

BI 434: Comparative Vertebrate Physiology
Western Oregon University
Spring 2013

Contact Information

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219 Natural Sciences

Office Hours: M 2:00 – 3:30 p.m.

Th 2:30 – 4:00 p.m.

F 10:00 a.m. – 12:00 p.m.

Meeting times and location

MWF 1:00 p.m. – 1:50 p.m.

Natural Sciences Building, Room 215

W 2:00 p.m. – 4:50 p.m.

Natural Sciences Building, Room 202

Course description

This course is an introduction to the basic concepts of vertebrate physiology. We will address the function of cells, tissues, organs, and organ systems in relation to energy and metabolism, sensory perception, muscle movement, respiration, and circulation. We will discuss animal models used to study animal physiology and learn physiology experimental procedures. By the end of the course you should have a strong foundation that you can use as you pursue your own personal interests in the diverse field of vertebrate physiology.

Course Objectives:

- to master select physiological processes in vertebrates
- to appreciate the interactions between anatomy and physiology
- to appreciate the interactions between physiology and the environment

Text: *Animal Physiology*, 3rd ed. Hill, Wyse, and Andersen. 2012

Evaluation and Expectations

Exams

There will be two midterm exams (50 minutes each) and one final exam (110 minutes). Approximately half of the final exam will cover new material and the other half will be cumulative. The exams will cover lecture material and lab activities. The exams will consist primarily of multiple choice and short answer essay questions. The goal of the exam is to evaluate your understanding of the class material, your ability to explain concepts and ideas, and your ability to apply concepts and ideas to new problems.

Lab attendance

Lab attendance is required. You will have lab partners that are counting on you to attend lab. If you have an unexcused absence, you will not have the opportunity to make-up lab. If you cannot attend a lab meeting, please let me and your lab partners know in advance. If you let us know in advance that you will be missing a lab meeting, we may be able to work out a way for you to make-up the lab. **IF YOU MISS A LAB AND HOPE TO HAVE YOUR ABSENCE EXCUSED, YOU MUST CONTACT THE OFFICE OF STUDENT AFFAIRS (503-838-8221). THE OFFICE OF STUDENT AFFAIRS WILL CONTACT YOUR INSTRUCTORS INFORMING US OF THE SITUATION.**

Lab assignments

You will have a lab assignment due at the end of lab each week. You will be collecting data with lab partner(s) which you will share, but all writing you do for this course should be your own.

Moodle site

I will post lectures slides, lecture audio recordings, study guides, lab instructions, and course announcements on the class Moodle site. Do not mistake the on-line lecture slides and audio recordings to be adequate replacements for lecture attendance. You can't ask questions to the posted slides and you won't see anything presented on the overhead projector. It is your responsibility to visit the site on a regular basis to download materials and receive the needed information.

General Etiquette

Use of a computer for note-taking in class is fine, but should not be used for emailing, chatting, surfing, etc., during class. Recreational use of your computer in class is distracting to those around you. Similarly, cell phones should be off during class. If you are using a cell phone during lab, you are distracted from your work and are creating an unsafe working environment. If you cannot ignore your cell phone during lab, do not bring it to lab. There was once a world without cell phones and people were able to survive for 170 minutes without texting—you can, too.

Grading

Midterm I	100
Midterm II	100
Comprehensive Final Exam	200
Laboratory Exercises (9 x 20 pts. each)	<u>180</u>
	580 points*

Letter grades (in percentage)

A	93 – 100
A-	90 – 92
B+	87 – 89
B	83 – 86
B-	80 – 82
C+	77 – 79
C	73 – 76
C-	70 – 72
D	60 – 69
F	< 60

ALL STUDENTS ARE EXPECTED TO TAKE THE EXAMS ON THE SCHEDULED DAYS. If you miss an exam or will be missing an exam, contact the instructor as soon as possible. If the absence is EXCUSED, you will be able to make up the exam for the full points possible. However, only the following will be considered an excusable absence:

1. A university-related absence (i.e., game, concert tour, fieldtrip, etc.). You *must* contact me prior to the event for the absence to be excused.

2. A personal issue that is excused by the Office of Student Affairs (503-838-8221). The Office of Student Affairs will contact your instructors, including myself, by email informing us of the situation. Do not bother to contact me as I will just tell you to contact the Office of Student Affairs.

If the absence is UNEXCUSED, you will be able to make up the exam but you will receive a 10% penalty on the overall exam score for each day the exam is not completed. Once an exam is handed back, no make-up exams will be given.

Academic Misconduct

Academic integrity is a responsibility of all students. Academic dishonesty is a violation of the WOU Code of Student Responsibility. Academic dishonesty is defined as an intentional act of deception in one of the following areas: Cheating, Fabrication, Assisting, Tampering, or Plagiarism (see Code of Student Responsibility for description of each). A single incidence of cheating or plagiarism will result in a 0 on the assignment, may result in a failing grade for the course, and will be reported to the office of Judicial Affairs with possibilities of additional penalties.

Additional resources

Student Services

Any student who feels s/he may need an accommodation based on the impact of a disability should contact the Office of Disability Services at 503-838-8250 or ods@wou.edu to coordinate accommodations. Students needing medical or mental health care can access the Student Health and Counseling Center by calling 503-838-8313, emailing at health@wou.edu, or by walking in to schedule an appointment.

The Learning Center:

This office has services available for students to help them be successful, including tutoring, study groups and skills, and other resources. Please visit: www.wou.edu/provost/aalc/learning/index.php

Technology Recourse Center (TRC)

The TRC provides technology support and resources to faculty, staff and students. The TRC is located in ITC 204, 503-838-8965. Their website is www.wou.edu/trc

Library

Library and Media services offer assistance with research and information retrieval. Ask at the reference desk in Hamersly Library. Phone/TTY: 503-838-8418.

Tentative Class Schedule

Date	Lecture Topic	Chapter (pp.)	Lab
1-Apr	Introduction	1 (1-28)	
	Nutrition and feeding	6 (127-148)	
	Digestion and absorption	6 (148-159)	
8-Apr	Energy metabolism	7 (161-182)	Introduction to Data
	Aerobic and anaerobic metabolism	8 (183-194)	Analysis Software
	Aerobic and anaerobic metabolism	8 (194-205)	
15-Apr	Energetics of aerobic activity	9 (207-222)	
	Poikilothermy	10 (225-249)	Mammalian metabolic rate
	Homeothermy	10 (250-273)	
22-Apr	Adaptations to cold	11 (277-290)	
	Membrane potentials	12 (295-309)	Temperature and metabolism
	Action potentials	12 (309-324)	
29-Apr	Exam I		
	Synapses	13 (327-340)	Action potential
	Postsynaptic receptors	13 (345-357)	
6-May	Mechanoreception and hearing	14 (359-372)	
	Chemoreception and photoreception	14 (373-395)	Neuromuscular junction
	Control of movement	19 (503-522)	
13-May	Muscle	20 (523-535)	
	Muscle energetics	20 (536-546)	Auditory and visual reflexes
	Oxygen and carbon dioxide	22 (569-581)	
20-May	Exam II		
	Respiration	23 (583-597)	Human Spirometry
	Respiration	23 (597-608)	
27-May	Memorial Day—No Class		
	Oxygen transport	24 (617-632)	Mammalian dive reflex
	Carbon dioxide transport	24 (632-645)	
3-June	Circulation	25 (647-658)	Circulation and blood
	Circulation	25 (658-672)	pressure
	Diving by marine mammals	25 (658-672)	
12-June, Wednesday	Final Exam: 12:00 - 1:50 p.m.		