



BZ 110: Principles of Animal
Biology Syllabus
Spring 2023
Section 001: T/Th 3:30-4:45 pm
Yates 104

Meet your team



Learning assistants:

[CSU Learning Assistants Program](#)

BZ 110 Group Learning Sessions:
Mon-Wed, 5-9 pm; TILT (Great Hall)
Learning assistants assist during
class, lead group learning sessions
and exam reviews, and tutor
students.

Instructor:

Karen Raines, Ph.D. (she, her, hers)

Email: karen.raines@colostate.edu

Office: Biology 208

Office hours: T/Th 2-2:30 M 3-4 or by
appointment.

Dr. Raines is available to help with understanding
course content and assignments and assist with
study strategies.

Principles of Community

As part of the CSU community, we affirm all students in and out of the classroom. We welcome and value all voices, identities, and abilities.

[CSU Principles of Community](#)

Academic Integrity

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, you will be asked to respond to the following statement on your exams:

"I have not given, received, or used any unauthorized assistance."

[CSU University Policies Webpage](#)

Course Description

Principles of Animal Biology is organized into 3 parts: common life processes, survey of major animal phyla, and animal form and function. Part 1, common life processes, will introduce cell and tissue structure and function, cell division, Mendelian genetics, the genetic basis of evolution and the evolutionary and ecological principles that unify all life. Part 2, survey of animals, will emphasize evolutionary and ecological relationships, aspects of animal organization that unite major animal phyla, and animal adaptations. Part 3, animal form and function, will detail select organ systems in invertebrates and vertebrates.

Course Objectives

Upon successful completion of this course, students will be able to:

- distinguish prokaryotic and eukaryotic cells
- recognize and describe structures of a eukaryotic cell
- differentiate types of tissues found in animals
- model genetic mechanisms, sex determination and cell division
- interpret evolutionary mechanisms that lead to speciation
- illustrate ecological processes at work in animal populations
- consider threats to global biodiversity
- classify animals using taxonomic criteria
- analyze animal form and function
- survey major animal phyla

APPRECIATE BIODIVERSITY! [Biodiversity](#)

Textbook and McGraw Hill Connect

The textbook for the course is Zoology, 11th ed, by Miller and Tupper. To reduce your course material cost, the CSU Bookstore participates in the **Inclusive Access Program** using Connect for Zoology which will include online homework and access to the full text. **Note: All enrolled students are automatically included in this program, the cost is about \$66.**



Connect for Zoology Access Instructions

- You will use McGraw's courtesy access until the Add/Drop date.
- Use the following URL to obtain your free trial access:
<https://connect.mheducation.com/class/k-raines-bz-110-section-001-spring-2023>
- If you (the student) choose to opt out of the program provided by the CSU Bookstore, you must purchase the access code on your own.
- If you choose **not to opt out a code will be emailed to you** which will provide you access to the class materials for the remainder of the semester after Add/Drop date.
- PLEASE check your email (colostate.edu address) after Add/Drop date to receive the full code.

Instructional Methodology

We will take a team approach to our study of zoology. Students will be asked to prepare for class by completing chapter assignments the night before each class session. During class there will be instructor presentations, group assignments, videos, discussions, and occasionally guest speakers. Ample time will be given in class for completion of group assignments and canvas quizzes. [CSU Canvas](#)



Exams

Exams will consist of 60 multiple choice questions. The lowest exam will be dropped. **There will be no makeup exams.** The final exam will be a mandatory cumulative exam.

Methods of Evaluation

Grade Points	Grade Percentage
SmartBook assignments: 25 (5 points each) 125	13
Canvas Quizzes 10 (10 points each) 100	11
In-class Assignments ~12 (10 points each) 120	12
Exams: 4 (120 points each)-lowest exam dropped: 360	38
Cumulative Final Exam: 240	26
Total Points Possible: 945	100%

Grades

To calculate final course grades, the total number of points earned (exam scores – lowest exam + SmartBook assignments + In-class assignments + Canvas quizzes + Final exam) will be divided by total points possible (**945**). The average will be multiplied by 100 and the grades will be assigned using the following scale:

Letter Grade	Numerical Equivalent
A+	98-100
A	93-97
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	70-76
D	60-69
F	0-59

NEED HELP?

[CSU University Policies Webpage](#)

If you are feeling depressed, overwhelmed, or experiencing a mental health emergency, counseling services has trained professionals who can help. **Contact 970-491- 6053 or go to 3rd floor of the CSU Health and Medical Services building.** If you are concerned about a friend or peer, tell someone by calling 970-491-1350 to discuss your concerns with a professional who can discreetly connect the distressed individual with the proper resources (<http://safety.colostate.edu/tell-someone.aspx>). **In the case of a life-threatening emergency, call 911.**

Other resources include:

TELEPHONE SERVICES

CSU Health Network On-Call Counselor: (970) 491-7111 – The on-call staff member will typically return the call within 15 minutes.

Colorado Crisis Services/Suicide Prevention Lifeline: (970) 494-4200 or (844) 493- TALK (8255)

National Suicide Prevention Lifeline: (800) 273-TALK (8255)

Transgender Suicide Prevention Hotline (Trans Lifeline): (877) 565-8860

24/7 WALK-IN MENTAL HEALTH SERVICES

SummitStone Community Crisis

Clinic 1217 Riverside Ave., Fort Collins, CO 80524 (970) 494-4200

24/7 EMERGENCY ROOM SERVICES

Poudre Valley Hospital

1024 S Lemay Ave, Fort Collins, CO
80524 (970) 495-7000

Banner Fort Collins Medical Center

4700 Lady Moon Dr., Fort Collins, CO
80528 (970) 821-4000

UCHealth Emergency Room –

Harmony 4630 Snow Mesa Dr., Fort
Collins, CO 80528 (970) 237-8100

Principles of Animal Biology

Learning Objectives

January 16-February 9

Common Life Processes

Distinguish prokaryotic and eukaryotic cells.

Recognize and describe structures of a eukaryotic cell.

Differentiate types of tissues found in animals.

Model genetic mechanisms, sex determination and cell division.

Interpret evolutionary mechanisms that lead to speciation.

Schedule

Lecture Date(s)	Chapter #: Topic	SmartBook due date
Jan 17	1: Intro to Zoology	Jan 20
Jan 19	2: Cell Structure & Function	Jan 18
Jan 24,26 & 31	3: Genetics	Jan 23
Feb 2	4: Evolution: History & Evidence	Feb 1
Feb 7	5: Evolution: Gene Frequencies	Feb 6
Quiz 1 (Jan 26)		
Quiz 2 (Feb 2)		
Exam 1, chapters 1-5 (Feb 9)		

February 13-March 2

Common Life Processes & Survey of Major Animal Phyla I

Illustrate ecological processes at work in animal populations.

Consider threats to global biodiversity.

Classify animals using taxonomic criteria

Compare protostomes and deuterostomes.

Examine the animal phyla Porifera, Cnidaria and Platyhelminthes.

Distinguish the sponge classes Calcarea, Hexactinellida and Demospongiae.

Distinguish the cnidarian classes Anthozoa, Scyphozoa and Hydrozoa.

Distinguish the flatworm classes Turbellaria, Trematoda and Cestoidia.

Describe life cycles of parasitic flatworms.

Lecture Date	Chapter #: Topic	SmartBook due date
Feb 14	6: Ecology	Feb 13
Feb 16	7: Organization & Phylogeny	Feb 15
Feb 21	8: Animal Origins & Highlights	Feb 20
Feb 23	9: Phyla Porifera & Cnidaria	Feb 22
Feb 28	10: Phylum Platyhelminthes	Feb 27
Quiz 3 (Feb 16)		
Quiz 4 (Feb 23)		
Exam 2, chapters 6-10 (Mar 2)		

Learning Objectives

March 6-30

Survey of Major Animal Phyla II

Examine the animal phyla Mollusca, Annelida, Nematoda and Arthropoda.

Distinguish the molluscan classes Gastropoda, Bivalvia and Cephalopoda.

Distinguish the annelid classes Errantia and Sedentaria.

Describe life cycles of parasitic nematodes.

Distinguish the arthropod subphyla Trilobitomorpha, Chelicerata, Crustacea, Myriapoda and Hexapoda.

Distinguish the chelicerate classes Merostomata and Arachnida.

Distinguish the crustacean classes Malacostraca and Maxillopoda.

Distinguish the myriapod classes Diplopoda and Chilopoda.

Distinguish the hexapod classes Entognatha and Insecta.

Discriminate the insect orders Coleoptera, Diptera, Lepidoptera and Hymenoptera.

April 3 - 20

Survey of Major Animal Phyla III

Examine the animal phyla Echinodermata and Chordata.

Distinguish the echinoderm classes Asterozoidea, Echinozoidea, Ophiurozoidea and Holothurozoidea.

Distinguish the chordate subphyla Urochordata, Cephalochordata and Craniata.

Detail the infraphylum Vertebrata.

Survey classes of fishes and nonmammalian tetrapods.

Analyze terrestrial adaptations of amniotes.

Schedule

Lecture Date	Chapter #: Topic	SmartBook due date
Mar 7	12: Phylum Annelida	Mar 6
Mar 9	13: Phylum Nematoda	Mar 8
Mar 21	11: Phylum Mollusca	Mar 20
Mar 23	14: Phylum Arthropoda Part I	Mar 22
Mar 28	15: Phylum Arthropoda Part II	Mar 27

Quiz 5 (Mar 9)

Spring Break (Mar 13-17)

Quiz 6 (Mar 23)

Exam 3, chapters 11-15 (Mar 30)

Lecture Date	Chapter #: Topic	SmartBook due date
Apr 4	16: Phylum Echinodermata	Apr 3
Apr 6	17: Phylum Chordata	Apr 5
Apr 11	18: Fishes	Apr 10
Apr 13	19: Amphibians	Apr 12
Apr 18	20: Non-avian Reptiles	Apr 17
Apr 18	21: Avian Reptiles	Apr 19

Quiz 7 (Apr 6)

Quiz 8 (Apr 13)

Exam 4, chapters 16-21 (April 20)

Learning Objectives

April 24-May 4

Survey of Major Animal Phyla IV & Animal Form and Function

Describe characteristics of the vertebrate class Mammalia.

Distinguish monotremes, marsupials and placental mammals.

Survey the mammalian orders Primates and Rodentia.

Contrast invertebrate and vertebrate mechanisms of gas exchange.

Compare open and closed circulatory systems.

Discriminate single loop and double loop circulation of vertebrates.

Analyze micronutrients and macronutrients of animals.

Discuss feeding strategies in invertebrates and vertebrates.

Describe invertebrate and vertebrate digestive tracts.

Explain benefits of sexual reproduction.

Illustrate reproductive strategies of invertebrates.

Distinguish vertebrate reproductive strategies.

Schedule

Lecture Date	Chapter #: Topic	SmartBook due date
Apr 25	22: Mammals	Apr 24
Apr 27	26: Gas Exchange & Respiration	Apr 26
May 2	27: Nutrition & Digestion	May 1
May 4	29: Reproduction	May 3

Quiz 9 (Apr 27)

Quiz 10 (May 4)

Cumulative Final Exam (May 8 at 9:40 am)

60 questions from exams 1-4

60 questions from chapters 22 & 26-29