

Comparative Vertebrate Anatomy (50.361) – Fall 2004

Catalogue Description:

50.361 Comparative Vertebrate Anatomy (3) - Presents a comparative study of the chordates emphasizing the vertebrate classes. Attention given to structure, morphogenesis, functional adaptations and evolutionary trends. Laboratory emphasis is placed on the lamprey, shark and cat. Field trip component at Marine Science Consortium, Wallops Island, Va., includes additional student costs. Two hours of lecture/3 hours of laboratory per week. Prerequisite: 50.115 or consent of the instructor

Description Revamped:

50.361 Comparative Vertebrate Anatomy (3) - This course is essential for students who are interested in both the health professions and biology careers. In other words, to be a well rounded biologist, you need this course! For most students, this will be an eye-opening course into the adaptive phenomenon that is the vertebrate body plan. Concentrating on the vertebrates, we will cover topics such as hard-core anatomy, morphogenesis, evolutionary adaptation, and cutting edge trends in functional and ecological morphology. In the lab we'll focus on dissection/prosection of lamprey, shark, and cat. Possible field trips include the Marine Science Consortium at Wallops Island, VA and Philadelphia Zoo (additional student costs). Also, we will be digging to the latest primary literature surrounding the ever growing field of CVA. This action-packed course consists of two hours of lecture and three hours of laboratory per week. Prerequisite: 50.115 or consent of the instructor.

Course Web Site: <http://facstaff.bloomu.edu/ccorbin/CVA.htm>

Meeting: HSC 142
T,R: 11-11:50 (Lecture)
T: 2-4:50 (Lab)

Course Schedule: <http://facstaff.bloomu.edu/ccorbin/CVAshedule.xls>

Compressed Sched.: In case of inclement weather and the University decides to compress the schedule we will hold classes according to the "Compressed Schedule". You can find the schedule on the inside back cover of *The Pilot*.

Instructor: Clay E. Corbin
Office: 131 HSC
Office phone: 389-3134
Email: ccorbin@bloomu.edu
Office Hours: W: 4-5; R: 12-2

Texts: Lecture: Kent, G.C. and R.K. Carr. 2001. Comparative Anatomy of the Vertebrates 9/e, McGraw Hill Publishers
Lab: Homberger, D.G and W.F. Walker Jr. 2004 Vertebrate Dissection 9/e Thomson – Brooks/Cole
Also sugg: an A&P text.

Grading: Based on percentages of total points possible:

Percentage	Letter Grade	Percentage	Letter Grade
93-100	A	77-79	C+
90-92	A-	73-76	C
87-89	B+	70-72	C-
83-86	B	67-69	D+
80-82	B-	60-66	D
		< 60	E

Corbin – CVA Fall 2004 Syllabus Continued

Grading Based on:	1 comprehensive Lecture Exam	-	25%	
	2 non-comp. exams	-	10%	each
	3 non-comp. lab exams	-	10%	each
	1 current topics article synopsis	-	10%	
	1 dissection presentation	-	<u>15%</u>	
	Total	-	100%	

Attendance: Students are expected to attend class regularly. Material that was covered during the student's absence is the responsibility of the student.

Makeup Exams: Class policy conforms to University policy 3506 regarding personal illness, death or critical illness of immediate family member, and participation in a University sponsored co-curricular activity. Exceptional situations will be worked out with the instructor.

Academic Integrity: Please consult *The Pilot* and PRP 3512 – the BU Academic Integrity Policy. Any evidence of cheating will result in a grade of "X" (no grade submitted). Cheating could lead to academic referral to judiciaries and dismissal from the university.

Disabilities: If you have a disability which requires accommodation in this course, please see your instructor as soon as possible. We are happy to make appropriate accommodations, provided timely notice is received.

Laboratory: Required: Dissection Kit. Clothes to get dirty. You may want to invest in a lab coat.

The laboratory for comparative anatomy consists almost entirely of dissection and the study of large amounts of anatomical detail. It is important that you quickly develop a satisfactory and efficient dissecting technique so that you can rapidly and neatly expose structures of interest. For most students it is not possible to master the required material during the scheduled laboratory periods, and it is your responsibility to spend as much additional time in the laboratory as required. Only you can decide how much time that will be. The laboratory is open for your use on weekdays. All materials will be available on your benches or in the refrigerator and you should never open storage drawers or cabinets or remove materials from them. Violation of this request may result in loss of laboratory privileges.

The laboratory exams are "practical" in nature. The last laboratory exam will be an oral examination. Laboratory exams are the sole mechanism for assessing your performance in the laboratory. I will not grade your dissection. However, you should be neat with your cutting and you should develop a respect for your animals – they lived and died so that you may learn from them.

Special Assignments:

1. Current Topic Article Synopsis:

Each student will choose one recent (Since January 2004) article from the primary literature and present the article to the class. The article should test some ecological, evolutionary or functional-morphological theory by using comparative *vertebrate* anatomical or morphological samples and/or dissection techniques. For this class, stay away from purely theoretical articles. Your instructor must approve the article for review. Target length for your presentations is 7 minutes with 3 minutes for question and answer. You should use MS PowerPoint (or some other computer presentation software) to present the material to the class. I need an electronic version of the presentation at least two days prior to the presentation. Either email the presentation or hand me a disk (any electronic media is fine). Note: The first title slide of the presentation should have the complete citation of the article. The grade associated with this assignment will include your performance as a presenter as well as a questioner. If you fail to ask meaningful

questions of other students about their presentations, you will degrade your score. As a suggestion, you may want to use the following outline to guide you through the presentation construction and delivery. The presentations will be given over the course of the semester during specified lecture periods.

1. Background and hypothesis being tested
2. Methods (be succinct)
3. Results and Discussion
4. Your discussion:
 - a. Why is this article important?
 - i. How do these data add to our body of scientific knowledge?
 - b. Would you have done it differently?
 - i. How?

Important Dates:

- 1) Article selection and approval deadline: A week prior to delivery
- 2) Article presentation: Thursdays (starting September 16) at end of lecture (there will be a sign-up sheet)

Suggested Journals (* denotes your best bet):

- Journal of Experimental Biology
- Journal of Experimental Zoology Part A: Comparative Experimental Biology*
- Journal of Morphology*
- Integrative and Comparative Biology
- Anatomical Record*
- Evolution
- Acta Zoologica
- Zoologica Scripta (lots of phylogenetic applications here)
- Biological Journal of the Linnaean Society
- Zoological Journal of the Linnaean Society
- *Others are OK but I need to approve the article*

2. Dissection Presentation:

Groups of two or three students will dissect a particular aspect of the anatomy of a vertebrate organism or organisms - these dissections can be comparative in nature. Even if only one organism is dissected, there should be some analysis in your presentation of how the aspect relates to homologous or analogous aspects in other organisms. Dissection projects need to be approved by your instructor. Then the group will present the dissection to the class. The format of the presentation is up to the group; however, the presentation should be around 10 - 15 minutes in length and should explain the most interesting aspects of the dissection. Here are some things your group may want to consider during this project:

- 1) What anatomical system is interesting?
- 2) With respect to this system, what group of vertebrates is especially interesting?
- 3) What is the best way to dissect this specimen so that the structures of interest will be preserved until the presentation?
- 4) What is the best way to present this dissection to the class so that everyone understands why this system in this organism is so interesting?

Acceptable Organisms:

- | | | | |
|-------------|----------------------------|------------------------------------|--|
| 1) Lamprey | 8) Seahorse (2inches long) | 16) Turtle | 24) Mouse |
| 2) Shark | 9) Perch | 17) Cat, Pregnant cat | 25) Pigeon |
| 3) Skate | 10) Mudpuppy | 18) Fetal pig, Pregnant pig uterus | 26) Various Eyes, Hearts, Testicles, Brainscases, etc. |
| 4) Stingray | 11) Bullfrog | 19) Pregnant sheep uterus | 27) Maybe other species - ask. |
| 5) Ratfish | 12) Leopard Frog | 20) Rabbit | |
| 6) Gar | 13) Toad | 21) Rat, Pregnant rat | |
| 7) Bowfin | 14) Garter Snake | 22) Mink | |
| | 15) <i>Anolis</i> lizard | 23) Bat | |