



ANS100 (ANS198-033):

Animal Physiology

5 units

M,T,W,R,F 10:00 – 10:50 OLSON 6

Instructor:

Dr. Anne Todgham
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Teaching Assistant

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Course Objective:

The goal of this course is to teach a broad overview of **basic principles of animal physiology in domesticated and captive animals by taking a comparative approach**. The goal of physiology is to understand how organisms work. This course will take an integrative approach, looking at how molecular, biochemical, chemical and physical aspects influence the function of physiological systems in animals. To explore “unity in diversity” of animal physiology, we will study adaptations of a diverse suite of animals living in different habitats and with different behaviours.

Course Outline:

1. The Cellular Basis of Animal Physiology
 - a. Introduction to Physiological Principles
 - b. Chemistry, Biochemistry & Cell Physiology
 - c. Glands, Hormones & Cell Signaling
 - d. Neural Structure & Function
 - e. Cellular Movement & Muscles
2. Integrating Physiological Systems
 - a. Sensory Systems
 - b. Neural Systems
 - c. Circulatory Systems
 - d. Respiratory Systems
 - e. Ion & Water Balance
 - f. Thermal Physiology

Prerequisites: BIS 2A and CHEM 2B. Students that have taken NPB 101 are not eligible to enroll.

Course Mechanics

Lectures: Lectures are Monday through Friday from 10:00 to 10:50 in OLSON 6.

Required Textbook: *Principles of Animal Physiology, 2nd edition* by Moyes and Schulte is required. This textbook is well written and is quite approachable with great figures and supplementary materials. The online companion site for this textbook is at http://wps.aw.com/bc_moyes_animalphys_2/. The online companion site has self-study quizzes for each chapter, answers to the questions at the end of each chapter, links to other informational websites, and a glossary. Please take advantage of these online resources in your studies. I suggest you complete the self-study quizzes before I lecture on the chapter so that you have to have at least familiarized yourselves with the material before lecture. I suggest that you re-read each chapter in depth after my lectures. Other textbooks that are acceptable include the 1st edition of Moyes and Schulte as well as Animal Physiology texts by Hill/Wise/Anderson or Eckert/Randall.

Course Materials: Course announcements and lecture notes (PowerPoint slides as .pdfs) will be posted online on **SmartSite** (<https://smartsite.ucdavis.edu>). There will be no paper handouts given in the class, aside from this syllabus and the exams. Additional material may be available at the course SmartSite. Please check regularly.

Problem Sets: To help you in your studies to master the lecture material and prepare for the exams, I am providing problem set homework that will help you to work through the material – completing them is studying in and of itself. I will post problem sets on SmartSite at least one week before they are due, and you must complete them on SmartSite by the dates indicated on each problem set. Late homework will not be accepted. Period. For each problem set, you are expected to answer every question, but only a randomly selected subset of questions will be graded. Problem sets will be graded in such a way so that if you demonstrate you made an effort to answer the question, you will likely receive full credit. Treat these problem sets as a study guide and give yourself ample time to answer the questions – they will help to prepare you for the exams and will improve your learning experience in this course. Answers to problem sets will be posted on SmartSite following the due date.

Exams: There will be 3 exams: 2 midterms and a final. The exams are closed book and closed note with questions that are based on the material covered in lecture and required readings. Exams will be a combination of multiple choice, fill in the blank, and short answer. Please bring UCD 2000 scantrons, available from bookstore.

Grading:

An individual's course grade is based on their two midterms (25% each), problem sets (20%) and the score on their final exam (30%). Make-up exams will not be given. All students are required to take the final exam. If a student misses the final exam for an acceptable reason (for example, a documented medical reason), an "incomplete" will be assigned; otherwise, an "F" will be assigned.

Your final course grade will be based on the following standard percentages:

90-100%	A
80-89%	B
70-79%	C
60-69%	D
59% and below	F

Pluses will be assigned within the top 3% of a given range, minuses will apply to the bottom 3% of a given range. Grades for each exam may be curved depending on score distributions.

Cheating and Academic Conduct:

Do not cheat in my class. I am giving you every opportunity to succeed by providing a wealth of structured in class activities and study guides. Cheating will not be tolerated and persons caught cheating will be reported to the Student Judicial Affairs Office. You will be expected to conduct yourself in a professional manner during this course. Please be at class on time, turn off your cell phone (and anything else that might beep or make disruptive noise), and be respectful of your instructor and fellow students by coming to class prepared to listen, ask informed questions, and participate in discussion.

Plagiarism:

Plagiarism is a form of cheating or fraud. It occurs when a student misrepresents the work of another as his/her own. Plagiarism may consist of using ideas, sentences, paragraphs, or whole text of another without appropriate acknowledgment, and includes employing/allowing others to write/substantially alter work then submitted as his/ her own. Placing copied text in quotes is unacceptable and constitutes plagiarism. Plagiarism will result in notification to the Department of Animal Science and the Student Judicial Affairs Office.

ANS100: ANIMAL PHYSIOLOGY CLASS SCHEDULE

DATE	DAY	class	TOPIC	READING
MARCH 30	MON	1	COURSE MECHANICS, INTRODUCTION	Chapter 1
MARCH 31	TUES	2	ANIMALS & THEIR ENVIRONMENT	Chapter 1
APRIL 1	WED	3	ANIMALS & THEIR ENVIRONMENT	Chapter 1
APRIL 2	THUR	4	MOLECULAR & CELLULAR PHYSIOLOGY	Chapter 2 & 3
APRIL 3	FRI	5	MOLECULAR & CELLULAR PHYSIOLOGY	Chapter 2 & 3
APRIL 6	MON	6	TRANSPORT OF SOLUTES & WATER	Chapter 2
APRIL 7	TUES	7	NUTRITION & ENERGY METABOLISM	Chapter 2
APRIL 8	WED	8	NUTRITION & ENERGY METABOLISM	Chapter 2
APRIL 9	THUR	9	NEURONAL STRUCTURE, FUNCTION & DIVERSITY	Chapter 4
APRIL 10	FRI	10	NEURONAL STRUCTURE, FUNCTION & DIVERSITY	Chapter 4
APRIL 13	MON	11	NEURONAL STRUCTURE, FUNCTION & DIVERSITY	Chapter 4
APRIL 14	TUES	12	NEURONAL STRUCTURE, FUNCTION & DIVERSITY	Chapter 4
APRIL 15	WED	13	SENSORY SYSTEMS	Chapter 6
APRIL 16	THUR	14	SENSORY SYSTEMS	Chapter 6
APRIL 17	FRI	15	SENSORY SYSTEMS	Chapter 6
APRIL 20	MON	16	SENSORY SYSTEMS	Chapter 6
APRIL 21	TUES	17	MIDTERM EXAM #1	
APRIL 22	WED	18	NERVOUS SYSTEMS	Chapter 7
APRIL 23	THUR	19	NERVOUS SYSTEMS	Chapter 7
APRIL 24	FRI	20	NERVOUS SYSTEMS	Chapter 7
APRIL 27	MON	21	HORMONES & CELL SIGNALING	Chapter 3
APRIL 28	TUES	22	ENDOCRINE & NEUROENDOCRINE SYSTEMS	Chapter 3
APRIL 29	WED	23	ENDOCRINE & NEUROENDOCRINE SYSTEMS	Chapter 3
APRIL 30	THUR	24	MOVEMENT & MUSCLES	Chapters 5 & 12
MAY 1	FRI	25	MOVEMENT & MUSCLES	Chapters 5 & 12
MAY 4	MON	26	MOVEMENT & MUSCLES	Chapters 5 & 12

MAY 5	TUES	27	OXYGEN & CARBON DIOXIDE PHYSIOLOGY	Chapter 9
MAY 6	WED	28	OXYGEN & CARBON DIOXIDE PHYSIOLOGY	Chapter 9
MAY 7	THUR	29	RESPIRATORY SYSTEMS	Chapter 9
MAY 8	FRI	30	RESPIRATORY SYSTEMS	Chapter 9
MAY 11	MON	31	RESPIRATORY SYSTEMS	Chapter 9
MAY 12	TUES	32	MIDTERM EXAM #2	
MAY 13	WED	33	RESPIRATORY SYSTEMS	Chapter 9
MAY 14	THUR	34	CIRCULATORY SYSTEMS	Chapter 8
MAY 15	FRI	35	CIRCULATORY SYSTEMS	Chapter 8
MAY 18	MON	36	CIRCULATORY SYSTEMS	Chapter 8
MAY 19	TUES	37	CIRCULATORY SYSTEMS	Chapter 8
MAY 20	WED	38	ION & WATER BALANCE	Chapter 10
MAY 21	THUR	39	ION & WATER BALANCE	Chapter 10
MAY 22	FRI	40	ION & WATER BALANCE	Chapter 10
MAY 25	MON	41	MEMORIAL DAY - NO CLASSES	
MAY 26	TUES	42	ION & WATER BALANCE	Chapter 10
MAY 27	WED	43	ION & WATER BALANCE	Chapter 10
MAY 28	THUR	44	THERMAL PHYSIOLOGY	Chapter 13
MAY 29	FRI	45	THERMAL PHYSIOLOGY	Chapter 13
JUNE 1	MON	46	THERMAL PHYSIOLOGY	Chapter 13
JUNE 2	TUES	47	THERMAL PHYSIOLOGY	Chapter 13
JUNE 3	WED	48	GLOBAL CLIMATE CHANGE	
JUNE 4	THUR	49	FINAL REVIEW & WRAP UP	
JUNE 8	MON		FINAL EXAM (6:00 - 8:00PM)	

1) The syllabus and lecture schedule are subject to change to accommodate student interests. Changes to the syllabus or topic schedule will be announced in class.

2) Reading refers to reference chapters and pages on a particular topic in *Principles of Animal Physiology, 2nd edition*