

## Comparative Vertebrate Anatomy & Physiology (BIOL 4360) – Spring 2018

Instructor: Dr. David DesRochers

Office: Peeples 224

Phone: 272-2165 (main office: 272-4440)

E-mail: ddesrochers@daltonstate.edu

Office hours: M: 8–10, 1:30–4:30, T: 3–4:30, W: 8:30–10 or by appointment

**Student learning outcomes:** Upon completion of this course, the student should be able to:

1. Identify & understand the structures and functions that make up the vertebrate body.
2. Describe the relationship between a vertebrate's anatomy and its behavior, activity level, range of movement, and habitat (to name a few).
3. Demonstrate an understanding of how the diversification of vertebrates and their functional abilities results from evolutionary modifications to the common body plan all vertebrates share.
4. Identify, summarize, and present primary literature about vertebrate evolution.

The overall goal of this course is to become familiar with the basic body plan of different vertebrates. As we look at the variety of structures that are common to all vertebrates, we also examine how body parts can be specialized for different lifestyles. We will have a variety of lab dissections to see structures, we will think about adaptations to different lifestyles, and we will compare the structures to see how evolution has shaped their development.

In order to do well in the course you will need to use common sense and not be afraid of stating the obvious. For example, a big obvious thing for flying creatures is that they need to be light. This simple observation dictates a lot about the design of the animal. It affects skeletal structure and bone itself; it affects how these animals get rid of waste products; muscular and integumentary systems are also modified for lightness and efficiency. Simple observations can lead to a deep understanding about adaptations and how they contribute to survival and reproduction (and ultimately, fitness). Be ready to see and state the obvious. Remember form (anatomy) dictates function (physiology)!

Also, make connections! As we keep exploring new systems in the organisms we observe, remember that systems fit together to create a specific life style for that organism. Comparing organisms to each other is another good way to see the significance of a particular adaptation. Remember our goal is to have bodily systems FIT TOGETHER in an organism to allow it to fit into its niche in the environment.

Ask for help! As I said earlier, common sense and problem solving on your part are important tools as we work through the various groups of organisms and their adaptations. Work in groups, study in groups, and help each other see the connections as we go.

### Course Policies

**Grading:** Your grade will be based upon the following 755 total possible points. (Your lowest exam score will be replaced by the average of all seven exams)

1 summary and response to a primary literature article focusing on vertebrate evolution: 55 points

3 lecture exams: 100 points each

1 comprehensive final: 100 points

Lab grade (3 practicals): 300 points

I occasionally may give smaller assignments.

90–100% = A, 80–89% = B, 70–79% = C, 60–69% = D, Below 60 = F

**Spelling & grammar:** Many structures are similarly named and their spelling differs by only a letter (e.g., Ilium versus Ileum). Also as developing scientists, attention to detail must be in your tool kit. For every set of five typos or grammatical errors you make on any assignment, I will deduct one point. For example, if you have three errors, then I will deduct one point. Six errors will result in the deduction of two points and so on.

**Extra Credit:** I do make extra credit available throughout the semester, but since there are over 700 regular points to earn, anyone asking for extra credit, at any time, will activate a one-week period during which time no extra credit will be available.

**Attendance:** You are expected to be on time for all class/lab periods. If you miss a class or a lab, YOU are responsible for finding out about missed assignments, announcements, and material covered. If you unexpectedly miss an exam, please contact me ASAP, so we can work out a make-up solution. If you know you are going to miss an exam due to school-sponsored event, jury duty, etc., then you must schedule a make-up date with me prior to your absence. As an alternative option to studying for a missed exam, your total exam average can replace your missed exam. Late assignments will not be accepted.

**Academic Honesty:** Cheating and plagiarism are a part of the Dalton State Code of Student Conduct, which can be found in its most updated form at <http://daltoncampuslife.com/student-conduct/>. ANY assistance provided or given in any way toward work in a class constitutes cheating, unless such behavior is authorized by your instructor. Additionally, any use of the ideas or words of others should be noted, or this will constitute plagiarism. For more details on what Dalton State considers to be Academic Dishonesty, please review the Code of Student Conduct. Instructors will assign grades based on classroom performance. Additional sanctions may be provided as a learning experience from the Student Conduct process.

**Classroom Behavior:** Dalton State is committed to respect via the Roadrunner Respect pledge. To learn more, please visit <http://daltoncampuslife.com/roadrunner-respect/>. "I pledge to show my fellow Roadrunner students, faculty, staff, and administration respect by treating others the way they want to be treated and by thinking about others first before making decisions that might affect them."

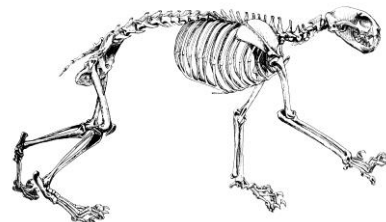
**Students with disabilities or special needs are encouraged to contact Disability Access.** In order to make an appointment or to obtain information on the process for qualifying for accommodations, the **student** should visit the Disability Access Library Guide at <http://libguides.daltonstate.edu/c.php?g=24716&p=149663> or contact the Disability Access office. Contact information: Andrea Roberson, Associate Director of Disability Access and Student Support Services Pope Student Center, upper level, Dean of Students Office 706-272-2524, [aroberson@daltonstate.edu](mailto:aroberson@daltonstate.edu)

### **Drop/Withdrawal Statement**

**Last day to drop without penalty: Mar. 23, 2018.** You will be assigned a grade of **W**. After this date, withdrawal without penalty is permitted only in cases of extreme hardship as determined by the Vice President for Academic Affairs; otherwise a grade of **WF** will be issued. Students who wish to drop this class or withdraw from all classes should go to the Enrollment Services Office in Westcott Hall to complete the necessary form. Students who fail to complete the official drop/withdrawal procedure will receive the grade of **F**. **Withdrawal from class is a student responsibility.** Before dropping any class, the college **strongly advises** that students meet with their academic advisor and their instructor to discuss the impact of a withdrawal on their graduation plans. The college also **strongly advises** students who are receiving any type of financial aid to visit the Financial Aid Office to discuss the impact a withdrawal may have on their financial aid status. The grade of **W** counts as hours attempted for the purposes of financial aid.

### **Cancelled class**

If classes are cancelled due to inclement weather, please complete the reading assignment for the date(s) that we miss class. Check your e-mail for additional instructions.



For information regarding HB 280 (campus carry) please visit the following website: <http://www.usg.edu/hb280>

## Title IX Information

### [4.1.7 Student Sexual Misconduct Policy](#)

*(Last Modified on August 9, 2017)*

In accordance with Title IX of the Education Amendments of 1972 (“Title IX”), the University System of Georgia (USG) does not discriminate on the basis of sex in any of its education programs or activities or in employment. The USG is committed to ensuring a safe learning and working environment for all members of the USG community. To that end, this Policy prohibits sexual misconduct, as defined herein.

In order to reduce incidents of sexual misconduct, USG institutions are required to provide prevention tools and to conduct ongoing awareness and prevention programming and training for the campus community. Such programs will promote positive and healthy behaviors and educate the campus community on consent, sexual assault, alcohol use, dating violence, domestic violence, stalking, bystander intervention, and reporting.

When sexual misconduct does occur, all members of the USG community are strongly encouraged to report it promptly through the procedures outlined in this Policy. The purpose of this Policy is to ensure uniformity throughout the USG in reporting and addressing sexual misconduct.

### [How to Report](#)

Please note that although you have the option to make a report anonymous, doing so may limit the College’s options for response. **Call 911 if you are in an emergency situation**

If you would like to report to a Police Agency:

Dalton State Public Safety  
Health Professions Building- Upper Level  
706-272-4461  
Online Sexual Assault Report [HERE](#)

If you would like to report to Dalton State Administration:

[DSC Online Reporting Form](#)

Title IX Coordinator

Lori McCarty

Director of Human Resources

Phone: 706-272-2034

Email: [lmccarty@daltonstate.edu](mailto:lmccarty@daltonstate.edu)

Deputy Title IX Coordinator

Bobby Whitehead

Assistant Director for Student Conduct

Phone: 706-272-2999

Email: [bwhitehead@daltonstate.edu](mailto:bwhitehead@daltonstate.edu)

If you would like to talk with someone confidentially:

[The Counseling Center](#)

Health Professions 266 (Inside Health Center)

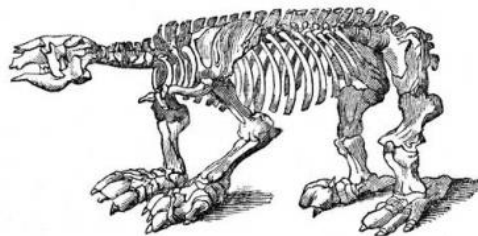
Phone: 706-272-4430

**Lecture Schedule Spring 2018 (tentative):**

Tues & Thurs: 9:25 – 10:40 a.m. in Roberts Library 235

Textbook: Vertebrates, 7<sup>th</sup> Ed. (Kardong 2014)

<b>Dates</b>	<b>Topics</b>	<b>Exams</b>
Jan. 9, 11	Ch. 1: Introduction	
Jan. 16, 18	Ch. 2: Origin of Chordates	
Jan. 23, 25	Ch. 3: Vertebrate Story	
Jan. 30, Feb. 1	Ch. 3 cont.	<b>Exam 1, Feb. 1 (Ch. 1–3)</b>
Feb. 6, 8	Ch. 6: Integument	
Feb. 13, 15	Ch. 7: Skull	
Feb. 20, 22	Ch. 8: Axial Skeleton	
Feb. 27, Mar. 1	Ch. 9: Appendicular Skeleton	
Mar. 6, 8	Catch-up & Review	<b>Exam 2, Mar. 8 (Ch. 6–9)</b>
Mar. 13, 15	<b><i>Spring Break</i></b>	
Mar. 20, 22	Ch. 10: Muscular System	
Mar. 27, 29	Ch. 11: Respiratory System	T: 1 <sup>st</sup> draft due to peer + me R: Peer review in class
Apr. 3, 5		T: Draft w/comments back R: 1 <sup>st</sup> Revision due to peer + me
Apr. 10, 12	Ch. 12: Circulatory System	T: Peer review in class R: Draft w/ comments back
Apr. 17, 19	Ch. 13: Digestive System	T: 2 <sup>nd</sup> Revision due
Apr. 24, 26		<b>Exam 3, Apr. 26 (Ch. 10–13)</b>
<b>May 1</b>	<b>Final Exam: Cumulative</b>	<b>Exam 9:40 – 11:40 a.m.</b>



### Lab Schedule for Spring 2018:

Friday: 8:00–10:40 a.m. in Peeples 116 (No food or drink allowed in lab!)

Lab Manual: Comparative Vertebrate Anatomy: A Laboratory Dissection Guide, 7<sup>th</sup> Ed. (Kardong 2015)

<b>Dates</b>	<b>Topics</b>	<b>Notes</b>
Jan. 12	Ch. 5: Vertebrae & shark axial musculature	
Jan. 19	Ch. 5: Skeletal systems	
Jan. 26	<b>Practical #1 (Ch. 5)</b>	Practical starts @ 9 a.m.
Feb. 2	Ch. 6: Shark	
Feb. 9	Ch. 6 continued	
Feb. 16	Ch. 7 & 8: Shark	
Feb. 23	Continue with Ch. 6–8	
Mar. 2	<b>Practical #2 (Ch. 6–8)</b>	Practical starts @ 9 a.m.
Mar. 9	Ch. 6: Cat	
Mar. 16	<b><i>No Lab this week – Spring Break</i></b>	
Mar. 23	Ch. 7: Cat	
Mar. 30	Ch. 8: Cat	
Apr. 6	Ch. 9: Cat	
Apr. 13	Continue 6–9	
Apr. 20	Continue 6–9	
Apr. 27	<b>Practical #3 (Ch. 6–9)</b>	Practical starts @ 9 a.m.

On Friday mornings I will open up lab at 7:30 if people want additional time to work with specimens. On days that we have a practical, there will be a brief period from 7:30–8:15 a.m. where you will be allowed to review material in lab.

### Summary & response to primary literature articles

Despite the fact that vertebrates have been on the planet for about  $\approx 530$  million years, we are constantly learning new information about vertebrate evolution (and subsequently our own evolutionary history!). You will submit a summary and response to an article (**no older than 2016**) from the primary literature. Primary literature articles can be found in a wide variety of scientific journals. A few good journals to start looking in might be Nature, Evolution, Journal of Evolutionary Biology, and Biological Journal of the Linnean Society. The following website [http://cactus.dixie.edu/jharris/Journal\\_Links.html](http://cactus.dixie.edu/jharris/Journal_Links.html) has a HUGE list of journals that present research on vertebrate paleontology. Once you find a journal, peruse the table of contents. Do any articles catch your eye? Alternatively, you can search Google Scholar for individual articles. The trick will be finding a proper set of keywords that will lead you to a good article.

### How you will be assessed:

- Submit first primary literature article (**5 pts**) to me along with two copies of the first draft of your review and response (**10 pts**) (**one for me submitted electronically to the Dropbox tab on GAView** + one for your peer reviewer – work out with them if they prefer a hard copy to write on directly or an electronic version that they can edit).
  - o Write a one-paragraph summary (280 – 300 words) of the article. You **must** write it in your own words. Dropbox will assess the similarity of your writing to the article about which you are writing. If your writing is greater than 20% identical, then you will lose 50% of your score on the assignment, and I will require you to rewrite it.
  - o Questions to consider when summarizing your article: What is the article about? What is the major question or topic being presented? What did the researchers discover? How does the information increase our understanding of vertebrate evolution? Does the research generate new questions about vertebrate evolutionary history? You should also think about how to write this so a general audience understands what you are trying to say.
  - o Write a one-paragraph response (235 – 250 words). In the response you should write about what interested you in the article. What surprised you and why. The “why” part is the hardest, so be careful with this part.
- In class we will take ≈20 minutes for you to meet with your peer reviewer to discuss the comments and suggestions you have for each other. Your peer reviewer will read and comment on your first draft and provide you with constructive suggestions for improving.
- You will submit the first revision of your review and response to both me and your peer reviewer (**15 pts**). (**The copy for me must be submitted electronically to GAView as before** + one for your peer reviewer – work out with them if they prefer a hard copy to write on directly or an electronic version that they can edit)
- In class we will take ≈20 minutes for you to meet with your peer reviewer as before.
- You will submit your final draft (**25 pts**). (**The copy for me must be submitted electronically to GAView as before.**)

If you ever have any questions please contact me! I will award you one bonus point for each different vertebrate species selfie you take this semester (limit of 5). E-mail your images along with the common name, scientific name (properly formatted), class, order, and family to which each vertebrate belongs. You also must include a citation of which current taxonomy you used. You have until April 20.

