



**COURSE SYLLABUS**  
**BZ 401 Comparative Animal Physiology**  
**SPRING 2024**

**Instructor Information**

Name: Dr. Kate Wilsterman (*pronouns: she/her/hers*)

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Office Hours: Wed 2:00 PM – 4:00 PM

Name: Dr. Cory Williams (*pronouns: he/him/his*)

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Office Location: Biol 236

Office Hours: Fri 11:00 AM - 12:00 PM

**Meets**

Tuesdays & Thursdays 11:00 AM – 12:15 PM

YATES 206

**Website**

The course website is administered through Canvas at <https://canvas.colostate.edu/>. Check the website for announcements, grades, and to obtain copies of lecture slides, handouts, and assignments.

**Prerequisites for Course**

BZ 214 Animal Biology – Vertebrates

-or-

BZ 220 Evolution

**Textbook**

Animal Physiology, Fifth Edition, by Hill, Cavanaugh, and Anderson

ebook ISBN 9780197553619

Casebound ISBN 9780197552438

Loose-leaf print option ISBN 9780197553596

**Alternative Textbook**

Animal Physiology, Fourth Edition, by Hill, Wyse and Anderson

Casebound: ISBN: 978-1-60535-471-2

Looseleaf (3 hole punched format): ISBN:978-1-60535-594-8

**Course Description**

Physiological mechanisms of digestion, metabolism, osmoregulation, excretion, circulation, and respiration in vertebrate and invertebrate animals.

### **Student Learning Outcomes**

*As a result of successfully completing this course, the student will be able to do the following:*

- A. Explain how energy is acquired, transformed, and transferred to maintain life.
- B. Describe the major physiological regulatory systems (cardiopulmonary, renal, endocrine) and provide examples of homeostatic function within each.
- C. Compare and contrast core physiological systems (e.g., cardiovascular) among vertebrate lineages.
- D. Predict how some physiological perturbation will affect function of specific organ systems (homeostasis).
- E. Integrate the principles, facts and theories presented in this course with subject matter from various other courses and life situations.
- F. Design and justify an experiment to test concepts or ideas important to animal physiology.

### **Instructional Methods**

This course draws upon lecture, literature, group exercises, and discussion to teach physiological principles and their application. In-class group exercises will encourage problem solving and independent thinking. Lectures will be interactive and therefore attendance is mandatory – failure to attend lectures will impact your grade (see below). Several lecture sessions will be devoted to discussions of primary literature and peer-to-peer learning. A handout will be provided on Canvas for the pre-discussion Perusall assignments and for the post-discussion written assignments.

### **Assessment**

Lecture Quizzes	150 pts (25pts each for top 6 of 8)
Group 5-minute writes	50 pts (5pts each for top 10 of 16)
Pre-Discussion Section Perusall	100 pts (25 pts each for 4)
In-class Discussion	100 pts (25 pts each for 4)
Post-discussion written component	200 pts (50 pts each for 4)
Exam #1	200 pts
Exam #2	200 pts
Total	1000 pts

## Grading

Grades will be assigned based on the percentage of points earned in class. Grades will not be assigned on a curve. ***No extra credit assignments are available.***

GRADE	RANGE
A+	100% to 96.67%
A	<96.67% to 93.33%
A-	<93.33% to 90.0%
B+	<90.0% to 86.67%
B	<86.67% to 83.33%
B-	<83.33% to 80.0%
C+	<80.0% to 76.67%
C	<76.67% to 70.0%
D	<70.0% to 60.0%
F	<60.0% to 0.0%

## Behavioral Expectations

Classroom discussion should be civilized and respectful to everyone and relevant to the topic we are discussing. Classroom discussion is meant to allow us to hear a variety of viewpoints. This can only happen if we respect each other and our differences. Please help us in providing a welcoming and inclusive environment to enhance student and learning. Please use inclusive language and be respectful to your peers. Rude, condescending, or derogatory remarks will not be tolerated. Please review the [core rules of netiquette](#) for some guidelines and expectations on how to behave in an online learning environment. Students are expected to adhere to the Academic Integrity Policy of the Colorado State University General Catalog and the Student Conduct Code.

## Academic Integrity & CSU Honor Pledge

This course will adhere to the [CSU Academic Integrity/Misconduct](#) policy as found in the General Catalog and [the Student Conduct Code](#).

Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity, and the personal and social integrity of which academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, we will ask that you affirm the CSU Honor Pledge as part of completing your work in this course.

## Lectures

Class attendance is required for lectures. Lectures will provide material beyond what is covered in the textbook and will require in class participation. The lectures also provide an opportunity for announcements about upcoming assignments and/or changes to the course schedule.

## Missing Lectures

If you are unable to attend the lecture in person (e.g., due to sickness), contact the instructor as soon as possible and arrangements will be made for remote access to the lecture. This procedure is only to be used where necessary (i.e., students may not simply elect to attend remotely). During the semester, there will be 8 lecture quizzes – only the top 6 (of 8) quiz scores a student receives will count towards their quiz grade. Make-up



quizzes will only be available if a student can document legitimate reasons for missing more than 2 quizzes. Otherwise, missed quizzes count towards one of your dropped quizzes. If a student is attending remotely (for a university approved absence), they will take the quiz in real-time and submit using Canvas. Additionally, over the course of the semester, there will be 16 5-minute writes (5MW). These 5MWs are short, written responses to questions during lectures that you will typically work on as a group. These 5MWs will help you to identify what elements of the lecture we are trying to emphasize and will provide us with feedback on your understanding of course content. Each 5MW completed will provide the student with 5 points (up to a maximum of 50 points). No make-ups will be provided for 5MWs unless documentation of legitimate reasons for missing more than six 5MWs is provided. Finally, there will be 4 paper discussions – you must read the paper and complete the Perusall assignment prior to class, attend lecture, take the reading quiz, participate in the discussion, and complete the post-discussion written assignment. If it is evident that you did not read the paper, attend lecture, or participate in the discussion, you will have to do an additional make-up written assignment in place of the oral discussion.

### Missing Exams

Exams must be taken on their scheduled date. You must notify the instructor as soon as possible if you anticipate a conflict with an exam. Makeup exams will only be given to students with a university approved absence, with documented evidence provided. Makeup exams will be given at a time of the instructor's choosing. If you anticipate missing an exam due to illness, you must contact the instructor by email before the exam begins (if at all possible). In the event you are unable to attend in person (i.e., due to Covid exposure), then you must notify the instructor as soon as possible so alternative arrangements can be made. If you belong to any University sponsored group, we must be informed of known conflicts with exams with a letter signed by an appropriate authority **by the beginning of the second week of classes.**



The Lecture schedule for Spring 2024 is plastic and subject to change:

Week	Date	Topic	Heads-up	Readings
1	16-Jan	Welcome & Introduction		
	18-Jan	Intro to Physiol: Homeostasis		Ch 1
2	23-Jan	Energy & Metabolism		Ch 7
	25-Jan	Cellular Metabolism	QUIZ	Ch 8
3	30-Jan	Daily Energy Expenditure		Ch 9
	1-Feb	Thermal Physiology	QUIZ	Ch 10
4	6-Feb	<b>Paper 1 - Larson et al 2013</b>		
	8-Feb	Thermal Physiology		Ch 10-11
5	13-Feb	Hibernation & Daily Torpor		Ch 11
	15-Feb	Feeding & Digestion	QUIZ	Ch 6
6	20-Feb	Feeding & Digestion		Ch 6
	22-Feb	<b>Paper 2 - Sommer et al 2016</b>		
7	27-Feb	Water and Salt Physiology		Ch 27-28
	29-Feb	Water and Salt Physiology	QUIZ	Ch 28-29
8	5-Mar	Other Terrestrial Adaptations		Ch 30
	7-Mar	<b>Exam I</b>		
	<b>Mar 11-15</b>	<b>Spring Break</b>		
9	19-Mar	Gas Exchange		Ch 22-23
	21-Mar	O <sub>2</sub> & CO <sub>2</sub>	QUIZ	Ch 24
10	26-Mar	O <sub>2</sub> & CO <sub>2</sub>		Ch 24-25
	28-Mar	Circulation & Heart		Ch 25
11	2-Apr	<b>Paper 3 - Robertson et al. 2019</b>		
	4-Apr	Action Potentials & Neurophysiology	QUIZ	Ch 12-13
12	9-Apr	Action Potentials & Neurophysiology		Ch 19
	11-Apr	Muscle Physiology	QUIZ	Ch 20-21
13	16-Apr	Muscle Physiology		Ch 20-21
	18-Apr	<b>Paper 4 - Rowe et al. 2013</b>		
14	23-Apr	Endocrinology		Ch 14-16
	25-Apr	Endocrinology	QUIZ	Ch 14-16
15	30-Apr	Reproduction		Ch 17
	2-May	Reproduction		Ch 17
	<b>8-May</b>	<b>Exam II (6:20-8:20 PM)</b>		



### Disabilities

Any student eligible for and needing reasonable accommodations due to a disability is requested to speak with (or email) the instructor during the first two weeks of classes. Please contact CSU Student Disability Center ((970) 491-6385; [sdc\\_csu@colostate.edu](mailto:sdc_csu@colostate.edu), TILT Building, room 121) to provide documentation of your disability and to arrange for support services. If disability services are delayed in making arrangements for you, please let us know and we will work with you to provide reasonable accommodations. Please be aware that if you are taking exams at the CSU Student Disability Center, it is your responsibility to make arrangements with them to take the exam on the scheduled date.

### Student Protections

Every qualified student is welcome in our classroom. As needed, we are happy to work with you, disability services, veterans' services, university athletics, etc to find reasonable accommodations. Students at this university are protected against sexual harassment and discrimination (Title IX), and minors have additional protections. As required, if we notice or are informed of certain types of misconduct, then we are required to report it to the appropriate authorities.

### Other Resources

Please use the QR code to the right to access additional policy information that may be relevant to your courses and resources to help with various challenges you may encounter.



*Colorado State University acknowledges, with respect, that the land we are on today is the traditional and ancestral homelands of the Arapaho, Cheyenne, and Ute Nations and peoples. This was also a site of trade, gathering, and healing for numerous other Native tribes. We recognize the Indigenous peoples as original stewards of this land and all the relatives within it. As these words of acknowledgment are spoken and heard, the ties Nations have to their traditional homelands are renewed and reaffirmed.*

*CSU is founded as a land-grant institution, and we accept that our mission must encompass access to education and inclusion. And, significantly, that our founding came at a dire cost to Native Nations and peoples whose land this University was built upon. This acknowledgment is the education and inclusion we must practice in recognizing our institutional history, responsibility, and commitment.*