

**Comparative Vertebrate Anatomy – BIOL 4300**

**Spring Semester, 2016**

**CRN – Sec. A – 21588, Sec. B - 21589**

**Instructor** - Dr. J. Mitchell Lockhart

**Office** – Biology/Chemistry Building, Rm. 2029

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**Office Hours:** As posted or by appointment

**Course hours:** Lecture – Tuesday and Thursday, 9:30 AM – 10:45 AM, BCB 1025

Laboratory – Sec. A - Wednesday, 10:00 AM – 1:00 PM, BCB 1085

Sec. B – Thursday, 11:00 AM – 2:00 PM, BCB 1085

**Textbook** - Kent and Carr, Comparative Anatomy of the Vertebrates, Ninth Edition, (**Required**)

**Laboratory Textbook** - Fishbeck and Sebastiani, Comparative Anatomy – Manual of Vertebrate

Dissection (Third Edition) (**Required**)

Dissection Kit (**Required**)

Specimens (**PROVIDED**)

**Course Objectives:** As stated in your handbook, this course involves an anatomical and phylogenetic survey of representative vertebrate animals. We will cover objectives in more depth during the first few lectures.

**Attendance: MANDATORY!** I do keep track of who is and isn't attending lecture and laboratory. This course has a considerable amount of new concepts and terminology and it serves your best interest to attend class regularly. Any student disrupting the classroom and affecting the learning experience of others will be asked to leave. Along these lines, **NO** cell-phones, beepers, and/or associated earpieces are allowed either in the **lecture room or laboratory**. My policy is not to give a warning, rather, if a cell-phone or beeper activates during lecture/laboratory, you will lose one **LETTER GRADE** from your final grade. Viewing a cell-phone or pager that activates on "silent" mode during a quiz or exam will be treated as an instance of **CHEATING** and handled accordingly (in addition to the above penalty). Those wishing to utilize laptop computers as part of the class are required to sit in the first row of the classroom. Viewing anything other than BIOL 4300 coursework on a computer during course time will result in the loss of one **LETTER GRADE** from your final grade. University guidelines dictate that students missing 20% of lecture sessions for this class are subject to receiving a grade of "F" **regardless** of their standing in the course.

**Students With Documented Disabilities:** Students requiring accommodations or modifications because of documented disabilities should discuss this need with Dr. Lockhart at the beginning of the quarter. Students not registered with Special Services Program must contact the Access Office for Students with Disabilities in Farber Hall. Their phone number is 245-2498.

**Grades:** For the lecture grade, three exams (tentative) plus a comprehensive final will be given. Questions will be based on both material covered in lecture and reading material assigned in class. Exam questions will be in a variety of formats including (but not limited to) essay, short answer, multiple choice, fill in the blank, drawings, etc...Any questions concerning grading should be brought to the attention of the instructor **NO LATER** than one week following return of the exam. **NO make-up exams will be given.**

For the laboratory grade, 3 lab practicals (tentative) will be given. The **Lab practicals cannot be made up. If a lab practical is missed, you will receive a zero for that lab grade.**

The final grade will be a combination of your lecture exam score, laboratory exam score, final exam score, and dissection project:

Lecture Exam 1, 2, and 3 – 40% (each worth equal)

Lab Exam 1, 2, 3 – 30% (each worth equal)

Dissection Project 15%

Comprehensive Final Exam - 15%

**Grade Scale: 90-100 = A, 80-89 = B, 70-79 = C, 60-69 = D, <60 = F**

**Privacy Act:** Because of the Buckley Amendment or Privacy Act, grades will not be discussed over the phone, given to friends, or given to relatives. Final grades will be posted, only at your request, under an anonymous 6 digit number which you choose later in the semester.

**Cheating:** Refer to the Student Code of Ethics in the Valdosta State University Student Handbook. A student caught cheating will be penalized ranging from receiving a zero for that assignment or test to failing the class.

**Important Dates:** Midterm – Thursday, March 3; Final Exam – Thursday, May 5, 8:00AM - 10:00 AM

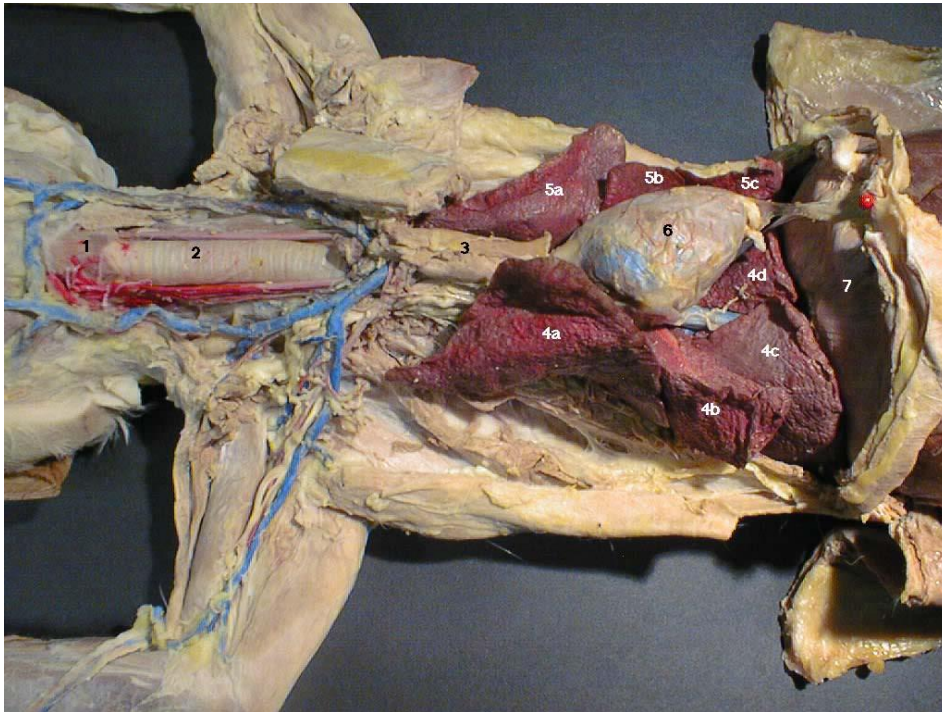
\* The Instructor reserves the right to modify the above contents with proper notification.

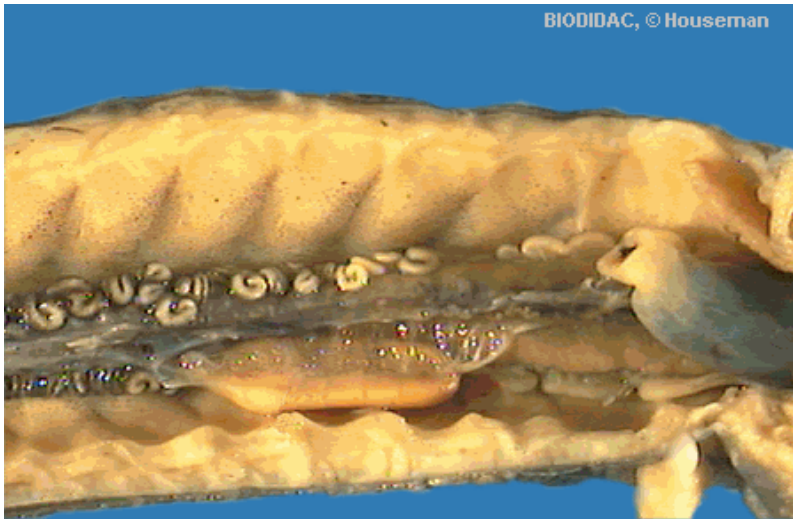
## DISSECTION ASSIGNMENT

You will work in groups of two, with the partner you have in lab, to prepare a powerpoint chronology of the dissections you are performing. This will stimulate you to do excellent, meticulous dissections in the laboratory. I want each group to take digital photographs of their dissections, import them into powerpoint, and label all parts that you are required to learn in the laboratory. When you import the photographs into powerpoint, make two slides of each photograph. Leave one blank and label the other. Label anatomical parts clearly within powerpoint with either NUMBERS or LETTERS. Then on the following powerpoint slide, provide a key for the previous photograph.

You are not required to do this for the lamprey, but I do want photographs of the mudpuppy, shark, and cat. Your laboratory guide gives you an EXCELLENT reference and should you come anywhere close to the quality found in the lab guide, you will do well on the project.

This project will be due on Monday, May 2, at noon. You will turn in a CD or jump drive copy of your project that I CAN OPEN on my computer.





### **Course Outcomes:**

#### **Course:**

By the end of BIOL 4300, students who successfully complete the course should have:

1. Gained factual knowledge, to include anatomy and physiological terminology, methods, and principles, about Comparative Vertebrate Anatomy. (DO – 2,3,5; VSUGEO – 5)
2. Learned fundamental principles, generalizations, or theories of Comparative Vertebrate Anatomy. (DO – 2,3,5; VSUGEO – 5)
3. Learned to apply course material (to improve thinking, problem-solving, and decisions) in Comparative Vertebrate Anatomy. (DO – 2,3,5; VSUGEO – 5)
4. Developed specific skills, competencies and points of view needed by professional in the fields most closely related to Comparative Vertebrate Anatomy. (DO – 2,3,5; VSUGEO – 5)
5. Acquired an interest in learning more by asking questions and seeking answers about Comparative Vertebrate Anatomy. (DO – 2,3,5; VSUGEO – 5)

#### **Department:**

1. Develop and test hypotheses, collect and analyze data, and present the results and conclusions in both written and oral formats used in peer-reviewed journals and at scientific meetings.
2. Describe the evolutionary processes responsible for biological diversity, explain the phylogenetic relationships among the major taxa of life, and provide illustrative examples.
3. Demonstrate an understanding of the cellular basis of life.
4. Relate the structure and the function of DNA/RNA to the development of form and function of the organism and to heredity.
5. Interpret ecological data pertaining to the behavior of the individual organism in its natural environment; to the structure and function of populations, communities, and ecosystems; and to human impacts on these systems and the environment.

#### **Valdosta State University General Education Outcomes:**

1. Students will demonstrate understanding of the society of the United States and its ideals. They will possess the requisite knowledge of the society of the United States, its ideals, and its functions

- to enable them to become informed and responsible citizens. They will understand the connections between the individual and society and the roles of social institutions. They will understand the structure and operational principles of the United States government and economic system. They will understand United States history and both the historical and present role of the United States in the world.
2. Students will demonstrate cross-cultural perspectives and knowledge of other societies. They will possess sufficient knowledge of various aspects of another culture, including the language, social and religious customs, aesthetic expression, geography, and intellectual and political history, to enable them to interact with individuals within that society from an informed perspective. They will possess an international viewpoint that will allow them to examine critically the culture of their own nation and to participate in global society.
  3. Students will use computer and information technology when appropriate. They will demonstrate knowledge of computer concepts and terminology. They will possess basic working knowledge of a computer operating system. They will be able to use at least two software tools, such as word processors, spreadsheets, database management systems, or statistical packages. They will be able to find information using computer searching tools.
  4. Students will express themselves clearly, logically, and precisely in writing and in speaking, and they will demonstrate competence in reading and listening. They will display the ability to write coherently in standard English; to speak well; to read, to understand, and to interpret the content of written materials in various disciplines; and to listen effectively and to understand different modes of communication.
  5. Students will demonstrate knowledge of scientific and mathematical principles and proficiency in laboratory practices. They will understand the basic concepts and principles underlying scientific methodology and be able to collect, analyze, and interpret data. They will learn a body of scientific knowledge and be able to judge the merits of arguments about scientific issues. They will be able to perform basic algebraic manipulations and to use fundamental algebraic concepts to solve word problems and equations. They will be able to use basic knowledge of statistics to interpret and to analyze data. They will be able to evaluate arguments based on quantitative data.
  6. Students will demonstrate knowledge of diverse cultural heritages in the arts, the humanities, and the social sciences. They will develop understanding of the relationships among the visual and performing arts, literature and languages, and history and the social sciences. Students will be versed in approaches appropriate to the study of those disciplines; they will identify and respond to a variety of aesthetic experiences and engage in critical thinking about diverse issues. They will be able to identify the components of and respond to aesthetic experiences in the visual and performing arts. They will develop knowledge of world literature within its historical and cultural frameworks. They will understand modern issues within a historical context and the role of the individual in various forms of societies and governments.
  7. Students will demonstrate the ability to analyze, to evaluate, and to make inferences from oral, written, and visual materials. They will be skilled in inquiry, logical reasoning, and critical analysis. They will be able to acquire and evaluate relevant information, analyze arguments, synthesize facts and information, and offer logical arguments leading to creative solutions to problems.
  8. Students will demonstrate knowledge of principles of ethics and their employment in the analysis and resolution of moral problems. They will recognize and understand issues in applied ethics. They will understand their own value systems in relation to other value systems. They will judge values and practices in a variety of disciplines.

**BIOL 4300 – Comparative Vertebrate Anatomy**  
**Spring Semester, 2016**  
**Dr. J. Mitchell Lockhart**

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**Tentative Lecture Outline - This is the order in which we will cover topics.**

**TOPIC**

Nature of Vertebrate Morphology/Introduction

Origin and Classification of Vertebrates/Early Chordates

Fishes

Tetrapods

Development/Embryology

Integument and Derivatives

Coelom and Mesenteries

Head Skeleton

Teeth

Axial Skeleton

Appendicular Skeleton

Muscular System

Digestive System

Respiratory System

Circulatory System

Nervous System

Reproductive System

Excretory System

Endocrine System

**Lecture Exams:**

1 – February 11

2 – March 24

3 – April 28

**Final Exam – Thur, May 5**

**8:00 AM – 10:00 AM**

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Tentative Lab Schedule - This is the order in which we will cover topics.

Week of	TOPIC
1 January 11	Lesser Chordates and Vertebrates
2 January 18	Lesser Chordates and Vertebrates
3 January 25	Integumentary System and External Anatomy Begin Skeleton
4 February 1	Skeleton
5 February 8	Skeleton
6 February 15	<b>LAB EXAM I</b>
7 February 22	Muscular System
8 February 29	Muscular System
9 March 7	Coelom, Digestive and Respiratory Systems
10 March 21	Excretory and Reproductive Systems
11 March 28	<b>LAB EXAM II</b>
12 April 4	Circulatory System
13 April 11	Circulatory System, Begin Nervous System
14 April 18	Nervous System
15 April 25	<b>LAB EXAM III</b>

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