratory Equipment:

You will need dissecting tools, including sharp probes, scissors, forceps, blunt probes, and scalpels with replaceable blades. Your best bet is to visit the Kennel Bookstore to purchase the small ($14.69) or large ($17.99) dissection kits (all tools located within a brown case). Make sure to ask the representative at the bookstore what the difference is between the kits (and maybe to open each kit) because, often times, there's not much of a difference (i.e., you'll save $3).

Cell phones and other distractions:

Unless in the case of emergency, the use of cell phones, PDA's, and other electronic devices is prohibited during lecture and lab, as is reading newspapers, magazines, and any text other than class notes, required texts, or lab manuals. In an emergency, please promptly excuse yourself from class to use cell phones, etc.

Important dates:

September 11, 2006: Last day to ADD classes without special permission, and to DROP classes without a serious and compelling reason.

September 25, 2006: Last day to ADD classes with permission, and to DROP classes for a serious and compelling reason without a grade of W (withdrawl) listed on the university transcript.

November 21, 2006: Last day to withdraw from a course for SERIOUS and COMPELLING REASONS, except by complete withdrawl from the university for circumstances beyond the student's control.

Grading:

Grades will be based upon > 90% = A; 80-89% = B; 70-79% = C; 55-69% = D; < 54% = F

Lecture		*Laboratory*	
Exam 1	15%	Exam 1	20%
Exam 2	15%	Exam 2	20%
Final exam	15%	Assignment	15%
Lecture Total	**45%**	**Lab Total**	**55%**

The assignment will require that you establish groups of 2-3 students, select a paper from the primary literature related to, for instance, functional morphology or the evolutionary history of anatomical features, have it approved by the instructor, and present the paper to the class using Powerpoint. You will be graded not only on your presentation but also on your participation in the discussion.

Point structure: Lecture examinations, and the assignment will be worth 100 points each, and the laboratory examinations will be worth 135 points each. This will total 670 points.

Requests for extra credit will not be honored. However, the instructor reserves the right to have the students attend lectures in the College of Science & Mathematics and/or the Department of Biology for additional points towards your final grade.

Attendance:

Attendance will not be recorded. It is your responsibility to attend all lectures and lab sections, as this reflects your commitment to learn and engage in intellectual activity (which is, indeed, why you are here!). Your grades will reflect attendance and active participation during class and lab. If you are to miss a class or lab for good reason, please e-mail or call me in advance.

UNIVERSITY POLICIES

Please also visit the following website for further information:
http://academicaffairs.csufresno.edu/assocprovost/RequiredSyllabusPolicyStatements.htm

Students with Disabilities: "Upon identifying themselves to the instructor and the university, students with disabilities will receive reasonable accommodation for learning and evaluation. For more information, contact Services to Students with Disabilities in Madden Library 1049 (278-2811)."

Honor Code: "Members of the CSU Fresno academic community adhere to principles of academic integrity and mutual respect while engaged in university work and related activities." You should:

a) understand or seek clarification about expectations for academic integrity in this course (including no cheating, plagiarism and inappropriate collaboration)
b) neither give nor receive unauthorized aid on examinations or other course work that is used by the instructor as the basis of grading.
c) take responsibility to monitor academic dishonesty in any form and to report it to the instructor or other appropriate official for action.

Given the format of this course, I will ask that each student sign a statement for certain assignments. This statement will require that each student fill out the assignment type, and date, as well as provide their signature to confirm the following statement: "I have conducted my own work and have neither given nor received unauthorized assistance on this work".

Cheating and Plagiarism: "Cheating is the actual or attempted practice of fraudulent or deceptive acts for the purpose of improving one's grade or obtaining course credit; such acts also include assisting another student to do so. Typically, such acts occur in relation to examinations. However, it is the intent of this definition that the term 'cheating' not be limited to examination situations only, but that it include any and all actions by a student that are intended to gain an unearned academic advantage by fraudulent or deceptive means. Plagiarism is a specific form of cheating which consists of the misuse of the published and/or unpublished works of others by misrepresenting the material (i.e., their intellectual property) so used as one's own work." Penalties for cheating and plagiarism range from a 0 or F on a particular assignment, through an F for the course, to expulsion from the university. For more information on the University's policy regarding cheating and plagiarism, refer to the Class Schedule (Legal Notices on Cheating and Plagiarism) or the University Catalog (Policies and Regulations)."

Computers: "At California State University, Fresno, computers and communications links to remote resources are recognized as being integral to the education and research experience. Every student is required to have his/her own computer or have other personal access to a workstation (including a modem and a printer) with all the recommended software. The minimum and recommended standards for the workstations and software, which may vary by academic major, are updated periodically and are available from Information Technology Services (http://www.csufresno.edu/ITS/) or the University Bookstore. In the curriculum and class assignments, students are presumed to have 24-hour access to a computer workstation and the necessary communication links to the University's information resources."

Disruptive Classroom Behavior: "The classroom is a special environment in which students and faculty come together to promote learning and growth. It is essential to this learning environment that respect for the rights of others seeking to learn, respect for the professionalism of the instructor, and the general goals of academic freedom are maintained. ... Differences of viewpoint or concerns should be expressed in terms which are supportive of the learning process, creating an environment in which students and faculty may learn to reason with clarity and compassion, to share of themselves without

losing their identities, and to develop and understanding of the community in which they live . . . Student conduct which disrupts the learning process shall not be tolerated and may lead to disciplinary action and/or removal from class."

Copyright policy: "Copyright laws and fair use policies protect the rights of those who have produced the material. The copy in this course has been provided for private study, scholarship, or research. Other uses may require permission from the copyright holder. The user of this work is responsible for adhering to copyright law of the U.S. (Title 17, U.S. Code).To help you familiarize yourself with copyright and fair use policies, the University encourages you to visit its copyright web page: www.lib.csufresno.edu/extra/copyright/.

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LECTURE SCHEDULE:

Date	**Topic**	**Chapter**
Aug 28	Welcome, syllabus, questions	
Aug 30	Introduction	1
Sep 4	**No classes (Labor Day)**	**-------**
Sep 6	Biological Design	4
Sep 11	Biological Design	4
Sep 13	Origin of Chordates	2
Sep 18	Origin of Chordates	2
Sep 20	The Vertebrate Story	3
Sep 25	The Vertebrate Story	3
Sep 27	Life History; *Assignment groups established*	5
Oct 2	**Exam #1**	**-------**
Oct 4	Integument	6
Oct 9	Skeletal System: The Skull	7
Oct 11	Skeletal System: The Skull	7
Oct 16	Skeletal System: The Axial Skeleton	8
Oct 18	Skeletal System: The Axial Skeleton	8
Oct 23	Skeletal System: The Appendicular Skeleton	9
Oct 25	Skeletal System: The Appendicular Skeleton	9
Oct 30	Muscular System	10
Nov 1	**Exam #2**	**-------**
Nov 6	Respiratory System	11
Nov 8	Circulatory System; *Assignment paper selected*	12
Nov 13	Circulatory System	12
Nov 15	Digestive System	13
Nov 20	Digestive System	13
Nov 22	**No classes (Thanksgiving)**	**-------**
Nov 27	Urogenital System	14
Nov 29	Urogenital System; *Assignment paper summary due*	14
Dec 4	Endocrine System	15
Dec 6	Nervous System	16
Dec 11	Nervous System	16
Dec 13	Sensory Organs	17
Dec 18	**FINAL EXAM (same room, 1:15 – 3:15 pm)**	

Review sessions for lecture exams will be held during extended office hours, or during a time period agreed upon by the class.

LABORATORY SCHEDULE:

Date	Topic	Lab manual (pages)
Aug 28	Welcome, syllabus, questions	
Aug 30	Laboratory organization, Protochordates	3-15
Sep 4	**No classes (Labor Day)**	
Sep 6	Protochordates, Agnatha external and internal anatomy	19-27, supp
Sep 11	Agnatha external and internal anatomy	19-27, supp
Sep 13	Vertebrate Integument and external features *(shark, perch, mudpuppy, snake, turtle, pigeon, cat)*	31-35, 103-105, 153-155, supp
Sep 18	Vertebrate Integument and external features *(shark, perch, mudpuppy, snake, turtle, pigeon, cat)*	31-35, 103-105, 153-155, supp
Sep 20	Vertebrate skeletal systems (*various skeleton preparations in the laboratory)*	37-43, 107-112, 157-170, supp
Sep 25	Vertebrate skeletal systems (*various skeleton preparations in the laboratory)*	37-43, 107-112, 157-170, supp
Sep 27	Vertebrate muscular systems *(shark, mudpuppy, cat)*	45-48, 113-119, 171-190, supp
Oct 2	Vertebrate muscular systems *(shark, mudpuppy, cat)*	45-48, 113-119, 171-190, supp
Oct 4	Vertebrate muscular systems *(shark, mudpuppy, cat)*	45-48, 113-119, 171-190, supp
Oct 9	Review for Lab Exam #1 – open lab	
Oct 11	**LABORATORY EXAM #1**	
Oct 16	Digestive & Respiratory Systems (*shark, mudpuppy, cat*)	49-53, 121-124, 191-198, supp
Oct 18	Digestive & Respiratory Systems (*shark, mudpuppy, cat*)	49-53, 121-124, 191-198, supp
Oct 23	Circulatory System (*shark, mudpuppy, cat*)	55-63, 125-130, 199-223, supp
Oct 25	Circulatory System (*shark, mudpuppy, cat*)	55-63, 125-130, 199-223, supp
Oct 30	Circulatory System (*shark, mudpuppy, cat*)	55-63, 125-130, 199-223, supp
Nov 1	Urogenital System (*shark, perch, mudpuppy, snake, pigeon, cat*)	65-67, 131-133, 225-230, supp
Nov 6	Urogenital System (*shark, perch, mudpuppy, snake, pigeon, cat*)	65-67, 131-133, 225-230, supp
Nov 8	Catch-up Laboratory (required)	
Nov 13	Nervous System (*shark, perch, mudpuppy, snake, pigeon, cat*)	75-80, 135-137, 239-249, supp

Nov 15	Nervous System (*shark, perch, mudpuppy, snake, pigeon, cat*)	75-80, 135-137, 239-249, supp
Nov 20	Nervous System (*shark, perch, mudpuppy, snake, pigeon, cat*)	75-80, 135-137, 239-249, supp
Nov 22	**No classes (Thanksgiving)**	
Nov 27	Vertebrate brain anatomy (*sheep brain*)	251-266, supp
Nov 29	Sensory Organs *(cow eye)*	69-74, 231-238, supp
Dec 4	Review for Lab Exam #2 - open lab	
Dec 6	**LABORATORY EXAM #2**	
Dec 11	Assignment Presentations	
Dec 13	Assignment Presentations	
Dec 18-21	**NO EXAM DURING FINALS WEEK**	