

Instructor: Jaap Hillenius SC 214 Tel: 953-2297 email: [hillemiusw@cofc.edu](mailto:hillemiusw@cofc.edu)

Office Hours: TR 11:15 - 12:15

Texts: **Kardong**, 2015. Vertebrates: Comparative Anatomy, Function, Evolution; 7<sup>th</sup> ed  
**Walker & Homberger**, 2004. Vertebrate Dissection, 9<sup>th</sup> ed

### Student Learning Objectives

Biol 323 is a comprehensive course on vertebrate evolutionary morphology. In this course, students will:

- demonstrate an understanding of the functional anatomy of the major groups of vertebrates: why are these animals shaped the way they are, and what is the function of their parts?
- demonstrate an ability to integrate knowledge of anatomical form with understanding of physiological function and developmental processes;
- demonstrate an understanding of the evolutionary history of the vertebrates and of their organ systems: how have these animals changed over time, and as a result of what possible selective pressures?
- demonstrate an ability to identify anatomical structures in osteological and preserved specimens: you will dissect a primitive (shark) and a derived (cat) vertebrate.
- demonstrate an ability to make a reasoned reconstruction of 600 million years of vertebrate natural history.

### Course Outline

Date	Lecture Topic	Reading (Kardong)	Lab Topic	Dissection Guide (Walker)
01/09	Origin & Phylogeny	1-211		
11	Axial Skeleton	294-324	Vertebrate Diversity	
16	Appendicular Skeleton	325-371		
18	“		Vertebrate Column	80-91
23	Skull	241-293		
25	“		<b>Quiz 1</b> Limb Girdles	92-114
30	Skull	“		
02/01	“		<b>Quiz 2</b> Skull (Anamniotes)	38-57
06	Musculature	372-412		
08	“		<b>Quiz 3</b> Skull (Amniotes)	58-79
13	Integument	212-240		
15	“		<b>Lab Midterm</b>	
20	Integument	“		
22	<b>Lecture Midterm</b>		Muscles	115-136, 144-154
27	Mouth & Pharynx	503-520		
03/01	“		Muscles	162-169, 173-183

06	Respiratory System	413-450		
08	“		Viscera	249-265, 273-286
13	Digestive System	520-544		
15	“		Viscera (cont.)	
20	<b>Spring Break</b>			
22	“		<b>(No Labs)</b>	
27	Circulatory System	451-502		
29	“		Circulatory System	290-308, 318-345
04/03	Circulatory System	“		
05	“		Circulatory System (cont.)	
10	Urogenital System	545-591		
12	“		Urogenital System	346-358, 361-379
17	Nervous System	625-670		
19	“		<b>Lab Final</b>	

**Final Lecture Exam:**  
Thursday, 26 April, 8:00 – 11:00

<b>Point Distribution:</b>		
Lab Quizzes		3 @ 10
Lab Midterm		50
Lecture Midterm		100
Lab Final		150
Lecture Final		<u>200</u>
total:		530
<b>Grading Scale:</b>		
A > 93%	B <sup>-</sup> 80 – 83	D <sup>+</sup> 67 - 70
A <sup>-</sup> 90 – 93	C <sup>+</sup> 77 – 80	D 63 - 67
B <sup>+</sup> 87 – 90	C 73 – 77	D <sup>-</sup> 60 - 63
B 83 – 87	C <sup>-</sup> 70 – 73	F < 60%

### **Dissecting Instruments & Gloves:**

After the lab midterm we begin dissections, and each student should have a set of dissecting instruments. Instruments from previous classes may be used, or new instruments may be purchased from commercial sources, such as the CofC or MUSC bookstores. Minimum equipment should include:

- a scalpel (with plenty of spare blades. Use #10 or #22 blades, depending on scalpel handle style)
- one or more blunt probes
- one or more sharp probes (“needle probe”)
- medium forceps (*NOT* tooth-type tissue forceps)

**Students are also expected to provide their own dissecting gloves; nitrile is recommended.**

**<< *LATEX GLOVES ARE NOT PERMITTED* >>**