

**Comparative Vertebrate Anatomy – BIOL 6300**

**Fall Semester, 2009**

**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, 9:00 AM – 10:45 AM, BCB 2022

Laboratory – Wednesday, 9:00 AM – 11:50 AM, BCB 2073

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

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

Dissection (**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 lecture.

**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. Cell phone and pager disruptions will **NOT BE TOLERATED**. Should one of these devices disrupt lecture **OR** lab, I will pursue **ADMINISTRATIVE WITHDRAWAL** for the owner of said device. 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.

**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**

**Graduate Students:** Graduate students taking BIOL 6300 can expect to do the laboratory powerpoint and dissections individually, can expect slight differences in written examinations, and will have to prepare a research powerpoint presentation on one system of the body at my choosing. You will consult with me individually the first week of class to clarify these expectations.

**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, October 8; Final Exam – Thursday, December 10, 10:15a.m.-12:15 p.m.

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

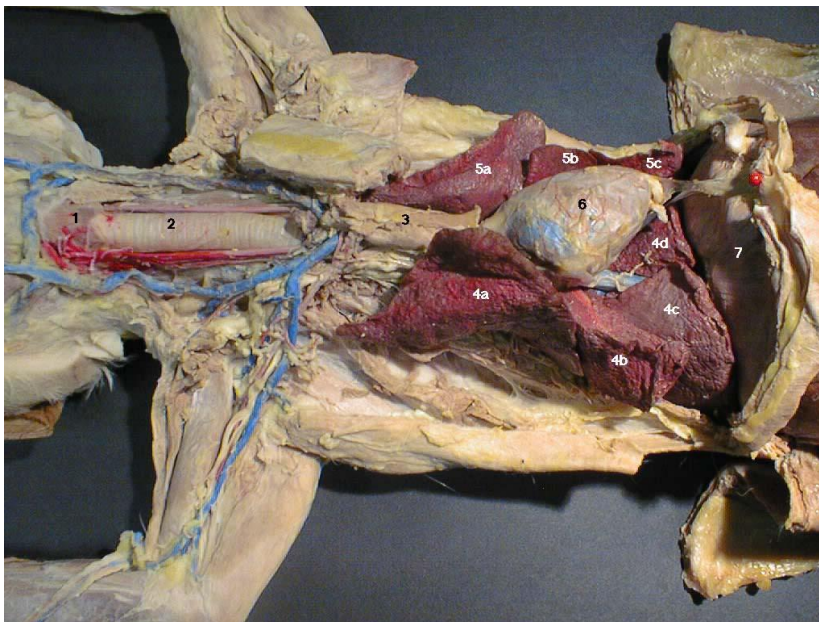
## DISSECTION ASSIGNMENT

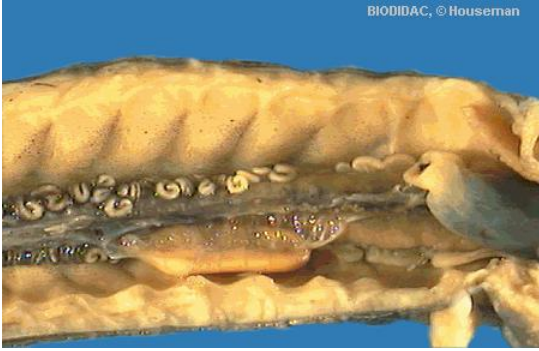
In the past, I have had this class do a research paper on some aspect of Vertebrate Morphology, focusing on the functional aspects of the anatomy we are studying. This year I want to try something different.

You will work alone 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. Each photograph should be verified with a label (within the photograph) of your name. Any labels used should be TYPED (i.e. not handwritten). 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, December 7 at 12:00 (noon). You will turn in a CD copy of your project that I CAN OPEN on my computer.





### **Course Outcomes:**

#### **Course:**

By the end of BIOL 6300, 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.

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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 – September 17

2 – October 20

3 – December 3

Final Exam – December 10,

10:15 a.m.-12:15 p.m.

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

Date	TOPIC
1 August 19	Lesser Chordates and Vertebrates
2 August 26	Lesser Chordates and Vertebrates
3 September 2	Integumentary System and External Anatomy Begin Skeleton
4 September 9	Skeleton
5 September 16	Skeleton
6 September 23	<b>LAB EXAM I</b>
7 September 30	Muscular System
8 October 7	Muscular System
9 October 14	Coelom, Digestive and Respiratory Systems
10 October 21	Excretory and Reproductive Systems
11 October 28	<b>LAB EXAM II</b>
12 November 4	Circulatory System
13 November 11	Circulatory System, Begin Nervous System
14 November 18	Nervous System
15 November 25	No Lab, Thanksgiving Break
16 December 2	<b>LAB EXAM III</b>

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