

Biol 111 – Comparative and Human Anatomy

Course Syllabus

Spring 2016

Instructors

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Lecture and Lab

Lecture: Tuesday & Thursday 9:00-10:15 Lasry, room 237

Laboratory: Tuesday/Thursday 13:25-16:15 Lasry, room 150

Textbooks

Required:

- Liem, K.F., Bemis, W.E., Walker Jr., W.F. & Grande, L. 2001. Functional Anatomy of the Vertebrates: An Evolutionary Perspective, 3rd Edition. Brooks/Cole.
- De Iuliis, G. & Pulera, D. 2011. The Dissection of Vertebrates: A Laboratory Manual, 2nd Edition. Academic Press.

Prerequisites

- Biol 101 or Biol 103
- Biol 102

LEEP Learning Objectives

During Comparative & Human Anatomy, students will be introduced to vertebrate anatomy, including how it develops, functions and evolves. How human and mammalian anatomy compares to that of other vertebrates will be considered throughout. In the context of the five LEEP Learning Outcomes, students will:

1. *Knowledge of the Natural World and Human Culture.* Learn the basics of vertebrate anatomy to understand how different anatomies function, have evolved, and develop. Students will gain an appreciation of the diversity of vertebrates and the place of humans within vertebrates.
2. *Intellectual and Practical Skills.* Students will learn how to organize, learn, and use many inter-related concepts, and the language of anatomy. In lab, they will learn how to dissect vertebrates and make sense of what they see.
3. *Personal and Social Responsibility.* Students will consider the necessity of studying real animals to gain knowledge and be faced with the ethical issues associated with the use of dead animals in learning.
4. *Ability to Integrate Knowledge and Skills.* Students will integrate and apply the knowledge they gain in lecture and from readings with what they see in lab. Students will use dissections as a way of confirming and learning the material in other parts of the course. They will also translate information presented in a necessarily 2-dimensional format (diagrams and pictures) to a 3-dimensional situation (the real specimen).
5. *Capacities for Effective Practice.* Students will brainstorm and discuss targeted questions during class periods. In the lab, they will discuss questions that are aimed at integrating lecture and lab material and more open-ended questions, allowing them to think beyond the basics as a class. Students will also work in partners to do dissections, facilitating group learning.

Course Website

All course information, including any announcements, lab and lecture schedules, and PDFs of course handouts and PowerPoint presentations can be found on Moodle. Students should check Moodle regularly – it contains information and materials needed for this course.

Grading, Components and Expectations

Biol 111 will be graded based on the following components:

Lecture (50%)

Midterm 1	100 pts.	10% of grade	February 11
Midterm 2	100 pts.	10%	March 15
Midterm 3	100 pts.	10%	April 7
Final Exam	200 pts.	20%	TBA

Laboratory (50%)

Lab Exam 1	100 pts.	10%	March 1, 3
Lab Exam 2	100 pts.	10%	April 26, 28
Graded Dissection	100 pts.	10%	March 29, 31
Lab Quizzes	100 pts.	10%	Ongoing

Class Participation	100 pts.	10%	Ongoing
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Total	1000 pts.	100%	
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Lecture Exams

Lecture midterms will take place during lecture time, so will have a 75 minute time limit. The final will be scheduled during exam period and will be 2 hours long. All of these exams will consist of a combination of fill-in-the-blank, short answer (1-2 sentences), and long answer (up to 1/4 page) questions. There will be no multiple choice or true/false questions. Questions can be about any material presented in the lecture. Only material covered in lecture will appear on the exams. Some questions will concentrate on specific facts imparted during the course, like definitions of terms. Other questions will be synthetic, requiring that students apply knowledge gained during the course to new situations. The course study guide (available on Moodle), practice questions (available at the beginning of each lecture session), and learning objectives (available in each PowerPoint presentation) are there to help focus studying and provide tips on how to study the large amount of material covered in this course. Midterm exams will not be cumulative, but half of the final exam will be cumulative.

Laboratory Exams

There will be two lab exams during the semester. These lab exams will test your knowledge of material presented and available in lab. Because this is an anatomy lab, you will be expected to be able to identify anatomical structures and to know their functions and relationships to other structures. The lab exam format will consist of fill-in-the-blank questions, and some short answer (couple of sentences) questions. The exams will be in the form of stations with demo material about which you will be asked questions. The stations will be timed so that all students have a chance to see all of the material, and time will be available to return to stations you want to revisit at the end of each exam. Lab exams will not be cumulative. Due to the nature of these exams, making up a missed exam is extremely difficult.

Graded Dissection

An important skill gained during this course is the ability to dissect vertebrates. You will spend a lot of time honing your dissection skills, and so it is only fair that part of the grade be determined by how well you learn to dissect. Students will have one week to dissect the shark brain and origins of the cranial nerves and will be graded on the quality of their dissections. A good quality dissection is one that has all structures undamaged, clearly visible and identifiable.

Lab Quizzes

During each lab except the first one of the semester and the first one after the first lab exam, you will be given a short (5-10 minute) quiz on material either covered during the previous lab or during that week's lab. These quizzes will give students a gauge of how they are doing in the lab in terms of learning the material from week to week and how they are preparing for labs. There will be ten quizzes during the semester, five before each of the exams.

Class Participation

Attending **all labs** is mandatory, as is completion of worksheet questions, and participation in discussions at the beginning of each lab (be on time). 10% of the course grade is for participation, and this grade is based on participation in discussions, completion of assignments, and a good attitude during labs. Part of the grade also is for participation during lecture sessions. Part of this grade is for "showing up", but most of it is for participating in class discussions, and completing the assigned dissections.

Course Time Commitment & Rules for Late Assignments and Missed Exams

- All components of the course are mandatory to receive a passing grade. A student may choose not to do a component, but must E-mail Dr. Bergmann, stating that they are not doing the assignment (in this case a zero will be assessed for that component only).
- Missed exams can only be made up if accompanied by documentation of a valid excuse (*e.g.* doctor's note, funeral certificate, etc.). Every effort will be made to accommodate these situations. However, it is very difficult to make up lab exams because of their format.
- The time commitment expected of students in this course each week is as follows:
 - 2.5 hours of lecture, plus 5 hours of preparation and studying for the lecture
 - 3 hours of scheduled lab, plus 1 hour of open lab, plus 1.5 hours of preparation and studying for the laboratory
 - 2 hours for the final exam, scheduled by the registrar
 - Over a 14 week semester, this amounts to approximately 184 hours

Academic Integrity, Honesty, and Plagiarism

Academic dishonesty includes any effort to circumvent the evaluation procedures of the course to improve a grade for yourself or other students ("cheating"). Academic dishonesty includes but is not limited to unauthorized examination of written materials (i.e., notes, neighbor's paper during an exam), misrepresentation of the cause of an absence during an exam or laboratory, submitting the work of another (partially or entirely) as one's own, alteration of an exam answer to be submitted for re-grading, and alteration of data. You are encouraged to report academic dishonesty. Anonymity will be protected if requested. If I believe that academic dishonesty has occurred and I have supporting evidence, I will report the case to the College Board immediately after informing the student that I am doing so, and why. I will recommend that a grade of F be given for the course. All students are expected to adhere to Clark University's rules of Academic Integrity, available at: <http://www.clarku.edu/offices/aac/integrity.cfm>.

Students with Disabilities

Clark University is committed to providing students with documented disabilities equal access to all university programs and facilities. If you have or think you have a disability and require academic accommodations, you must register with Student Accessibility Services (SAS), which is located in room 430 on the fourth floor of the Goddard Library. If you have questions about the process, please contact The Director of Accessibility Services, Emily Tarconish, at etarconish@clarku.edu or (508)798-4368. If you are registered with SAS, and qualify for accommodations that you would like to utilize in this course, please request those accommodations through SAS in a timely manner.

Course Schedule

Date	Lecture Topic	Textbook	Lab
Jan	19T	Introduction	Protochordates, Agnathans*
	21R	Phylogenetic approach	
	26T	Evolution of Chordates	Cranial Osteology
	28R	Vertebrate Development	
Feb	2T	Heterochrony & Scaling	Postcranial Osteology, Shark
	4R	Cranial Skeleton	External Anatomy, fin muscles
	9T	Axial Skeleton	Myology – Shark (demo), Cat 1
	11R	Midterm Exam 1	
	16T	Appendicular Skeleton	Myology – Cat 2
	18R	Muscles	
	23T	Biophysics: Joints & Levers	Myology – Cat 3, Review
	25R	Locomotion on Land	
Mar	1T	Locomotion in Water & Air	Lab Exam 1
	3R	Integumentary Derivatives	
March 7-11 Semester Break – No Lecture or Lab			
Mar	15T	Midterm Exam 2	Digestive, Respiratory, Urogenital
	17R	Spinal Cord & Nerves	Systems – Shark
	22T	The Brain	Digestive, Respiratory, Urogenital
	24R	Sense Organs	Systems – Cat
	29T	Endocrine System	Nervous System – Shark
	31R	Gastrointestinal System	Graded Dissection
Apr	5T	TBA	Circulation – Shark 1
	7R	Midterm Exam 3	
	12T	Respiratory System	Circulation – Shark 2, Cat 1
	14R	Circulatory System 1	
	19T	Circulatory System 2	Circulation – Cat 2
	21R	Excretory System	
	26T	Reproductive System	Lab Exam 2
	28R	Finish up and Review	

* Labs will begin on Tuesday, January 19, during the first week of classes.

Note: This schedule can be modified as the course progresses. Check the course website regularly.