

Moravian College
Department of Biological Sciences
Biology 310 – Mammalian Anatomy
Spring 2011

Instructor: Dr. Fran Irish **Office Phone:** 610-861-1427
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Office hours: Monday, Wednesday, and Friday 9 a.m. – 10:30 a.m.,
Monday, 1:00 pm - 2:30 pm, or by appointment.

Lecture: Monday, Wednesday, and Friday 7:50 – 8:40 a.m.
302 Memorial Hall

Laboratory: Section A: Tuesday 12:45 p.m. -- 3:45 p.m. HOSCI 303
Section B: Wednesday 1:15 p.m. – 4:15 p.m. HOSCI 301

Required Textbook: *Vertebrates: Comparative Anatomy, Function, Evolution, 5th. Edition*, by Kenneth V. Kardong, 2008.

Required Lab Manual: *Comparative Vertebrate Anatomy: A Laboratory Dissection Guide, 5th. Edition*, by Kenneth V. Kardong and Edward Zalisko, 2008.

Other required equipment: dissection kit (bookstore), goggles (bookstore, if you don't have them already), lab coats (provided), loose-leaf binder with lined and unlined paper for lab notebook.

Course Description: An in-depth exploration of the structure and function of vertebrate animals in an evolutionary context. Laboratory exercises examine the structural diversity of vertebrate organ systems through dissection of representative vertebrate classes. This course is designed to provide a strong foundation in anatomy for students going on to a graduate or professional school in the human health or veterinary sciences.

Prerequisites: Biology 112.

Course Objectives: By the end of this course, students should:

1. Know the current views on the origin of vertebrates.
2. Recognize the basic body plan common to all vertebrates due to shared ancestry.
3. Be familiar with the major vertebrate clades and their diverse adaptations.
4. Be able to identify and provide a basic description of how major vertebrate organ systems function.
5. Know basic anatomical terms and descriptors.
5. Attain proficiency in observational skills and the art of dissection.

Blackboard: All information associated with this course---syllabus, assignments, power point presentations, customized lab exercises, cumulative grades---will be posted on Blackboard. You must register yourself for this course on Blackboard as soon as possible. For instructions, see the following link:

<http://home.moravian.edu/public/cit/help/blackboard/bbstudent.asp>

The course ID is BIOL310.SP11 and the enrollment code is “anatomy.” If you have difficulty with this, PLEASE E-MAIL ME IMMEDIATELY!

Lecture Attendance: If you wish to do well in this class, you must be here. Lectures will be posted on Blackboard so that those of you who are slow note-takers or abysmal artists will not be struggling to keep up, and all of you can attend more carefully to what I say. HOWEVER, the posted lectures will not contain everything I say--- you will have to add the details if you are to have an effective study aid. THUS, tempting though it may be, you cannot skip the lectures without jeopardizing your grade, either directly (by lowering your class participation grade) or indirectly (by leaving you behind in the dust). If I see that attendance is dropping, I will stop posting the lectures.

Policy on electronic devices: Cell phones must be turned off during lecture (this means you cannot text your friends).

Study questions: I will post study questions every weekend covering the previous week’s lectures. Because many of the essay questions on exams are taken from these study questions, I strongly suggest that you take the time to *write* the answers to these questions every weekend (but do not try to answer them all the night before the exam).

Lab attendance: Don’t even consider missing a lab unless you are ill or have some other emergency. Make-up labs will be offered at the discretion of the instructor. IT IS THE STUDENT’S RESPONSIBILITY to arrange to make up a missed lab before the next lab quiz or practical. Be aware that it may not be possible to make up exercises involving live material, and I may not be available to guide you as I would during the scheduled lab period.

You are expected to read the assigned lab exercises BEFORE coming to lab (this includes both the assigned sections of the lab manual and the lab handouts, which will be posted on Blackboard the evening before the lab). Please bring your lab manual and lab notebook to every lab. There will be a short (5-point) quiz toward the end of each lab covering the lab exercises for that day. The lowest two lab quiz scores will be dropped when computing your final grade.

Lab notebook: Critical observation is absolutely essential to science. Therefore, I ask that you bring a loose-leaf binder with blank lined and unlined paper to lab. This binder will hold all lab handouts, plus your notes and drawings. The goal of this exercise is to hone your powers of observation and provide you with a useful study tool. The lab handouts will tell you what information must be included in your lab notebook, but you will receive extra credit for any extra drawings, notes, etc. that you include. Your lab notebooks will be handed in at the beginning of each lab practical, graded, and returned by the next lab period.

Quizzes: At the beginning of class on Mondays, there will be a short quiz (10 points) covering the lectures from the previous week. This is not done to make your life miserable, but to encourage you to keep up with the class by reviewing the lectures each week. Plan to arrive for class on time, as late arrivals will not be allowed to take the quiz, and *missed quizzes cannot be made up*. The lowest 2 quiz grades will be dropped when computing your final grade.

Exams: Please see the lecture and lab calendars below for the exam schedule. Make-up exams will be given at the discretion of the instructor. It is the student's responsibility to contact the instructor BEFORE the missed exam, provide an appropriate excuse, and make arrangements to take the exam at another time. If your absence is not excused, you will receive a 0 for the missed exam. **LAB PRACTICALS CANNOT BE MADE UP.**

Absolutely no activated electronic devices will be allowed during exams (this includes cell phones and ipods). If you are seen using one of these devices for any reason during an exam, you will receive a "0."

The final lecture exam is cumulative, but weighted toward the last quarter of the course (100 points drawn from the period since the third lecture exam; 100 points drawn from the entire semester).

Reading: You will be tested on the material presented *in lecture*. The chapters that are relevant to each lecture are indicated on the lecture schedule. After class, I suggest that you read the sections covered in the lecture for clarification, and amplify your lecture notes in areas you don't understand. Please note Appendix C: Greek and Latin combining forms; this will help make sense of anatomical terminology. I recommend that you also use the on-line study materials provided for the textbook. Extra, relevant readings may be assigned during the course of the semester.

Grading: Your scores for quizzes, exams, lab practicals, and the lab notebook will be posted on Blackboard, so you can see how you are doing at any time (check the percentage listed with your total points). There will be no extra credit options beyond the occasional extra question on exams, so please focus your energy on what we are doing in class and lab. If you find yourself falling behind, or you are struggling to learn the material, *please contact me right away*. I am here to help you.

3 lecture exams (100 points each)	300 points	
Final lecture exam	200 points	
10 lecture quizzes (10 points each)	100 points	LECTURE: 600 points
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3 lab practicals (100 points each)	300 points	
Laboratory notebook	60 points	
10 Lab quizzes (5 points each)	50 points	LAB: 410
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<i>[Additional readings</i>	<i>50 points]</i>	<i>provisional---to be announced</i>
Class participation*	<u>50 points</u>	
Final grade 1110 points		

*Class participation includes attendance, preparation for lab, thoroughness of dissections, participation in discussions, and completion of all assignments.

Grading scale: The grading scale will be posted following the first lecture exam. Please note that the instructor may exercise qualitative judgment in determining your final grade.

Disability support: Students who wish to request accommodations in this class for a disability should contact Mr. Joe Kempfer, Assistant Director of Learning Services for Disability Support, 1307 Main Street (extension 1510). Accommodations cannot be provided until authorization is received from the office of Learning Services.

Policy on honesty: Students are expected to abide by the college policy on intellectual honesty (see Student Handbook).

TIPS FOR DOING WELL IN THIS COURSE:

Lecture exams:

1. ***Come to class***
2. Do not fall behind---review and annotate your lecture notes, using the text to clarify things you do not understand. If the text cannot help you, please ask me. My opinion of you will not plummet if you ask a question, so don't be shy.
3. Review for each Friday quiz.
4. *Write out* the answers to the study questions posted each weekend. *Think* about these questions as you answer them.
5. You are responsible for knowing the material I present *in lecture*---I encourage you to read relevant sections of the textbook, but *do not try to memorize the textbook*.

Lab practicals:

1. Attend all labs.
2. Prepare for each lab by reading the lab exercise *before* you walk into the lab.
3. Do not try to race through the lab exercises---be sure you understand what you are supposed to see, and be sure you actually see it before you leave. If you are confused, ask questions---I am there to help you!
4. Put care and effort into your lab notebook. You may find the lab practicals challenging, but the notebook grade is directly under your control.
5. Come to the "open lab" review sessions before the lab practicals, and prepare by making a list of the things you need to review. Listen to the other students---they may ask things you didn't think about.

Vocabulary:

1. The single greatest barrier to learning anatomy is the vocabulary. Do whatever you need to do to learn the terminology----flashcards, glossaries, diagrams, study groups, etc.

LECTURE SCHEDULE

Week	Lecture topic	Text reading
January 17	Morphology & phylogeny Ontogeny Protochordates	Chapter 1 Chapter 5 Chapter 1
January 24	Chordate origins Vertebrate diversity: Fishes Vertebrate diversity: Tetrapods	Chapter 2 Chapter 3 Chapter 3
January 31	Integument Integument, continued LECTURE EXAM I (February 4)	Chapter 6
February 7	Introduction to skeletal tissues The skull Skull, continued	Chapter 7 Chapter 8 Chapter 8
February 14	Teeth Axial skeleton Appendicular skeleton	Chapter 13 Chapter 8 Chapter 9
February 21	Introduction to muscle systems Muscle systems, continued Musculoskeletal system function	Chapter 10 Chapter 10
February 28	Evolution and paleontology Catch-up and Review LECTURE EXAM II (March 4)	Chapter 1
March 7	<i>NO CLASSES—SPRING BREAK</i>	
March 14	Digestive systems Digestive systems, continued Respiratory systems	Chapter 13 Chapter 13 Chapter 11
March 21	Circulatory systems Circulatory systems Urogenital systems	Chapter 12 Chapter 12 Chapter 14
March 28	Urogenital systems, continued Catch-up and review LECTURE EXAM III (April 1)—move to Monday, Mar 28	Chapter 14

April 4	Central nervous system Peripheral nervous system Peripheral nervous system	Chapter 16 Chapter 16 Chapter 16
April 11	Sensory organs Sensory organs, cont'd.	Chapter 17 Chapter 17
April 18	Endocrine system Endocrine system, cont'd <i>NO FRIDAY LECTURE---EASTER RECESS</i>	Chapter 15 Chapter 15
April 25	<i>NO MONDAY LECTURE---EASTER RECESS</i> Catch-up and review	
MAY 5	FINAL LECTURE EXAM, 1:30 pm	

EXAM SCHEDULE

February 4: Lecture exam 1 (100 points)

February 15, 16: Lab practical 1 (100 points), lab notebook due (20 points)

March 4: Lecture exam 2 (100 points)

March 22, 23: Lab practical 2 (100 points), lab notebook due (20 points)

April 1: Lecture exam 3 (100 points)

April 26, 27: Final lab practical (100 points), lab notebook due (20 points)

May 5: Final lecture exam (200 points)

LABORATORY SCHEDULE

Week	Laboratory topic	Laboratory exercise
January 17	Chordate phylogeny & embryology	Handout Exercise 1
January 24	protochordates and lamprey	Exercise 2, 3
January 31	The vertebrate integument	Exercise 4
February 7	Skeletal tissues Skull	Exercise 5
February 14	LAB PRACTICAL (100 points) Axial and appendicular skeleton	Exercise 5
February 21	Muscles: shark, <i>Necturus</i>	Exercise 6
February 28	Muscles: the cat	Exercise 6
March 7	<i>NO LABS---SPRING BREAK</i>	
March 14	Digestive systems	Exercise 7
March 21	LAB PRACTICAL (100 points) Digestive system, cont'd	
March 28	Circulatory and respiratory systems	Exercise 8
April 4	Urogenital systems	Exercise 9
April 11	Nervous systems	Exercise 10 handout
April 18	Catch-up and review	
April 25	FINAL LAB PRACTICAL (100 points)	

Please note: this syllabus acquaints you with the topics I hope to cover in the order I hope to cover them, but I may make changes as we progress through the semester.